APPENDIX N:
White-tailed Deer Management Plan

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WHITE-TAILED DEER (*ODOCOILEUS VIRGINIANUS*) MANAGEMENT PLAN

U.S. ARMY GARRISON ABERDEEN PROVING GROUND

ADELPHI LABORATORY CENTER

BLOSSOM POINT RESEARCH FACILITY

FEBRUARY 2021

ACRONYMS AND ABBREVIATIONS

ALC	Adelphi Laboratory Center
APG	Aberdeen Proving Ground
BCC	Biological Carrying Capacity
BPRF	Blossom Point Research Facility
CCC	Cultural Carrying Capacity
DODI	Department of Defense Instruction
FLIR	Forward Looking Infra-red
INRMP	Integrated Natural Resources Management Plan
MDNR	Maryland Department of Natural Resources
PLS	Planning Level Survey
USDA	U.S. Department of Agriculture
WCO	Wildlife Conservation Officer

WHITE-TAILED DEER (*ODOCOILEUS VIRGINIANUS*) MANAGEMENT PLAN

U.S. ARMY GARRISON ABERDEEN PROVING GROUND ADELPHI LABORATORY CENTER

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Executive Summary

The objective of this white-tailed deer (*Odocoileus virginianus*) management plan is to achieve goals set forth in the Integrated Natural Resources Management Plan (INRMP) for U.S. Army Garrison Aberdeen Proving Ground (APG) Adelphi Laboratory Center (ALC) and Blossom Point Research Facility (BPRF) related to Fish and Wildlife Management, Habitat Management, and Outdoor Recreation. The overriding goal is the development of management strategies that will maintain a sustainable level of 10 deer at ALC and 50 deer at BPRF.

Overabundance of deer is associated with problems such as deer and vehicle collisions, agricultural damage, lack of forest regeneration, detrimental impacts on other wildlife (especially birds), damage to residential landscapes, and the rising incidence of Lyme disease (NDTC 2009).

Surveys for white-tailed deer in April 2020 estimated at least 23 deer on ALC and 78 deer on BPRF. Since the surveys were conducted in early spring they do not take into account the fawns that were born in that spring and summer. According to recommendations from the U.S. Department of Agriculture (USDA) Wildlife Services and various scientific literature, a healthy ecosystem can support 15 to 20 deer per square mile without damage to the environment. The carrying capacity for deer can vary by factors such as weather and the type of vegetation that is present. In order to reach this goal, managed hunts will be conducted at BPRF and sharp shooting by the USDA Wildlife Services will be conducted at ALC on an as-needed basis. During years when hunts cannot be held or harvest numbers are low, sharp shooting can be used as an additional management option at BPRF. A secondary goal for both installations includes the repair and maintenance of the perimeter fences. Surveys of the deer population will be conducted yearly at ALC and BPRF to monitor the progress of these management activities.

Section 1 of this plan provides an introduction, management history, and life history of white-tailed deer. **Section 2** provides ALC deer population data, deer population carrying capacity, overpopulation issues, and ALC deer target population. **Section 3** provides the lethal and nonlethal management options. **Section 4** provides the deer management goals and objectives for ALC and BPRF.

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WHITE-TAILED DEER MANAGEMENT PLAN

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1. Introduction

This section provides information on the location of for U.S. Army Garrison Aberdeen Proving Ground (APG) Adelphi Laboratory Center (ALC) and Blossom Point Research Facility (BPRF), the life history of white-tailed deer and the management history of deer on ALC and BPRF.

1.1 Objective

The objective of this white-tailed deer (*Odocoileus virginianus*) management plan is to achieve goals set forth in the Integrated Natural Resources Management Plan (INRMP) for ALC and BPRF related to Fish and Wildlife Management, Habitat Management, and Outdoor Recreation. The overriding goal is the development of management strategies that will maintain a sustainable level of to 10 deer at ALC and 50 deer at BPRF.

The INRMP supports the installation's commitment to sustaining a healthy environment in which to carry out its mission. It outlines conservation efforts for the natural resources at ALC and BPRF and will aid in ensuring compliance with applicable environmental laws and regulations.

Preparation and implementation of the INRMP is required by the Sikes Act (16 USC 670a *et seq.*), Department of Defense Instruction (DODI) 4715.03 (*Natural Resources Conservation Program*) (DoD, 2011), Army Regulation (AR) 200-1 (*Environmental Protection and Enhancement*) (DA, 2007), and Army Memorandum (21 March 1997), *Army Goals and Implementing Guidance for Natural Resources Planning Level Survey (PLS) and Integrated Natural Resources Management Plans (INRMP).*

Coordination with Maryland Department of Natural Resources

The Maryland Department of Natural Resources (MDNR) oversees the management and use of the state's forests and parks, fisheries, and wildlife. It has statewide responsibilities for assessing and restoring water quality and habitat, managing and regulating recreational boating, fishing and hunting, and managing wetlands, wildlife, and rare, threatened, and endangered species.

ALC coordinated with Mr. George Timko, Assistant Deer Project Leader, MDNR Wildlife and Heritage Services for the development of this plan. Mr. Timko provided technical information and assistance for the development of this plan (Timko 2015).

1.2 Location

ALC

ALC is 207 acres and is located adjacent to Hillandale, MD, a suburban residential community (**Figure 1-1**). The land adjacent to the installation has a variety of land use designations. The GSA owns a large business complex adjacent to the ALC to the north and slightly west. ALC shares a fence line with this property and it contains a deer herd.

Areas to the east and south of the installation are primarily suburban residential in nature. Paint Branch Park is immediately south of the installation. Prince George's and Montgomery Counties are highly urbanized areas surrounding Washington, D.C. ALC is located just outside the Capital Beltway,

Figure 1-1. Adelphi Laboratory Center

which is heavily developed by government agencies, business complexes, commercial areas, and residential communities. Within the area of ALC, there are also several greenways along stream corridors; the greenway for Paint Branch is adjacent to ALC as Paint Branch flows through the installation. About 120 acres of ALC provide habitat for white-tailed deer.

BPRF

BPRF is 1,600 acres and is located on the Cedar Neck Point, a peninsula adjacent to agricultural lands (**Figure 2-1**). Charles County is located in southern Maryland between the Patuxent and Potomac Rivers. This county is largely comprised of agricultural lands and forest lands with some residential and urban development. The area surrounding BPRF is presently zoned for a mixture of agricultural and rural residential uses. Most of the land north of the facility has been designated as an "Agricultural Conservation District." The Charles County Comprehensive Master Plan uses this classification to specify property on which only one residential dwelling per every five acres can be placed. The shoreline along Cedar Neck Point, not including the portion on the BPRF, is designated as a "Resource Protection District." This land use classification carries restrictions on new development at one residential dwelling per every 20 acres. This area was classified in compliance with the State of Maryland's Chesapeake Bay Critical Area Law. Most of the 1,600 acres of BPRF provide habitat for white-tailed deer.

1.3 Life History

Physical Description

Native white-tailed deer live in all Maryland counties across a wide range of landscapes. The white-tailed deer's distinctive white tail and white rump patch is readily visible when they bound away from real or perceived danger. White-tailed deer can sprint up to 35 miles per hour and are able to vertically leap over 8 feet (MDNR 2009).

Adult white-tailed deer are about 3 feet tall at the front shoulder. Yearling whitetail bucks (1.5 year old males) weigh an average of 135 pounds and yearling does (females) average 120 pounds in Maryland. During the warm months, deer possess reddish-brown hair. A grayish-brown coat with a thick undercoat replaces the reddish hair during the cold time period (MDNR 2009).

Whitetail bucks grow and shed antlers each year. On rare occasions females may exhibit antlers. Bucks use their antlers to establish dominance over other bucks during breeding season. Antlers, which are composed of true bone, begin to grow in late March and early April. The growing antlers are covered with skin and blood vessels called velvet. As testosterone levels increase for the fall breeding season, the antlers harden and the velvet is rubbed off. Antlers typically are shed in January and February. Bucks in poor physical condition tend to drop their antlers first (MDNR 2009).

Habitat

Maryland white-tailed deer habitat includes most parts of the state except for open water and the intensely developed urban areas (i.e., downtown Baltimore). Deer thrive in landscapes intermixed with wooded/brushy sections and open areas such as cropland, pasture or landscaped yards.

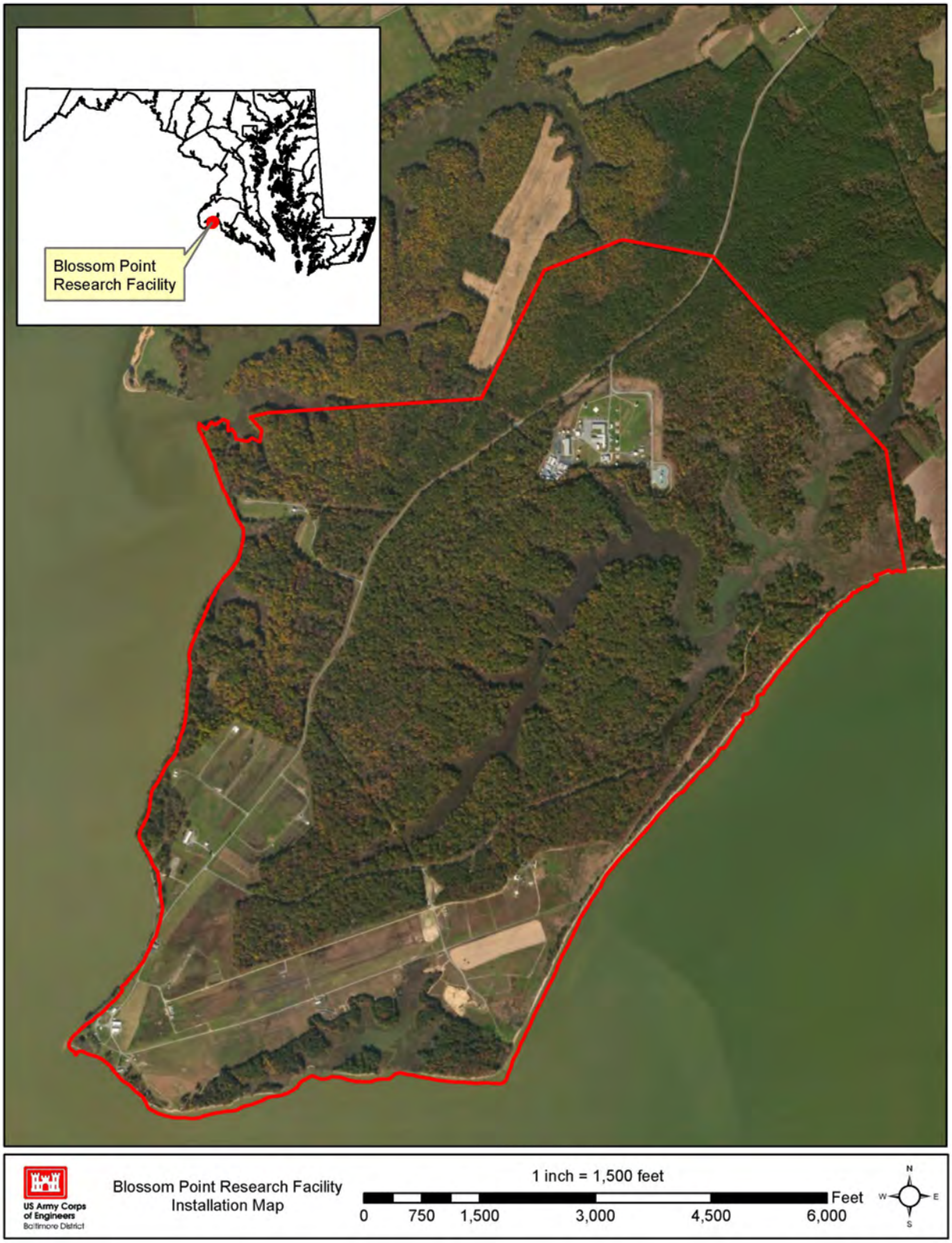

Figure 1-2. Blossom Point Research Facility

Deer use the wooded areas for food and cover while open areas provide food. Landscapes with a bountiful interface of forested and open areas provide prime deer habitats (MDNR 2009).

Suburban sprawl and exurban growth can create ideal habitat conditions for white-tailed deer. When forested areas are converted into housing developments, portions are cleared for roads and home sites, while other sections remain forested. When open farmland is transformed into residential areas, new homeowners plant trees, shrubs and perennials. Both of these types of residential conversions provide excellent deer habitat (MDNR 2009).

Home Range

The typical annual average home range for white-tailed deer is considered no larger than 1 square mile (640 acres). However, sex, age and habitat quality can influence an individual deer's home range size. Yearling males will typically move many miles before establishing a stable home range while adult females usually travel much shorter distances before doing so. Deer in quality habitat typically travel less than deer in poorer habitat (MDNR 2009).

Food Habits

Deer feed on nuts, berries, leaves, woody shoots, plant stems, grasses and cultivated crops. Some of their preferred foods include acorns, honeysuckle, poison ivy, greenbrier, young tree seedlings and mushrooms. Soybeans, corn and ornamental shrubs are several of their favorite foods planted by humans (MDNR 2009).

Deer have a four-chambered stomach that is required to digest the vegetation they eat. Food first travels to the rumen where bacteria and protozoa begin the digestive process. The reticulum then circulates food back to the mouth so deer can chew it more thoroughly. The omasum functions as a pump and directs the partially digested food from the reticulum to the abomasum. This final chamber functions as a true stomach and completes the digestive process (MDNR 2009).

Reproduction

The white-tailed deer breeding season in Maryland begins in October and continues until about mid-December. The shortening of the day length (photo period) triggers the breeding season. Most does become pregnant during the first half of November. Any receptive doe that does not become pregnant will recycle back into estrous in about 28 days and will mate again (MDNR 2009).

Fawns are born during May and June after a gestation period of about 200 days. Yearling does usually give birth to single fawns. Mature does in good physical condition frequently produce twins. Newborn spotted fawns remain hidden and solitary for about three weeks. The doe initially visits its young only two to three times per day in order to nurse and groom the offspring. When the fawn is strong enough, it will follow the doe and begin to sample the foods she eats. Fawns can live independently of the doe at about 2 months old (MDNR 2009).

Mortality

Hunting is the primary cause of mortality for white-tailed deer in most rural sections of Maryland. Other deer mortality factors include collisions with vehicles, diseases, parasites, malnutrition and

accidental injuries. Where hunting is limited or not possible (i.e., some suburban and urban locales), vehicle collisions, diseases and malnutrition often become the primary mortality factors (MDNR 2009).

In pre-Colonial Maryland, wolves, mountain lions and Native Americans served as effective predators of white-tailed deer. All were capable of taking any age class of healthy deer (fawns or adults). Today, bears, bobcats and coyotes (a recent immigrant to Maryland) are the only remaining non-human predators of deer in Maryland and they primarily take fawns or sick/injured adults. While these predators can have an effect on the deer population at localized level, they represent a very small portion of overall deer mortality on a landscape scale. Humans remain the most effective modern era predator (MDNR 2009).

1.4 Management History on ALC and BPRF

ALC

Due to security concerns, ALC is not opened to the public for any recreation including hunting. Due to the suburban location of the installation, only archery hunting by employees could be permitted. There has never been an interest in archery hunting by employees on ALC.

From 2004 to 2005, ALC participated in a deer contraception study with the USDA Wildlife Services. The deer on ALC were the control animals in the study and did not receive the contraceptive drugs.

In January and February 2016, 49 deer were removed via the USDA Wildlife Services sharp shooting program. In 2018, 24 deer were harvested during the same program with USDA. See **Appendix E** for a copy of the letter reports.

BPRF

Historically managed hunts took place on BPRF from 1993 to 2011. During 2001, hunts did not take place. Due to budget cuts and staff reductions, a hunt did not take place on BPRF in 2012, 2013 or 2014. Currently hunting of white-tailed deer at BPRF is conducted from October to December through a fire arms season exemption issued by MDNR. The MDNR Becoming an Outdoors Woman (BOW) deer hunting work shop is usually held at BPRF in November.

Hunting is conducted from stationary stands which have been constructed and are maintained by BPRF personnel. Shotgun is the only weapon authorized for hunting at BPRF and slug is the only ammunition allowed. Hunts were resumed in November 2015 with two hunts per year. In 2019, the program was changed due to the low number of deer being harvested from two weekend hunts. The program now allows for hunting during business hours as the testing schedule permits. The MDNR BOW program hunt is also hosted in November. Due to COVID-19, the program was reduced again in 2020. **Table 1-1** provides the number of deer harvested each year through the managed hunting program.

Table 1-1. BPRF Deer Harvest Data

Year	Number of Deer Harvested
1993	106
1994	76
1995	78
1996	61
1997	76
1998	38
1999	50
2000	41
2001	No Hunt
2002	57
2003	30
2004	23
2005	39
2006	59
2007	27
2008	26
2009	26
2010	36
2011	26
2015	20
2016	20
2017	12
2018	9
2019	32
2020	21

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2. ALC and BPRF White-tailed Deer Population

This section provides information on the white-tailed deer population on ALC and BRPF. It also discusses carrying capacity and the consequences of deer overpopulation.

2.1 White-tailed Deer Population Surveys at ALC and BPRF

White-tailed deer surveys are conducted by the USDA Wildlife Services using a thermal imaging camera (also known as forward looking infra-red or FLIR) and spotlights. The FLIR allows the user to see deer that are far into the woods. The surveys are conducted just after sunset via a vehicle using all drivable roads, as well as any accessible woodlot lanes. Surveys conducted in April 2020 estimated at least 23 deer on ALC and 78 deer on BPRF. Since the surveys were conducted in early spring they do not take into account the fawns that were born in that spring and summer. **Appendix A** provides copies of the report letters from these surveys from the USDA to ALC. **Figure 2-1** provides a view of the FLIR camera during the 2015 ALC survey. **Figure 2-2** shows a large group of deer on ALC during the 2015 survey.

Figure 2-1. View of Deer at ALC in the FLIR Camera

Figure 2-2. Deer on ALC during the 2015 Survey

2.2 Population Growth and the Concept of Carrying Capacity

Deer populations have the potential for rapid growth. This is an evolved response to high mortality often related to predation. Under normal circumstances, does two years old or older produce twins annually, while yearling does typically produce single fawns. On excellent range, adult does can produce triplets, yearlings can produce twins and fawns can be bred and give birth during their first year of life. In the absence of predation or hunting, this kind of reproduction can result in a deer herd doubling its size in one year. This fact was illustrated on the 1,146 acre George Reserve in southern Michigan where biologists at the University of Michigan have been studying the deer population since 1928. The deer herd grew from six deer in 1928 to 162 deer by 1933. In 1975, the George Reserve herd grew from 10 deer to 212 deer in 5 years (NDTC 2009).

There are natural limits to the number of deer that a given parcel of habitat can support. These limits are a function of the quality and quantity of deer forage and/or the availability of good winter habitat. The number of deer that a given parcel can support in good physical condition over an extended period of time is referred to as "Biological Carrying Capacity" (BCC). Deer productivity causes populations to exceed BCC, unless productivity is balanced by mortality. When BCC is exceeded, habitat quality decreases with the loss of native plant species and herd physical condition declines. Biologists use herd health indices and population density indices to assess the status of a herd relative to BCC (NDTC 2009).

The importance of compatibility between land use practices and deer population size in urban, suburban, forested, and agricultural areas justifies consideration of another aspect of carrying capacity. "Cultural Carrying Capacity" (CCC) can be defined as the maximum number of deer that can coexist compatibly with local human populations. Cultural carrying capacity is a function of the sensitivity of local human populations to the presence of deer. CCC can be considerably lower than BCC (NDTC 2009).

The sensitivity of the human population to deer is dependent on local land use practices, local deer density and the attitudes and priorities of local human populations. Excessive deer/vehicle collisions, agricultural damage and homeowner/gardener complaints all suggest that CCC has been exceeded. It is important to note that even low deer densities can exceed CCC; a single deer residing in an airport-landing zone is too many deer. As development continues in many areas of North America, the importance of CCC as a management consideration increases (NDTC 2009).

2.3 Consequences of Deer Overpopulation

As previously indicated, deer populations have the ability to grow beyond BCC. When BCC is exceeded, competition for limited food resources results in overbrowsing. Severe overbrowsing alters plant species composition, distribution, and abundance, and reduces understory structural diversity (due to the inability of seedlings to grow beyond the reach of deer). These changes have a negative impact on other wildlife species, which also depend on healthy vegetative systems for food and cover. In time, overbrowsing results in reduced habitat quality and a long-term reduction in BCC (NDTC 2009).

During the 2015 summer plant surveys on ALC, it was observed that the understory in many parts of the forest, especially on the west side of Paint Branch have been decimated by the overabundance of deer. These areas contained no native tree seedlings or understory. An increase in nonnative and invasive plant species has also been observed. Deer do not favor nonnative plant species which allows for the rapid establishment of these plants.

The same conditions were observed during the 2015 plant surveys on some parts of BPRF. Many areas with no oak *(Quercus* spp.) seedlings due to deer browse were being taken over by American holly (*Ilex opaca*).

Coincident with overbrowsing is the decline in herd health. This decline is manifested in decreased body weights, lowered reproductive rates, lowered winter survival, increased parasitism, and increased disease prevalence. In the absence of a marked herd reduction, neither herd health nor habitat quality will improve, as each constrains the other. Such circumstances enhance the likelihood of mortalities due to disease and starvation (NDTC 2009).

The abundance and distribution of the blacklegged tick has been directly related to the size of the deer population. It has been estimated that over 90% of adult ticks feed on deer. Therefore, deer are key to the reproductive success of the tick. Deer transport blood-engorged female ticks into the property where they can lay thousands of eggs, increasing the number of larval ticks. Reservoir incompetent, deer do not infect feeding ticks with Lyme disease bacteria. Larvae of blacklegged ticks pick up the spirochetes when they feed on small animals, especially mice, which are reservoir competent hosts. Island or peninsular communities with extremely high deer densities have superabundant tick populations. Conversely, islands without deer do not appear to support the tick population (Stafford 2007).

Overabundance of deer also leads to a high frequency of deer/vehicle collisions. In 2014 and 2015, there were three deer hit by vehicles inside and just outside the gate of ALC. In 2015, one adult deer and one fawn were found dead by ALC personnel. In September 2015, another deer was found behind Building 207. It was most likey struck by a vehicle and it was euthanized by a Prince George's County Police Officer.

2.4 ALC and BPRF White-tailed Deer Target Population

Although the total acreage of ALC is 207 acres, there is approximately 120 acres of habitat available to white-tailed deer. The other acreage consists of buildings, paved surfaces, landscaping and other developed

areas. According to the USDA Wildlife Services, the property should have a deer herd no greater than 5 to 10 deer to reduce threats of deer-vehicle collisions and threats to the property's natural resources.

The total acreage of BPRF is 1,600 acres and most of the habitat is available to the deer. According to USDA Wildlife Services, the property should have a deer herd no greater than 50 deer to reduce threats of deer-vehicle collisions and threats to the property's natural resources.

3. Management Options

This section provides details on lethal and nonlethal management options for the white-tailed deer population on ALC and BPRF. These techniques were provided by the MDNR and can be found on its web site (MDNR 2015).

3.1 Nonlethal Deer Population Management

Lethal deer population control is limited in suburban and urban areas of Maryland by human safety concerns, differing public opinions on deer management policies, and local laws. As more areas of the state have become developed due to suburban sprawl, the need for deer control methods other than lethal ones has increased.

Some advantages of non-lethal methods are: widely available; easily applied; broadly accepted by members of society. Some disadvantages of non-lethal methods are the cost of the materials, the need for regular maintenance of some methods, the unsightly appearance of some methods, and their limited effectiveness.

Non-lethal methods do not reduce or control deer population numbers, but they can help reduce deer damage. Deer damage problems will continue to exist and will likely increase if uncontrolled deer populations increase over time.

When non-lethal methods are required, the following techniques can be effective at controlling the damage that deer can do. Measures should be taken before significant damage begins. Some techniques are more effective than others at deterring deer damage.

Other factors that determine the success of a deer damage abatement program are: the amount of other food resources available to deer, the number of deer occupying the area, and the ability of deer to acclimate to the damage management techniques. For the best results, a combination of non-lethal measures to reduce or alleviate the deer damage should be used.

Various deer management techniques that could be used on ALC or BPRF are listed below.

3.1.1 Exclusion

Exclusion methods prevent deer from accessing plants. Some methods reduce or eliminate deer damage. Exclusion methods include non-electric and electric fencing, and individual plant protection. For exclusion to be effective, the barriers must be properly installed and maintained, and must deny deer entry. Exclusion is considered to be one of the most effective methods to reduce deer damage, and when installed and maintained properly, can eliminate deer damage. Installation and maintenance of exclusion methods are additional costs that should be evaluated when considering exclusion as an option. Exclusion can be cost-effective over the long term, depending on the size of the area being treated and the value of protected plants. However, the unattractive appearance of some exclusion methods may preclude their use on landscaping plants.

Fencing

Fencing is the most reliable way to exclude deer from an area. It can last for many years, but requires occasional maintenance. Fencing should be considered for high value plantings that require year-round protection. For example orchards, landscape and tree nurseries, vineyards, and other high value plants require perennial protection. Fencing can be a practical, and cost-effective method for protecting small

landscapes, gardens and small orchards, and for large areas of high value crops. Because of the high cost, fencing is not a practical option for protecting large areas of crops of low value. Many different styles of fencing exist and specific information on fencing can be obtained from your local Cooperative Extension Service or Farm Service Agency.

Fencing can be costly to erect, and may require maintenance to remain effective, but it can be the most effective deterrent to deer damage. Gates, posts, and hardware are additional materials that may be needed, which will add to the cost of fencing an area. Installation and maintenance costs should also be considered before deciding on fencing as a deer damage deterrent.

Permanent fences can last for 30 years or longer, which can be particularly important when protecting perennial crops such as orchards, vineyards, landscape and tree nurseries and forest plantations. Temporary fencing is less expensive than permanent fencing, and can be useful in protecting plants for short periods of time, such as truck crops, gardens and flowers prior to harvest.

Eight-foot and taller fences are recommended to exclude deer, as shorter fences may not exclude all deer. Fences need to be properly anchored to the ground, and should conform to the ground contour to prevent deer from going under them. Fencing may need to be marked and made more visible to prevent deer from contacting and getting tangled in it, which could damage the fence and injure deer. Where fencing is erected across known deer travel paths, flagging should be used to alert the deer of its presence. Brightly colored flagging, attached at waist height in three-foot intervals along the fence, can be used to make the fence more visible, which can help deer avoid contact with the fence.

When possible, fencing should be erected prior to deer damage to prevent deer from establishing feeding patterns. Deer can be very persistent once they've established a feeding pattern, which can make excluding them very difficult.

Habitat modifications, like vegetation removal and control, may be required to maintain some of the types of fencing mentioned here. For example, it may be necessary to remove vegetation around and beneath an electric fence to prevent it from grounding the fence. It may be necessary to remove shrubs along a field edge, to prevent deer from accidentally running into and damaging a fence. Fence maintenance should include regular vegetation control using a line trimmer or with the application of an herbicide. Fences erected in wooded areas may require repair when limbs or trees fall on the fence. It may be prudent to remove limbs or trees that may potentially fall on the fence and cause damage.

Some community restrictions may restrict or prevent the use of certain kinds of fencing, so it is best to check local ordinances before considering fencing as an option. With a concerted effort, communities may be able to get local fencing ordinances changed to allow some types of deer-proof fencing. For example, the Montgomery County Council recently changed their fencing ordinance to allow certain types of fencing in their communities to deter deer and deer damage.

- **Non-Electric Fencing**
  - **Wire Fencing**

    Woven wire fencing is constructed of metal wires woven together to form a physical barrier. Woven wire fencing in eight foot or taller heights, is considered the best permanent fencing to exclude deer, and should be considered where deer damage is moderate to high. It can last for up to 30 years, needs relatively little maintenance, and comes in a variety of different styles and heights.

Woven wire fencing is highly resistant to damage because it is very flexible. It is expensive to purchase and install, but can be a cost effective remedy to protect valuable plantings. Because of its high cost, woven wire fencing should only be considered for high-value plantings that require permanent or perennial protection.

Woven wire fencing has been used successfully to exclude deer from agricultural crops, orchards, and tree and landscape nurseries. It is also used to exclude deer from roadways and airports where they may cause accidents. Chain-link fencing is a well-known type of woven wire fencing, though there are other types of woven wire fencing that adequately exclude deer. High-Tensile Fixed-Knot fencing is a less expensive alternative to chain-link fencing that excludes deer equally well.

- **Plastic Deer Fencing**

Polypropylene or plastic deer fencing is a heavy plastic mesh that can be used to exclude deer in areas where damage pressure is light to moderate. It can be used to prevent deer damage to gardens, landscaping, some crops and individual plants. It is more flexible than steel wire mesh and readily follows the ground contour.

Because it is flexible, polypropylene mesh may sag, and the manufacturer recommends that a cable be strung through the top of the fence to support it between posts. The mesh should be supported by posts spaced 3-4.5 yards apart, and can be fastened to poles using self-locking plastic ties. In wooded areas, fencing staples can be used to attach plastic fencing to trees.

Like other forms of fencing, polypropylene deer fencing must be properly anchored to the ground to adequately exclude deer. Stakes must be used to anchor the bottom of the fence, to prevent deer from crawling under it. Repair of the fence can be easily done using plastic self-locking ties to mend tears or by patching any holes with another section of mesh material.

There are two kinds of plastic mesh deer control fencing available, standard and heavy duty. Tenax C-Flex, and Deer-X Netting are two commercially available brands of this plastic fencing that are available from retailers.

Polypropylene fencing is generally less expensive than other types of fencing, is easier to install and repair, and blends easily with shaded and wooded areas. Some people find plastic fencing to be more attractive than wire fencing, because it is less visible.

Some community covenants may prohibit some types of fencing, but may allow polypropylene fencing. Polypropylene fencing is short-lived, when compared to wire fencing, and may last for up to 10 years, according to some manufacturer claims. Posts, hardware and tools will add to the cost of this type of fencing.

- **Electric Fencing**

Electric fencing was developed to contain livestock and to exclude wildlife. It is designed to administer an electric shock to animals that come into contact with the fence. The shock deters the animal from entering the fenced area, and prevents them from crossing

it. Deer are aversively conditioned by their contact with the fence, and they learn to avoid fenced areas. This aversion can keep deer away and help protect plantings.

Electric fencing is less expensive than woven wire fencing. It can be an effective and cost-efficient deterrent that can reduce deer damage considerably. Electric fencing can last up to 30 years.

Basic electric fencing consists of wires that conduct an electric charge, supported by wooden, metal or plastic posts, and a charging system that supplies an electric current to the fence wires. Some or all of the wires of an electric fence conduct an electric current that emits a shock when touched. Animals must be grounded to get a shock, and must touch either a ground wire or a charged wire simultaneously, or they must touch a charged wire and the ground which has been grounded with a grounding rod.

The cost for electric fencing can vary widely depending on the style of fencing used, and the size of the area that needs protected. Vegetation control may be necessary to prevent grounding of the fence. Regular fence maintenance should address this problem by keeping vegetation controlled using a line trimmer or with the application of an herbicide.

Electric fence designs vary from simple to complicated. Simple electric fence designs can be used to deter deer damage where deer numbers are low to moderate, and other food sources are available to deer. An example of a simple electric fence design is the single strand electric fence. A single-strand electrified fence can decrease deer damage where feeding pressure is light. A baited single strand deer fence can also be an effective, and affordable, temporary protection for a garden or landscaping, particularly when there is other food available for deer to eat, outside of the fence.

Complicated fence designs consist of multiple wires configured into designs that encourage deer to touch the fence wires and receive a shock. They are more effective at excluding persistent deer, and some have been reported to exclude up to 80% of deer that attempted to cross them. Complicated electric fence designs are more costly, but can be more effective at deterring deer damage. They should be considered where deer numbers are high, deer damage pressure is high, and the value of the plantings is moderate to high.

- **Individual Plant Protection**
    - **Tree Shelters, Wire Cages and Plastic Netting**

Tree shelters, wire cages, and plastic netting erected around individual plants can exclude deer, and can prevent them from causing browse damage and bark stripping. Bark stripping is done in the fall of the year, when a buck rubs it's antlers against trees. Tree shelters can prevent antler rub damage, and can protect young trees from browse damage until the tree outgrows the height of the tree shelter.

Wire cages four feet tall and one and one-half feet in diameter can be erected around individual plants and can prevent browsing and antler rubbing damage by deer. Tree shelters and wire cages may be considered unattractive and are not preferred where the aesthetics of a planting cannot be compromised.

Plastic netting, generally referred to as bird netting, is another material that can be used to exclude deer and can reduce deer damage to some plantings. Plastic netting can provide temporary protection for seasonally harvested berries, fruit and some flowers. Netting typically works best in areas with light deer feeding pressure. Wooden stakes and self-locking ties can be used to anchor the netting over individual plants and to protect groups of plants.

Polypropylene fencing, netting, and repellents should be considered where aesthetic considerations limit the use of visually obstructive exclusion materials like woven or welded wire.

3.1.2 Repellents

Repellents work by emitting an alarming odor or bad taste that repels deer. They make treated plants less palatable and less desirable to deer. They have been used successfully to reduce damage to ornamental plants, vegetable gardens, orchards, and tree and landscape nurseries.

Repellents do not alter the aesthetics of plantings, and can be used where aesthetics cannot be compromised. They are effective when used in areas with low to moderate deer numbers. Repellents are most effective where untreated plants are available to deer. Repellents should not be expected to eliminate all damage, but they can help to reduce deer feeding damage to plantings. Some repellents are applied directly to plants and some are placed near plants that need protection. Repellents should only be applied according to label directions, to prevent damage to tender plantings. Most repellents can be placed into two categories, taste-based repellents and odor-based repellents, though a few repellents incorporate some of both qualities.

- **Taste-Based Repellents**

  Taste-based repellents impart a noxious taste that makes treated plants less palatable than untreated plants. Most taste-based repellents are applied directly to each individual plant and discourage deer from feeding because of the offensive taste that they impart to the plant. One kind of taste-based repellent is systemic. It is placed in the ground with the plant roots, and is absorbed by the plant as it grows. The chemicals absorbed by the plant impart a noxious taste to the plant, which deters deer feeding. A drawback of taste-based repellents is that deer must eat part of the plant before being repelled.

  Certain taste-based repellents can be used on edible plants such as vegetable crops, fruits, berries, nuts and herbs, but they must be removed (washed off) prior to eating.

- **Odor-Based Repellents**

  Odor-based repellents capitalize on a deer's keen sense of smell. Their odor discourages deer from feeding on the treated plants by producing an offensive or alarming odor, which repels deer. Some odor-based repellents can be placed into dispensers that can be attached to or near plants. The Plant Pro-Tec Garlic Dispenser is one repellent dispenser that is clipped onto edible plants and doesn't need to be washed off because it isn't directly applied to the plant. Some odor-based repellents may use rotten eggs, animal parts, and soaps as active ingredients. Some incorporate chemicals that deer find offensive. Still, other odor-based repellents use real or synthetic predator urines to repel

deer. Repellents that use predator urines rely on the principle that large predators mark their territory with their urine, and that deer are discouraged from entering areas frequented by these predators.

Odor-based repellents can be used to treat individual plants or for area treatments. One system of area treatment is called the rope fence system. This treatment is done by suspending a single-strand of cotton rope, at waist height, on fence posts or stakes anchored around the perimeter of the impacted area. The rope is treated with an odor-based repellent that discourages deer from entering the fenced area. The Plot Saver system by Big Bucks Enterprises is an example of a commercial product that employs this concept. A similar method is done using strips of cloth or dryer sheets treated with an odor-based repellent attached to stakes placed in the ground around the area to be protected.

Drawbacks

Some drawbacks of repellents are: they can be costly, they need to be reapplied after repeated exposure to the weather and, they can lose their effectiveness as deer can learn to tolerate them, especially when food is in short supply. Repellents can be ineffective at deterring antler rubbing by deer. During the fall, male deer rub their antlers on trees to remove velvet, to polish their antlers, and to mark their territory. Plant enclosures like wire cages or tree shelters can be used to deter antler rub damage.

Repellents should be applied at the first sign of damage or if damage is expected, prior to any damage. Deer may eat plants that have been treated with repellents, if alternative foods are not available. Snow cover can prevent deer from finding food, which can encourage them feed on treated plants. Deer can become used to some repellents over time. Repellents degrade and need reapplication.

Not all repellents perform equally - some repellents are more effective than others at deterring deer damage. Using different repellents can prevent deer from becoming used to any one kind, and can be more effective than using just one kind. Due to their cost and varying effectiveness, repellents should only be considered as a method of reducing deer damage. Where larger areas need protection, other deterrents, exclusion or a combination of damage abatement measures should be considered. Weather, adjacent natural habitat and deer numbers influence the effectiveness of most repellents.

Advantages

Repellents can reduce deer damage to tolerable levels in areas where damage pressure is light to moderate. They can be a cost-effective treatment for reducing deer damage on small to medium-sized areas such as gardens, landscape plantings, small orchards and small to medium-sized tree and landscape nurseries. Repellents do not alter the appearance of landscape plantings and should be considered where exclusion methods would detract from the aesthetics of plantings. Commercial repellents are readily available at various retailers, and can even be ordered online. Advancements in repellent technology have resulted in repellents that last for up to five weeks before needing reapplication. Most repellents are easily mixed and applied, and some come premixed and ready to use, in handy spray bottles.

Repellents are most effective when they are used in conjunction with other deer damage management techniques, like fencing and population reduction.

3.1.3 Deterrents

Deterrents include scare techniques, the electronic deer repellent, and dogs. Scare techniques are best used for short-term control of deer damage because deer can become habituated to them over time. Deterrent techniques can provide temporary relief of deer damage and should be used with other deer management techniques for best results. Dogs used properly can provide long-term assistance. Deterrents are most effective at the onset of deer damage, before significant damage has occurred.

- **Scare Techniques**

Scare Devices

Most people picture a motionless scarecrow when they think of a scare device. Modern technology has helped create scare devices that incorporate motion, noise and even electric shock, to be more effective at deterring deer from causing damage. Scare devices can be used to frighten deer from yards, crops, and gardens. Scare devices are most effective when used as soon as damage is detected. These devices can be categorized as either auditory or visual deterrents, depending on how they work. Discretion should be used when employing scare devices. Some devices may be practical for use in rural areas, but may have limited use in suburban settings because they may violate noise ordinances or may disturb neighbors.

Scare devices can be effective at deterring deer damage, but, because of their adaptable nature, deer can learn to overcome their fear of some scare devices over time. Field trials of various scare devices indicated that deer can become habituated to them after a week of exposure to them. Trials of various scare devices have produced variable results. No definitive studies have evaluated scare devices based on their effectiveness. Consumers should question manufacturer's claims. Judgments should be based on testimonials and personal experiences with these products.

A combination of visual and auditory deterrents may be more effective than a single deterrent by itself. For the best results, try a combination of methods to prevent deer from getting used to any one technique. Deer are very adaptable, and can overcome their fear of some scare devices, if they learn that the device presents no real danger. Moving scare devices around, imparting movement to the device, and using repellents in conjunction with scare devices can help improve their effectiveness.

- **Auditory Deterrents**

Auditory deterrents can repel deer with their noise, and include noisemakers like gas or propane exploders, whistles, and ultrasonic devices. Gas or propane exploders produce loud, banging noises, which frighten deer away, and have been used to help protect orchards, row crops and truck crops. The most effective exploders detonate at random intervals or rotate the direction of their blast to prevent deer from getting used to them. Most auditory deterrents should not be used in suburban or residential areas out of consideration for neighbors. Their use should be restricted to rural areas where noise is not a problem.

A radio, activated by a motion detector can also scare off deer. Pie pans or metal cans suspended by strings make noise when they rattle in the wind, and have also been used to deter damage. Motion activated ultrasonic noisemakers scare deer using high-frequency sounds which are inaudible to humans, and don't violate noise ordinances. Field trials of some of these products showed that they were effective at deterring deer damage initially, but over time, deer became habituated to the sounds they emitted.

Auditory deterrents may be useful in temporarily scaring deer, but may need to be combined with visual deterrents and/or repellents to be effective at deterring persistent deer.

- **Visual Deterrents**

Visual deterrents include scarecrows, flashing or strobe lights, helium-filled Mylar and "Scare-eye" balloons, Mylar tape and flagging that moves with the wind, and motion activated water sprayers.

Scarecrows work on the principle that deer fear humans, but may lose their effectiveness where deer are accustomed to seeing people. Odor-based repellents or motion can be added to scarecrows to increase their effectiveness.

Visual deterrents that move may be more effective at deterring deer, as deer readily detect and react to movement. Helium-filled "Scare-eye" or Mylar balloons, flagging and Mylar tape that move when the wind blows, have also been used to deter deer damage. Mylar is a shiny plastic material that reflects light and makes noise when the wind blows across it. It can be hung from stakes or plants like streamers to scare deer. Mylar tape twisted into a spiral, and suspended between posts, makes a buzzing sound when the wind blows over it, which can help deter deer.

Infrared motion sensors or timers can be used to trigger scare devices, which can scare away deer. Flashing and strobe lights, and water sprayers or sprinklers activated by motion sensors, or set on timers, can also deter deer. Motion-activated water sprayers, triggered by infrared or motion sensors, can prevent deer from getting used to them, and can repel deer. The Smart Crow Motion-Activated Sprinkler, Contac Scarecrow Motion Detector Sprinkler and Spray Away Motion Activated Water Repellent are some commercially available sprinklers designed specifically to ward off deer and other nuisance animals.

Remember that auditory deterrents combined with visual deterrents and / or repellents may be more effective than any one type of deterrent used alone.

- **Other Deterrents**
  - **Electronic Repellent**

The Electronic Deer Repellent by the Woodstream Corporation, is a scare device that works on the same principle as the baited deer fence. It employs an attractant, which encourages deer to touch it, and then administers a harmless electric shock to the deer's nose or mouth. The shock conditions deer to avoid the area, which prevents them from re-visiting and causing damage. This battery-powered device works similarly to the

baited deer fence, only without the fence, and can be placed among flowers and shrubbery, or around gardens. It is less invasive and more appealing than electric fencing. Reports suggest results similar to the baited electric fence, without the visual detraction that the fence creates.

3.1.4 Deer Resistant Plants

Deer have preferences for feeding on certain plant species. Some plants, both native and ornamental, used for landscaping are preferred as forage by deer. Additionally, landscaped plants are often more attractive to deer because they are fertilized and irrigated. There are some species of plants that deer avoid feeding on because they are less palatable. Though no plants are totally resistant to deer browsing, some are less palatable to deer and are less likely to receive heavy damage.

The following web site provides an incomplete list of "deer-resistant" plants or plants that deer don't normally prefer to eat:

https://dnr.maryland.gov/wildlife/Pages/hunt_trap/ddmtplants.aspx

3.2 Lethal Deer Population Management

One of the most effective ways to reduce deer damage is to reduce the number of deer. The following deer management techniques reduce the number of deer using lethal means. Neighbors not practicing deer damage management or deer population control may be creating a sanctuary where deer may take refuge, making damage control and population control more difficult. ALC will coordinate with the GSA land managers regarding deer surveys and deer population management.

Deer population reductions that target antlerless deer have been proven to significantly reduce overall deer numbers and can provide numerous benefits, including improved ecological health, reduced deer-human conflicts and improved deer herd health. A deer population reduction program must be well coordinated and done on an annual or biannual basis, to be most effective (Timko 2015). Lethal deer management techniques that could be used on ALC or BPRF are listed below.

3.2.1 Hunting

The MDNR Wildlife and Heritage Services encourages all land managers to utilize the regulated hunting seasons for those wildlife species that may be problematic. Hunting is a highly effective wildlife management tool that can be used to reduce deer numbers. It can be employed on a variety of landscapes and is currently the most effective and economical method for managing deer populations across Maryland. Between 85,000 and 100,000 deer are removed annually using hunting in Maryland - no other deer management method comes close to removing that number of deer from the landscape (Timko 2015).

Regulated deer hunting is permitted annually during the fall of the year. In Maryland, hunters may pursue deer at various intervals from early-September (usually the first weekend after Labor Day in September) through the end of January (1/31), but they are restricted to using specific hunting devices to take deer, during specific times. Hunting devices vary from archery equipment, like bows and crossbows, to muzzle-loading firearms and conventional firearms. Deer hunting seasons allow licensed hunters to harvest deer for recreation and tablefare, and they provide landowners/land managers an opportunity to manage deer population numbers (Timko 2015).

Managed Deer Hunting

Managed or controlled hunting is a highly organized effort aimed at reducing the local deer population. These hunts are strictly controlled and remain a safe, effective method of reducing the local deer herd. As with all of the lethal deer management techniques, emphasis is placed on removing antlerless deer (Timko 2015).

Managed deer hunting is an alternative hunting method which has been used to reduce deer numbers in areas where safety and security are a concern. Managed deer hunts utilize select, qualified, licensed hunters to remove deer under strictly controlled situations, usually during a brief period of time. These hunts are well organized and require hunters to pass a standard proficiency testing procedure before they are allowed to participate in the hunt (Timko 2015).

Hunters are often placed on specific stand locations, allowed to shoot deer, and retrieved (along with their deer) after a specified time period. Military bases, state and county parks, and federal facilities that have security issues often use this hunting option, as it virtually eliminates the likelihood of a conflict arising between user groups and facility objectives (Timko 2015).

Managed hunting is currently being used to control deer numbers on a variety of federally managed properties in Maryland. Some of these areas include APG, Patuxent River Naval Air Station and Indian Head Naval Base (Timko 2015).

Maryland Deer Cooperators

In areas where hunting isn't an option, employing the services of a licensed Maryland Deer Cooperator to remove deer is an alternate option. Maryland regulations allow licensed Deer Cooperators to remove deer under a special permit. The permit allows deer removal using sharpshooting or through a trap and kill method. The USDA Wildlife Services is a Maryland Deer Cooperator (Timko 2015).

Antlerless Deer Harvest

Does (female deer) in good condition normally bear young annually, and they often give birth to twins and sometimes triplets if they are in exceptional physical condition. The harvest of antlerless deer (does and button bucks) is the key to reducing and controlling deer numbers and it has become a basic tenet of deer population management and the principle means of reducing and controlling deer numbers, where hunting can be employed. Harvesting bucks will not greatly benefit overall deer herd reduction, though it can be a method of retaining hunter interest in a hunting program. By regulation, hunters must take two antlerless deer before attempting to take a second antlered deer, to assist with our statewide deer population reduction efforts (Timko 2015).

The MDNR Wildlife and Heritage Service has gradually increased the opportunities for hunters to harvest antlerless deer across Maryland, particularly in those areas of the state that have become urbanized. Current regulations allow archery hunters hunting in the Suburban Deer Management Zone (the Deer Management Region in which ALC and BPRF is located) to harvest an unlimited number of doe in a season (Timko 2015).

4. Management Goals and Objectives

This section provides the white-tailed deer management goals and objectives for ALC and BPRF. Overabundance of deer is associated with problems such as deer and vehicle collisions, agricultural damage, lack of forest regeneration, detrimental impacts on other wildlife (especially birds), damage to residential landscapes, and the rising incidence of Lyme disease (NDTC 2009).

In order to bring the deer herds to a sustainable level of 5 to 10 deer at ALC and 50 deer at BPRF, lethal methods will be implemented at both installations. Nonlethal methods will also be employed to prevent new deer from entering the installations and to protect habitats and plants from overbrowsing.

4.1 Deer Management at ALC

4.1.1 USDA Wildlife Services /Maryland Deer Cooperators

Since hunting is not an option at ALC, USDA Wildlife Services will be used to harvest deer. The deer that are harvested will be donated to a Maryland Food Bank partner by USDA Wildlife Services personnel. An Operational Plan for this project and any future projects will be prepared by USDA personnel in coordination with ALC personnel. A copy of the Operational Plan and project reports will be added to **Appendix E**. Yearly surveys will be conducted to evaluate the need for additional deer harvest projects.

4.1.2 Fence Repair and Maintenance

ALC will make an effort to repair the fence in areas that are allowing deer to move freely between the GSA property and other off installation areas. ALC will coordinate and share data with the land manager for the GSA property.

4.1.3 Habitat Restoration

ALC will further evaluate habitats that have been damaged by deer overbrowsing. Specific recommendations were made in the Habitat Management Plan and Forest Management Plan. Restored habitat could be protected with temporary fencing.

4.1.4 Deer Resistant Plants

Native deer resistant plants will be used for any future ornamental plantings at ALC. There are various web sites that provide information on these plants. Future plantings will also be protected with temporary fencing or netting.

4.1.5 FLIR Surveys

FLIR surveys will be conducted annually to ensure the deer herds are staying at a sustainable level. Results of these surveys will be added to **Appendix A**.

4.2 Deer Management at BPRF

4.2.1 Managed Hunting Program

BPRF will implement a property-wide deer population reduction effort through managed hunts which encompass as much of the property as is practical, concentrating on those areas where deer can be safely removed using lethal means. **Figure 4-1** provides the locations of the tree stands on BPRF.

BPRF will host the BOW hunt with the MDNR each November. This program includes a day long educational workshop and a day of hunting. The hunt usually brings 20 participants to the installation.

Managed hunts will be held during business hours from 0700 to 1330 from October till December if permission is granted from MDNR. Hunters must qualify to hunt by either holding a military CAC or ID from a Federal agency. The number of hunters scheduled for each day is dependent on the testing schedule and usually a maximum of 5 to 8 hunters would be permitted.

Appendix B provides the hunting regulations for BPRF which contain additional information on the program. Information on Maryland hunting regulations can be found at https://dnr.maryland.gov/Wildlife/Pages/hunt_trap/home.aspx . **Appendix C** provides a copy of the BPRF hunting permit. **Appendix D** provides copies of the authorizations from the MDNR to conduct the BOW and managed hunts at BPRF.

Deer Bag Limits

The bag limit for the managed hunts will be dependent on the FLIR surveys conducted each spring. Deer that are harvested during a managed hunt do not count towards a hunter's bag limit with the state.

Hunter Safety and Landowner Liability

Though hunting is statistically one of the safest of outdoor activities, accidents can happen. Factors such as excitement, anxiety, carelessness and fatigue can contribute to an accident. Most accidents happen when hunters fall out of treestands. Hunter Education courses emphasize hunting safety and they reduce hunting related accidents. They are mandatory for almost anyone hunting in Maryland, though older hunters may be exempt from this requirement if they hunted on private property before a certain date (Timko 2015). ALC will require hunters to take the Hunter Safety Course and to complete the Shooter Qualification every three years in addition to having a current Maryland Hunting License.

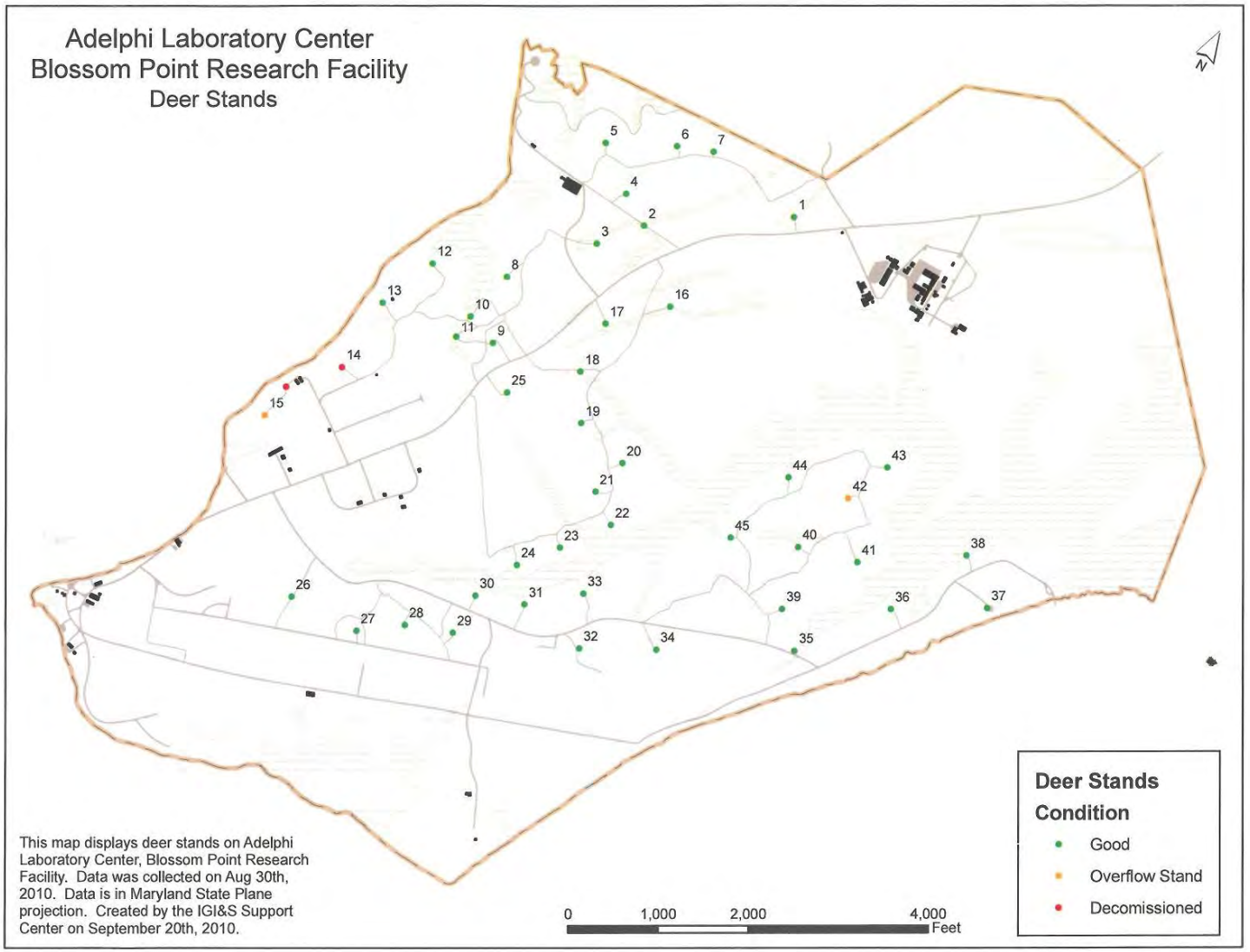

Figure 4-1. BPRF Tree Stand Location Map

Deer Carcass Tagging and Registration Procedures

Deer hunters must register each deer they harvest during the BPRF hunts by going to compass.dnr.maryland.gov/ or by calling the Big Game Registration Phone Line at 1-888-800-0121 or by using the official mobile app (AccessDNR).

Successful hunters must call or log on to the Internet site within 24 hours of the deer harvest to officially check their deer. After bagging a deer and before moving it from the place of harvest, the successful hunter will start the new check-in process by immediately completing a Field Tag in ink and attaching it to the head of the deer. Field Tags are provided in the most recent Guide to Hunting & Trapping in Maryland. Hunters can also make their own field tags, provided they list the date, county of harvest, their name and hunting license number on the tag. When hunters register their deer under the checking system, each deer taken should be registered under the BPRF land location code.

ALC has designated staff as Wildlife Conservation Officers (WCOs) to assist with the managed hunts at BPRF. The WOCs check the hunters' Harvest Report Cards and confirm they have completed (in ink) the species, date, county, sex, and weapon, and have checked the "Managed Hunt Deer" box on the card before they leave the property with their deer.

Donation of Venison

Hunters will be advised to donate any extra deer harvested to a local food bank. Hunters will be given the contact information for Farmers and Hunters Feeding the Hungry which is a program that takes excess harvested deer and has them processed and distributed to charitable organizations.

4.2.2 USDA Wildlife Services /Maryland Deer Cooperators

During years when hunts cannot take place or when the number of deer harvested during the hunts is low compared to the estimated population, USDA Wildlife Services can be used as an additional management option. Any deer harvested by the USDA Wildlife Services would be donated to a Maryland Food Bank partner.

4.2.3 Fence Repair and Maintenance

BPRF will make an effort to maintain the fence to minimize deer moving into the installation. There are areas near marsh habitat on the east and west side of the installation that cannot be fenced.

4.2.4 Food Plots

Food plots are planned for various locations around BPRF. The food plots can be funded with the fees that are collected for hunting permits. These funds are also used to repair tree stands.

4.2.5 FLIR Surveys

FLIR surveys will be conducted annually to ensure the deer herds are staying at a sustainable level. Results of these surveys will be added to **Appendix A**.

5. References

MDNR 2009 — Maryland Department of Natural Resources (MDNR). 2009. Maryland White-tailed Deer Plan 2009-2018. The 2020 update is available online at:

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Stafford 2007 — Stafford, Ph.D., K. 2007. Tick Management Handbook. Revised Edition. The Connecticut Agricultural Experiment Station. Available online at: http://www.ct.gov/caes/lib/caes/documents/publications/bulletins/b1010.pdf

Timko 2015 — Timko, G. 2015. Personnel communication via email between George Timko, MDNR Wildlife and Heritage Services, Assistant Deer Project Leader and Bridget Kelly Butcher, ALC Natural Resource Manager. June 2015.

APPENDIX A

White-tailed Deer Survey Letter Reports

USDA

Julia Long
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

June 19, 2009

SUBJECT: Deer Survey Results, Adelphi Laboratory Center

Dear Ms. Long:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Adelphi Laboratory Center. Wildlife Services with your help, conducted a deer survey on June 17, 2009 to provide you with information about the number of deer on the property. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at the west side patrol road near the motor pool lot and continued throughout the property using all drivable roads, as well as any accessible woodlot lanes. The survey began at approximately 2030 and concluded at 2300 (17 June 2009). During the survey, 27 white-tailed deer were observed using forward looking infra-red (FLIR) as well as spotlights. Two large groups of deer were observed. Ten deer were observed at the pond behind building 203, and seven deer were observed on the 400 area parking lot. The rest of the deer observed were in pairs or singles throughout the property. It is possible that some deer were recounted, though unlikely, as they were not disturbed by our presence to the point where they were scattering around the property. The large group of ten deer at the 203 pond was observed later in the survey bedded in front of the administration building. We recognized this group and did not recount it. Although visibility was limited in some areas due to summer foliage, we don't estimate that many were missed since most of the deer are grazing in open landscaped areas at the time of the survey.

Although the total acreage of the campus is 207 acres, I estimate there is approximately 120 acres of habitat available to the deer. The other acreage consists of buildings, paved surfaces, landscaping and other developed areas. The property should have a deer herd no greater than 5-10 deer. Wildlife Services recommends that deer be removed and the herd maintained each year at about 10 deer or less to reduce any threats to the properties' natural resources. I strongly encourage you to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff for further guidance on deer population management at your facility.

Wildlife Services is a Maryland Deer Cooperator, licensed by the Maryland Department of Natural Resources, which promotes an integrated deer damage management program that is comprised of nonlethal and lethal management methods. Wildlife Services can enter into a cooperative service agreement with Adelphi Laboratory Center to provide services to manage the deer on the property. Please do not hesitate to contact myself or Scott Healey for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Daniel Emanueli

Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

USDA

Julia Long
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

April 9, 2010

SUBJECT: Deer Survey Results, Blossom Point Research Center

Dear Ms. Long:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Blossom Point Research Center. With your assistance, Wildlife Services conducted a deer survey on April 8, 2010 to provide you with information about the number of deer on the property. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at building 511 and continued throughout the property using all drivable roads, as well as any accessible woodlot lanes. Due to heavy storms in the forecast, the property was split up between two observation teams to maximize coverage in a shorter amount of time. The survey began at approximately 1930 and concluded at 2200 (08 April 2010). During the survey, 61 white-tailed deer were observed using forward looking infra-red (FLIR). The largest concentration of deer (22) was observed in Stivers field adjacent to Blossom point road. The rest of the deer observed were in smaller groups of one to five deer and group of seven. It is possible that some deer were recounted, though unlikely, as they were not disturbed by our presence to the point where they were scattering around the property. Part of the large Stivers field group retreated to the woods when spotlighted. We later observed this group while riding the access road through the woods, but did not recount them. Further in that same woodlot, we found and counted three other deer bedded down that did not appear to be part of any group previously observed. There is a fair portion of interior woods and swamp that we were unable to access by vehicle, so it is possible that there are deer that were not counted. We don't estimate that to be a high number since most of the deer observed were grazing in open field areas, as opposed to wooded areas at the time of the survey.

The total acreage of the property is 1600 acres, or approximately 2.5 square miles. Although there are buildings, structures and fenced areas throughout the property, a majority of the property is usable habitat, with plenty of cover and forage available to the deer herd. Ideally, the property should have a deer herd no greater than 50-70 deer. Wildlife Services recommends that the deer herd be maintained each year at this level or less to reduce any threats to the properties' natural resources and maintain the health of the herd. The current deer management program utilizing public hunting has maintained this herd number well and we would recommend that it continue if possible. Due to the abundance of cover and forage, the property may support a slightly larger number of deer, if you decided to suspend hunting temporarily. This will allow for additional year classes of mature animals, but be aware that the abundant forage and cover will also promote reproductive success. Most females will be bred and many will produce multiple fawns. Without lethal management through public hunting or sharpshooting, a deer herd in this habitat has the potential to grow exponentially in just a couple of years. For this reason, I would not recommend suspending hunting for more than one season. I would strongly recommend conducting additional deer surveys each year to determine herd size for further management recommendations. I encourage you to consult the Maryland Department of Natural

Resources (MDNR) Deer Project staff for further guidance on deer population management at your facility.

Wildlife Services is a Maryland Deer Cooperator, licensed by the Maryland Department of Natural Resources, which promotes an integrated deer damage management program that is comprised of nonlethal and lethal management methods. Wildlife Services can enter into a cooperative service agreement with Blossom Point Research Center to provide services to manage the deer on the property. Please do not hesitate to contact myself or Scott Healey for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Daniel Emanueli
Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

USDA

Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

April 8, 2015

SUBJECT: Deer Survey Results, Adelphi Laboratory Center

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Adelphi Laboratory Center. Wildlife Services with your help, conducted a deer survey on 2 April 2015 to provide you with information about the number of deer on the property. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at Building 601 parking lot and continued throughout the property using all drivable roads, as well as any accessible woodlot lanes. The survey began at 1955 and concluded at 2130. During the survey, 32 white-tailed deer were observed using a thermal imaging camera (also known as forward looking infra-red or FLIR) as well as spotlights. Deer were observed in eight locations. Five deer were observed along the roadside near the parking lot and the pond at Building 601. We also observed five deer in the overgrown field north of the rotary aircraft landing zone and north east of the 600 Area. One deer was observed in the woods along Floral Drive opposite of the entrance to the 600 Area. Five deer were observed in the woods south of Floral Drive, east of the Zahl Physical Science Laboratory building, near the bridge that crosses the Paint Branch. Nine deer were observed along Floral Drive near the entrance drive to the 400 Area. Seven deer were observed in the lawn on the east side of the Zahl Physical Science Laboratory building. It is possible that some deer were recounted, though unlikely, as they were not disturbed by our presence and were not seen moving away from us.

Although the total acreage of the campus is 207 acres, we estimate that there is approximately 120 acres of habitat available to the deer. The other acreage consists of buildings, paved surfaces, landscaping and other developed areas. The property should have a deer herd no greater than 5-10 deer. Wildlife Services recommends that deer be removed and the herd maintained each year at about 10 deer or less to reduce any threats to the properties' natural resources. We encourage you to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff for further guidance on deer population management at your facility.

Wildlife Services is a Maryland Deer Cooperator, licensed by the Maryland Department of Natural Resources, which promotes an integrated deer damage management program that is comprised of nonlethal and lethal management methods. Wildlife Services can enter into an Interagency Agreement with Adelphi Laboratory Center to provide services to manage the deer on the property. Please do not hesitate to contact me for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Scott Healey
District Supervisor
Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services
1568 Whitehall Rd.
Annapolis, MD 21409

410-349-8055
410-349-8258 Fax

Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

April 8, 2015

SUBJECT: Deer Survey Results, Blossom Point Research Facility

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Blossom Point Research Facility in Welcome, MD. Wildlife Services with your and Jack Kaiser's help, conducted a deer survey on 6 April 2015 to provide you with information about the number of deer on the facility. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at the south west corner (Blossom Point) and continued throughout the facility using all drivable roads, as well as any accessible fields, following the routes outlined by Jack. The survey was conducted by two teams in two trucks using Middle Road as the dividing line between the areas that the two teams surveyed. The survey began at 1955 and concluded at 2145. During the survey, 113 white-tailed deer were observed using thermal imaging cameras (also known as forward looking infra-red or FLIR) as well as spotlights. Dan observed 71 deer from Blossom Point out to the entrance gate on Blossom Point Road. Robert observed 42 deer from Blossom Point to the north east property boundary and along Middle Road. It is possible that some deer were recounted, though unlikely, as they were not disturbed by our presence and were not seen moving away from us.

The total acreage of the facility is 1,600 acres and most of the habitat is available to the deer. The property should have a deer herd no greater than 50 deer. Wildlife Services recommends that deer be removed and the herd maintained each year at about 50 deer or less to reduce threats of deer-vehicle collisions and threats to the properties' natural resources. We encourage you to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff for further guidance on deer population management at the facility.

Wildlife Services is a Maryland Deer Cooperator, licensed by the Maryland Department of Natural Resources, which promotes an integrated deer damage management program that is comprised of nonlethal and lethal management methods. Wildlife Services can enter into an Interagency Agreement with the Army to provide

services to help manage the deer on the facility. Please do not hesitate to contact me for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Scott Healey

Scott Healey
District Supervisor
Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

USDA

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services
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410-349-8258 Fax

Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

May 5, 2016

SUBJECT: Deer Survey Results, Adelphi Laboratory Center

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Adelphi Laboratory Center (ALC). Wildlife Services with your help, conducted a deer survey on 3 May 2016 to provide you with information about the number of deer on the property. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at Building 601 parking lot and continued throughout the property using all drivable roads, as well as any accessible woodlot lanes. The survey began at 2020 and concluded at 2130. During the survey, 20 white-tailed deer were observed using a thermal imaging camera (also known as forward looking infra-red or FLIR) as well as spotlights.

Deer were observed in six locations. Three deer were observed near the parking lot at Building 601. Two deer were observed in the woods between building 601 and the exit gate into the Federal Research Center (FRC) at White Oak via Floral Road. One deer was observed in the fenced historic site between the 600 area parking lot and FRC. Nine deer were observed on the wooded hillside, southeast of the bridge crossing the Paint Branch. Two deer were observed by the storm-water management pond to the north of the 200 Area. Three deer were observed along the boundary fence between ALC and FRC, north of the 200 Area. It is possible that some deer were recounted, though unlikely, as they were not disturbed by our presence and were not seen moving away from us.

Although the total acreage of the campus is 207 acres, we estimate that there is approximately 120 acres of habitat available to the deer. The other acreage consists of buildings, paved surfaces, landscaping and other developed areas. The property should have a deer herd no greater than 5-10 deer. Wildlife Services recommends that deer be removed and the herd maintained each year at about 10 deer or less to reduce threats of deer-vehicle collisions and threats to the properties' natural resources. We encourage you to consult the Maryland Department of Natural Resources Deer Project staff for further guidance on deer population management at your facility.

Wildlife Services is a Maryland Deer Cooperator, licensed by the Maryland Department of Natural Resources, which promotes an integrated deer damage management program that is comprised of nonlethal and lethal management methods. Wildlife Services can enter into an Interagency Agreement with Adelphi Laboratory Center to provide services to manage the deer on the property. Please do not hesitate to contact me for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Scott Healey
District Supervisor
Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

USDA

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services
1568 Whitehall Rd.
Annapolis, MD 21409

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Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

May 16, 2016

SUBJECT: Deer Survey Results, Blossom Point Research Facility

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Blossom Point Research Facility in Welcome, MD. Wildlife Services with your and Jack Kaiser's help, conducted a deer survey on 10 May 2016 to provide you with information about the number of deer on the facility. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at the south west corner (Blossom Point) and continued throughout the facility using all drivable roads, as well as any accessible fields, following the routes outlined by Jack. The survey was conducted by two teams in two trucks using Middle Road as the dividing line between the areas that the two teams surveyed. The survey began at 19:40 and concluded at 20:55. During the survey, 112 white-tailed deer were observed using thermal imaging cameras (also known as forward looking infra-red or FLIR) as well as spotlights. Team 1 (Dan) observed 52 deer from Blossom Point out to the entrance gate on Blossom Point Road. Team 2 (Robert) observed 60 deer from Blossom Point to the north east property boundary and along Middle Road. It is possible that some deer were recounted, though unlikely, as most deer were not overly disturbed by our presence. Some groups of deer ran away as we approached in the trucks, but generally stayed in the same areas all night. Groups of deer that were recognizable by numbers and behavior, later observed using the same areas were not recounted. While some deer were observed in wooded areas, the majority were observed in large groups feeding in the open fields on both routes.

The total acreage of the facility is 1,600 acres (approximately 2.5 square miles) and most of the habitat is available to the deer. Using the recommended healthy deer density of 15-20 deer per square mile, the property should have a deer herd no greater than 50 deer. Wildlife Services recommends that deer be removed through increased hunter harvest, sharpshooting, or a combination of both. The deer herd should be maintained each year at about 50 deer or less to reduce threats of deer-vehicle collisions and threats to the properties' natural resources. We encourage you to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff

for further guidance on deer population management at the facility.

Wildlife Services is a Maryland Deer Cooperator, licensed by the Maryland Department of Natural Resources, which promotes an integrated deer damage management program that is comprised of nonlethal and lethal management methods. Wildlife Services can enter into an Interagency Agreement with the Army to provide services to help manage the deer on the facility. Please do not hesitate to contact myself or Scott Healey for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Daniel Emanueli
Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services
1568 Whitehall Rd.
Annapolis, MD 21409

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Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
IMAL-PWE
Adelphi, MD 20783

April 25, 2017

SUBJECT: Deer Survey Results, Adelphi Laboratory Center

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Adelphi Laboratory Center. Wildlife Services with your help, conducted a deer survey on April 24, 2017 to provide you with information about the number of deer on the property. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at the west side patrol road near the motor pool lot and continued throughout the property using all drivable roads, as well as any accessible woodlot lanes. The survey began at 20:05 and concluded at 21:35 (24 April 2017). During the survey, 17 white-tailed deer were observed using forward looking infra-red (FLIR) as well as spotlights. The majority of the deer were observed near the back (northeast) section of the Garrison around the 500 and 600 building areas. Most deer were observed bedded or feeding and generally were undisturbed by our presence. I have attached a google earth satellite map with markers indicating the numbers of deer we observed at each location.

Although the total acreage of the campus is 207 acres, I estimate there is approximately 120 acres of habitat available to the deer. The other acreage consists of buildings, paved surfaces, landscaping and other developed areas. The property should have a deer herd no greater than 5-10 deer. Wildlife Services recommends that deer be removed and the herd maintained each year at about 10 deer or less to reduce any threats to the properties' natural resources. As we discussed during the survey, a number of fence breaks have been noted where deer can pass freely between Adelphi and the GSA-White Oak property. Wildlife Services strongly recommends repair and maintenance of any fences that are easily crossed by deer. Due to breached fencing, deer removals on both sides have been beneficial to natural resources at both facilities, and I recommend working with them to coordinate deer management in the future. I also encourage you to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff for further guidance on deer population management at your facility.

Wildlife Services is a Maryland Deer Cooperator, licensed by the Maryland

Department of Natural Resources, which promotes an integrated deer damage management program that is comprised of nonlethal and lethal management methods. Wildlife Services can enter into a cooperative service agreement with Adelphi Laboratory Center to provide services to manage the deer on the property. Please do not hesitate to contact myself or Scott Healey for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Daniel Emanueli
Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

USDA

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services
1568 Whitehall Rd.
Annapolis, MD 21409

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410-349-8258 Fax

Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

4 January 2018

SUBJECT: Deer Survey Results, Blossom Point Research Facility

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Blossom Point Research Facility in Welcome, MD. Wildlife Services with your and Sean Sulek's help, conducted a deer survey on 3 January 2018 to provide you with information about the number of deer on the facility. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at the south west corner (Blossom Point) and continued throughout the facility using all drivable roads, as well as any accessible fields, following the routes determined during previous surveys. The survey was conducted by two teams in two trucks using Middle Road as the dividing line between the areas that the two teams surveyed. The survey began at 17:30 and concluded at 19:10. During the survey, 87 white-tailed deer were observed using thermal imaging cameras (also known as forward looking infra-red or FLIR) as well as spotlights. Team 1 (Dan) observed 48 deer from Blossom Point out to the entrance gate on Blossom Point Road. Team 2 (Scott) observed 39 deer from Blossom Point to the north east property boundary and along Middle Road. It is possible that some deer were recounted, though unlikely, as most deer were not overly disturbed by our presence. Some groups of deer ran away as we approached in the trucks, but generally stayed in the same areas all night. Groups of deer that were recognizable by numbers and behavior, later observed using the same areas were not recounted. While some deer were observed in fields, the majority were observed in small to large groups bedded in the woods on both routes.

The total acreage of the facility is 1,600 acres (approximately 2.5 square miles) and most of the habitat is available to the deer. Based on the survey, the deer population is estimated to be near 35 deer per square mile. Using the recommended healthy deer density of 15-20 deer per square mile, the property should have a deer herd no greater than 50 deer. Wildlife Services recommends that deer be removed through increased hunter harvest, sharpshooting, or a combination of both. The deer herd should be maintained each year at about 50 deer or less to reduce threats of deer-vehicle collisions and threats to the properties' natural resources. We encourage you to

continue to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff for further guidance on deer population management at the facility.

Please do not hesitate to contact us for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Ronald S. Healey
District Supervisor
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MDNR

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services
1568 Whitehall Rd.
Annapolis, MD 21409

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Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
IMAL-PWE
Adelphi, MD 20783

April 20, 2018

SUBJECT: Deer Survey Results, Adelphi Laboratory Center

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Adelphi Laboratory Center. Wildlife Services with your help, conducted a deer survey on April 17, 2018 to provide you with information about the number of deer on the property. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at the west side patrol road near the motor pool lot and continued throughout the property using all drivable roads, as well as any accessible woodlot lanes. The survey began at 20:00 and concluded at 21:15 (17 April 2018). During the survey, 6 white-tailed deer were observed using forward looking infra-red (FLIR) as well as spotlights. The deer were observed near the back (northeast) section of the Garrison around the 500 and 600 building areas and under the Paint Branch bridge. Most deer were observed bedded or feeding and generally were undisturbed by our presence. I have attached a google earth satellite map with markers indicating the numbers of deer we observed at each location.

Although the total acreage of the campus is 207 acres, I estimate there is approximately 120 acres of habitat available to the deer. The other acreage consists of buildings, paved surfaces, landscaping and other developed areas. The property should have a deer herd no greater than 5-10 deer. Wildlife Services recommends continued annual surveys and further removals to maintain the herd each year at about 10 deer or less to reduce any threats to the properties' natural resources. As we've previously discussed, a number of fence breaks have been noted where deer can pass freely between Adelphi and the GSA-White Oak property. Wildlife Services strongly recommends repair and maintenance of any fences that are easily crossed by deer. Due to breached fencing, deer removals on both sides have been beneficial to natural resources at both facilities, and I recommend working with them to coordinate deer management in the future. I also encourage you to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff for further guidance on deer population management at your facility.

Wildlife Services is a Maryland Deer Cooperator, licensed by the Maryland

Department of Natural Resources, which promotes an integrated deer damage management program that is comprised of nonlethal and lethal management methods. Wildlife Services can enter into a cooperative service agreement with Adelphi Laboratory Center to provide services to manage the deer on the property. Please do not hesitate to contact myself or Scott Healey for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Daniel Emanueli
Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services
1568 Whitehall Rd.
Annapolis, MD 21409

410-349-8055
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Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

April 20, 2018

SUBJECT: Deer Survey Results, Blossom Point Research Facility

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Blossom Point Research Facility in Welcome, MD. Wildlife Services with yourself and Jack Kaiser's help, conducted a deer survey on 19 April 2018 to provide you with information about the number of deer on the facility. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at the south west corner (Blossom Point) and continued throughout the facility using all drivable roads, as well as any accessible fields. The survey was conducted by two teams in two trucks using Middle Road as the dividing line between the areas that the two teams surveyed. The survey began at 21:20 and concluded at 22:45. During the survey, 57 white-tailed deer were observed using thermal imaging cameras (also known as forward looking infra-red or FLIR) as well as spotlights. Team 1 (Dan) observed 26 deer from Blossom Point out to the entrance gate on Blossom Point Road. Team 2 (Robert) observed 31 deer from Blossom Point to the north east property boundary and along Middle Road. Some groups of deer ran away as we approached in the trucks, but generally stayed in the same areas all night. Groups of deer that were recognizable by numbers and behavior, later observed using the same areas were not recounted. While some deer were observed in wooded areas, the majority were observed in large groups feeding in the open fields on both routes.

The total acreage of the facility is 1,600 acres (approximately 2.5 square miles) and most of the habitat is available to the deer. Using the recommended healthy deer density of 15-20 deer per square mile, the property should have a deer herd no greater than 50 deer. Wildlife Services recommends that deer be removed through hunter harvest, sharpshooting, or a combination of both. The deer herd should be maintained each year at about 50 deer or less to reduce threats of deer-vehicle collisions and threats to the properties' natural resources. We encourage you to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff for further guidance on deer population management at the facility.

Wildlife Services is a Maryland Deer Cooperator, licensed by the Maryland Department of Natural Resources, which promotes an integrated deer damage management program that is comprised of nonlethal and lethal management methods. Wildlife Services can enter into an Interagency Agreement with the Army to provide services to help manage the deer on the facility. Please do not hesitate to contact myself or Scott Healey for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Daniel Emanueli
Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

USDA

Animal and
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Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
IMAL-PWE
Adelphi, MD 20783

May 2, 2019

SUBJECT: Deer Survey Results 16 April 2019, Adelphi Laboratory Center

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Adelphi Laboratory Center. Wildlife Services with your help, conducted a deer survey on 16 April 2019 to provide you with information about the number of deer on the property. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at the west side patrol road near the motor pool lot and continued throughout the property using all drivable roads, as well as any accessible woodlot lanes. The survey began at 20:15 and concluded at 22:00. During the survey, 11 white-tailed deer were observed using a thermal imaging camera (forward looking infra-red {FLIR}) as well as spotlights. The majority of the deer were observed in wooded areas including the woods along the west perimeter, near the Paint Branch creek, and the 500 Area. Two deer were observed in the edge habitat near the dry pond south of the 400 Area parking lot. Most deer were observed bedded or feeding and generally were undisturbed by our presence.

Although the total acreage of the campus is 207 acres, the estimated habitat available to the deer is approximately 120 acres. The other acreage consists of buildings, paved surfaces, landscaping and other developed areas. The property should have a deer herd no greater than 5 - 10 deer. Wildlife Services recommends that deer be removed and the herd maintained each year at about 10 deer or less to reduce any threats to the properties' natural resources. As we discussed during the survey, a number of fence breaks have been noted where deer can pass freely between Adelphi and the GSA-White Oak property. We saw some areas that were currently being repaired. Wildlife Services strongly recommends repair and maintenance of any fences that are easily crossed by deer. We also encourage you to continue to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff for additional guidance on deer population management at your facility.

Wildlife Services is a Maryland Deer Cooperator, licensed by the Maryland Department of Natural Resources, which promotes an integrated deer damage management program that is comprised of nonlethal and lethal management methods.

Wildlife Services can enter into an Interagency Agreement with Adelphi Laboratory Center to provide services to manage the deer on the installation. Please contact us for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Scott Healey
District Supervisor
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

USDA
United States Department of Agriculture

Animal and
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Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

6 August 2019

SUBJECT: Deer Survey Results, Blossom Point Research Facility

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Blossom Point Research Facility in Welcome, MD. Wildlife Services with your and Sean Sulek's help, conducted a deer survey on 23 April 2019 to provide you with information about the number of deer on the facility. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at the south west corner (Blossom Point) and continued throughout the facility using all drivable roads, as well as any accessible fields, following the routes determined during previous surveys. The survey was conducted by two teams in two trucks using Middle Road as the dividing line between the areas that the two teams surveyed. The survey began at 20:40 and concluded at 22:20. During the survey, 77 white-tailed deer were observed using thermal imaging cameras (also known as forward looking infra-red or FLIR) as well as spotlights. Team 1 (Scott and Ryan) observed 21 deer from Blossom Point out to the entrance gate on Blossom Point Road. Team 2 (Robert and Jim) observed 56 deer from Blossom Point to the north east property boundary and along Middle Road. It is possible that some deer were recounted, though unlikely, as most deer were not overly disturbed by our presence. Some groups of deer ran away as we approached in the trucks, but generally stayed in the same areas all night. Groups of deer that were recognizable by numbers and behavior, later observed using the same areas were not recounted. While some deer were observed in fields, the majority were observed in small to large groups bedded in the woods on both routes.

The total acreage of the facility is 1,600 acres (approximately 2.5 square miles) and most of the habitat is available to the deer. Based on the survey, the deer population is estimated to be near 31 deer per square mile. Using the recommended healthy deer density of 15-20 deer per square mile, the property should have a deer herd no greater than 50 deer. Wildlife Services recommends that deer be removed through increased hunter harvest, sharpshooting, or a combination of both. The deer herd should be maintained each year at about 50 deer or less to reduce threats of deer-vehicle

collisions and threats to the properties' natural resources. We encourage you to continue to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff for further guidance on deer population management at the facility.

Please do not hesitate to contact us for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Ronald S. Healey
District Supervisor
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MDNR

USDA

Animal and
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Wildlife Services
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Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

April 15, 2020

SUBJECT: Deer Survey Results, Adelphi Laboratory Center

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Adelphi Laboratory Center (ALC). Wildlife Services with your help, conducted a deer survey on 13 April 2020 to provide you with information about the number of deer on the property. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at Building 601 parking lot and continued throughout the property using all drivable roads, as well as any accessible woodlot lanes. The survey began at 2008 and concluded at 2125. During the survey, 23 white-tailed deer were observed using a thermal imaging camera (also known as forward looking infra-red or FLIR) as well as spotlights.

Deer were observed in six locations. Five deer were observed in the fenced grassy area behind the parking lot in the 600 area. One deer was observed in the woods between building 601 and the exit gate into the Federal Research Center (FRC) at White Oak via Floral Road. Along Floral Road between the 500 and 600 areas, we observed three deer, pink ear-tagged doe (#27) along with two of last years fawns. Nine deer were observed on the wooded hillside and creek bottom, southeast of the bridge crossing the Paint Branch. Three deer were observed along Diamond Road. Two deer were observed along the perimeter fence near the southwest corner of the property. It is possible that some deer were recounted, though unlikely, as they were not disturbed by our presence and were not seen moving away from us.

Although the total acreage of the campus is 207 acres, we estimate that there is approximately 120 acres of habitat available to the deer. The other acreage consists of buildings, paved surfaces, landscaping and other developed areas. The property should have a deer herd no greater than 5-10 deer. Wildlife Services recommends that deer be removed and the herd maintained each year at about 10 deer or less to reduce threats of deer-vehicle collisions and threats to the properties' natural resources. We would also like to note that a number of deer were observed just outside the perimeter fences. This should serve as a reminder to diligently maintain all perimeter fencing with special attention to any possible tree damage, water crossings or eroded areas that outside deer may enter through. We encourage you to

consult the Maryland Department of Natural Resources Deer Project staff for further guidance on deer population management at your facility.

Wildlife Services can enter into an Interagency Agreement with Adelphi Laboratory Center to provide services to manage the deer on the property. Please do not hesitate to contact me for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Daniel Emanueli
Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MD

USDA

Animal and
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Bridget Kelly Butcher
Conservation Specialist
U.S. Army Garrison
Adelphi Laboratory Center
2800 Powder Mill Rd.
Adelphi, MD 20783

20 April 2020

SUBJECT: Deer Survey Results, Blossom Point Research Facility

Dear Mrs. Butcher:

Wildlife Services would again like to thank you for the opportunity to help you with deer management at Blossom Point Research Facility in Welcome, MD. Wildlife Services with your and Sean Sulek's help, conducted a deer survey on 16 April 2020 to provide you with information about the number of deer on the facility. This letter serves as a written summary of the deer survey that Wildlife Services conducted.

The survey route began at the south west corner (Blossom Point) and continued throughout the facility using all drivable roads, as well as any accessible fields, following the routes determined during previous surveys. The survey was conducted by two teams in two trucks using Middle Road as the dividing line between the areas that the two teams surveyed. The survey began at 20:05 and concluded at 22:00. During the survey, 78 white-tailed deer were observed using thermal imaging cameras (also known as forward looking infra-red or FLIR) as well as spotlights. Team 1 observed 33 deer from Blossom Point out to the entrance gate on Blossom Point Road. Team 2 observed 45 deer from Blossom Point to the north east property boundary and along Middle Road. It is possible that some deer were recounted, though unlikely, as most deer were not overly disturbed by our presence. Some groups of deer ran away as we approached in the trucks, but generally stayed in the same areas all night. Groups of deer that were recognizable by numbers and behavior, later observed using the same areas were not recounted. While the majority of deer were observed in fields (15 in one group and 30 in another), the rest were observed in small groups bedded in the woods on both routes. Due to the spring season and tree foliage filling in, some areas were very thick and it's possible we missed some deer due to visibility.

The total acreage of the facility is 1,600 acres (approximately 2.5 square miles) and most of the habitat is available to the deer. Based on the survey, the deer population is estimated to be near 32 deer per square mile. Using the recommended healthy deer density of 15-20 deer per square mile, the property should have a deer herd no greater than 50 deer. Wildlife Services recommends that deer be removed through increased

hunter harvest, sharpshooting, or a combination of both. The deer herd should be maintained each year at about 50 deer or less to reduce threats of deer-vehicle collisions and threats to the properties' natural resources. We encourage you to continue to consult the Maryland Department of Natural Resources (MDNR) Deer Project staff for further guidance on deer population management at the facility.

Please do not hesitate to contact us for further assistance or if you have questions or comments concerning this letter.

Sincerely,

Daniel Emanueli
Wildlife Biologist
MD/DE/DC Wildlife Services

cc: George Timko, Assistant Deer Project Leader, MDNR

APPENDIX B

Hunting Procedures

MANAGED HUNTING REGULATIONS
U.S. ARMY GARRISON ABERDEEN PROVING GROUND/ADELPHI LABORATORY CENTER (USAG APG/ALC)
BLOSSOM POINT RESEARCH FACILITY (BPRF)

The following rules and regulations describe the policies and procedures that govern managed hunting during the 2021 season at U.S. Army Garrison (USAG) Aberdeen Proving Ground (APG)/ Adelphi Laboratory Center (ALC) Blossom Point Research Facility (BPRF). All individuals entering APG/ALC BPRF under the authority of these rules and regulations are also subject to local, state and federal laws and regulations. All hunting activities on APG/ALC BPRF are authorized and controlled by the Garrison Commander in accordance with applicable federal, state, Charles County Laws and the Department of the Army Regulations. Violations of the laws and rules and regulations will be cause to bar violators from hunting at APG/ALC BPRF. Permanent barring for violations may occur at the Garrison Commander's decision. Criminal violations will be prosecuted in the U.S. Magistrates Court or by court martial, as appropriate. Hunting on APG/ALC BPRF is a privilege and not a right.

Managed hunts will take place on select week days starting October 4, 2021 and will end on December 17, 2021 as the installation testing schedule allows. The hunter's assigned date will be scheduled on a first come first serve basis through the APG/ALC Environmental Division.

To be eligible to participate in the managed hunts at APG/ALC BPRF, hunters must possess or have accomplished the following:

1. Federal ID or Common Access Card (CAC) for current or retired personnel. CAC holders will be able to sponsor one guest this year. The sponsor must be on-site with the individual being sponsored.
2. APG/ALC Site Access Form submitted and cleared (renewed every year).
3. Maryland State Hunter's License for white-tailed deer.
4. Hunter Safety Education Certificate.
5. Shooter Qualification Card (must be renewed every three years).
6. APG/ALC BPRF Hunting Permit ($50 per season or $20 per month). Please make a Cashier's Check or Money Order out to U.S. Treasury and add your address and signature.
7. Confirmation email from the APG/ALC Environmental Division.

The following rules and regulations must be followed by individuals participating in managed hunts:

1. Hunters must comply with the current COVID-19 precautions set forth by the APG Senior Commander. The hunter will be sent the current precautions via email before the day of their hunt. Hunters must arrive at APG/ALC BPRF on the day they are scheduled to hunt at 7:00 a.m. Each hunter is required to provide the entrance items listed above to receive their hunting permit (if not previously received). Privately Owned Vehicles (POV) will be directed to the hunting area by an APG/ALC BPRF Wildlife Conservation Officer (WCO). Weapons must be encased and unloaded while in a vehicle. Hunting will end at 1:30 p.m. Tree stands at APG/ALC BPRF are permanent stands built into the tree.

2. A WCO will give the hunter a safety, security and UXO briefing prior to the start of the hunt. The briefing will include information about the procedures to follow if a deer is wounded. WCO's are the only persons authorized to track a wounded deer. Hunters must stay in the tree stand and must contact a WCO if a deer is wounded or harvested. Hunters must request permission to leave the tree stand for any reason as the Range might be active.

3. WCO's are authorized to conduct inspections of hunters and their property for the purpose of checking bag limits, type of game, and for any other wildlife conservation restriction. They are

authorized to confiscate game animals if taken illegally, to revoke permits, and to ban hunters from the hunt.

4. Deer taken during hunts on APG/ALC BPRF will not count toward the hunter's regular deer firearms season bag limit. This year two antlered and up to six antlerless deer can be harvested during the APG/ALC BPRF Managed Hunt 2021 Season for a total of eight deer. The order a hunter must take deer is as follows: 1 antlerless, 1 antlered, 2 antlerless, 1 antlered and then up to 3 antlerless.

It is not uncommon for some bucks to begin shedding their antlers in mid-December in years when the oak acorn crop is poor. During the late season, the APG/ALC Environmental Division requests that hunters take the time to use binoculars or scope to scan the head for signs of scabbing to help ensure that the deer is a doe and not a mature buck that has already shed its antlers.

5. Hunting will be by shotgun (12 or 20 gauge) for white-tailed deer only. Slug ammunition must be used. Straight-walled cartridges are not permitted on APG ALC BPRF.

6. WCO's will check shotguns and ammunition prior to the hunter entering the tree stand. Any shotguns deemed unsafe shall not be allowed to be used. Hunters are responsible for their weapon. If a weapon is rejected by the WCO, the hunter shall forfeit their opportunity to hunt that day.

7. Hunters are required to wear a blaze orange hat and vest at all times when they are on the installation. Hunters are encouraged to bring all necessary supplies for hunting including something to sit on in the tree stand.

8. Using, possessing, or being under the influence of alcoholic beverages, illegal drugs, or controlled substances during or immediately prior to coming on the installation to hunt is prohibited. The permit of anyone found in violation will be immediately revoked, and he or she will be permanently barred from hunting at APG/ALC BPRF.

9. Hunting will be from established tree stands. Hunters must remain in the stand during their entire assigned hunting period or until removed by a WCO or been given permission to leave the stand at the end of the hunt. Hunters are encouraged to report any defect in stands or other problems to the WCO.

10. Weapons shall not be loaded until the hunter has entered the assigned stand. Weapons will be raised to the stand by rope and then loaded. Weapons will be unloaded before lowering to the ground by rope and during all other times, except when the hunter is actually on the stand.

11. The procedures for checking deer which have been instituted by the Maryland Department of Natural Resources will be strictly enforced. Deer taken at APG/ALC BPRF will not leave the facility until the hunter has completed, except for the confirmation number, the Maryland Big Game Harvest Record found on the back of their hunting license and the completed field tag is affixed to the deer. **County Code for APG/ALC BPRF is 08 and the public land code is 408 (Blossom Point).** Please check the managed-hunt box when checking in the deer.

11. Any individual who does not abide by these rules and regulations will have their hunting permit revoked and will be permanently barred from hunting at APG/ALC BPRF.

13. When you are ready to leave the stand, have harvested a deer or in case of emergency, call for assistance on the walkie-talkie, or 301-394-1675 or 301-394-1534, or 911 if it is an emergency and are unable to reach APG/ALC BPRF personnel.

APPENDIX C

Hunting Permits

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ABERDEEN PROVING GROUND/ADELPHI LABORATORY CENTER/BLOSSOM POINT RESEARCH FACILITY
15000 BLOSSOM POINT ROAD
WELCOME, MD 20693

WHITE-TAILED DEER HUNTING PERMIT

Permit No. _____ Date issued: _____

This permit for white-tailed deer hunting on the APG/ALC/BPRF has been issued to:

Name: _____ Telephone: _____ Email: _____

Street and Number: _____

City: _____ State: _____ Zip: _____

For the period of: _____

Validated

_____ _____

ALC Wildlife Conservation Officer

Sean Sulek
APG/ALC BPRF Site Manager

1. I hereby agree to abide by installation rules and regulations and applicable provisions of Federal, State and Charles County hunting laws. I acknowledge that this permit is a privilege and may be revoked for infractions or violations of installation, County, State, or Federal regulations or conduct prejudicial to the safety of other persons and that I will assume the full responsibility for any negligent acts on my part or that of anyone in my care. I will carry this permit on my person at all times while hunting on this installation.

2. I further agree that:

a. The APG/ALC/BPRF Wildlife Conservation Officers will determine the time and area in which I may hunt.

b. I am fully informed of the Installation regulations and the applicable provisions of the Federal, State and County hunting regulations.

c. I will take all necessary precautions while hunting to prevent accidents to myself and others and to prevent fires or other incidents which may endanger the personnel or property on this installation.

d. I will not enter any known or posted dangerous or restricted areas.

e. The Government shall not be responsible for damages to my property nor for any personal injuries arising from or incident to the use of that property and I shall hold the Government harmless from any and all such claims. The Government shall not be responsible for any damage to persons or property that I may cause while on this installation and I shall hold the Government harmless from any and all such claims. I agree to reimburse the Government for any damage to Army property that I may cause.

f. I will neither introduce onto nor consume on government property any alcoholic beverages or drugs, nor will I hunt while under the influence of same.

g. I have a currently valid hunting license or permit issued by the State of Maryland.

License Number: _____

h. I will be responsible for all damages to property and/or personal injury to any person arising from any incident related to my presence on this installation and shall hold the government harmless from any and all such claims.

_____

SIGNATURE and DATE

APPENDIX D

Managed Hunt Approvals from MDNR

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor
Mark J. Belton, Secretary
Mark L. Hoffman, Acting Deputy Secretary

August 20, 2015

Mr. Joseph F. Watson
Garrison Manager
U.S. Army Garrison Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, MD 20783-1197

Dear Mr. Watson:

Under authority of Annotated Code of Maryland 10-206, I approve November 7, 2015 as the Blossom Point BOW firearm deer hunt. Any deer taken during this hunt will be exempt from Maryland's regular deer bag limit.

BOW deer hunters must still register their deer using one of three methods. Like before, they can use the Internet at www.gamecheck.dnr.state.md.us or the Big Game Registration Phone Line at 1-888-800-0121. They can also now use the new mobile phone app AccessDNR available for iPhone and Android phones (more information is available at http://dnr2.maryland.gov/Pages/dnrapp.aspx).

Please make sure that each hunter is aware they must call or log on to the Internet site within 24 hours of harvest to officially check their deer. They will need their DNRid and the county and land code for where they harvested their deer. Unfortunately, there is no longer a code in our system for Blossom Point, so please instruct hunters to check their deer as Charles County (county code 08), private land, land code 492. We are strongly encouraging operators of managed hunts to check their hunters' Harvest Report Cards and confirm they have completed in ink the species, date, county, sex, and weapon, and have checked the "Managed Hunt Deer" box on the card before they leave the property with their deer.

Hunters are required to complete the Harvest Report Card (except for the confirmation number) before moving the deer from the place of kill. They also must field tag their deer before moving them from the place of kill. Field tags are provided in the "2014-2015 Guide to Hunting & Trapping in Maryland" or they can make their own.

After correctly attaching the Field Tag and completing the Maryland Big Game Harvest Record, the hunter can move the deer from the place of harvest and complete the harvest registration. To complete the registration, the hunter may use one of the three methods outlined above to obtain a confirmation number that is recorded in the same block on the Big Game Harvest Record. Hunters must register their game within 24 hours of taking the deer. Additional Big Game Harvest Records can be obtained from license vendors or online via the hunter's COMPASS account (https://compass.dnr.maryland.gov/dnrcompassportal).

The confirmation number recorded on the Big Game Harvest Record serves as the hunter's possession tag and must remain permanently attached until the deer head is destroyed. Hunters can consult page 38 in the annual hunting and trapping guide for further instructions for registering big game.

If you have any questions regarding your hunts or other deer management activities, feel free to contact Brian Eyler at 301-842-0332. Thank you for working with the Department and providing this opportunity to the BOW hunters.

Sincerely,

Paul A. Peditto
Director,
Wildlife & Heritage Service

Cc: B. Eyler
D. Heilmeier
P. Jayne
H. Spiker
J. Bennett
G. Timko
K. Stonesifer
Regional NRP

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, *Governor*
Boyd Rutherford, *Lt. Governor*
Mark Belton, *Secretary*
Joanne Throwe, *Deputy Secretary*

September 18, 2017

Mr. Kenneth E. Noppenberger
Garrison Manager
U.S. Army Garrison Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, MD 20783-1197

Dear Mr. Noppenberger:

Under authority of Annotated Code of Maryland 10-206, I approve November 4, 2017 as the Blossom Point BOW firearm deer hunt. Any deer taken during this hunt will be exempt from Maryland's regular deer bag limit.

BOW deer hunters must still register their deer using one of three methods. Like before, they can use the Internet at www.gamecheck.dnr.state.md.us or the Big Game Registration Phone Line at 1-888-800-0121. They can also now use the new mobile phone app AccessDNR available for iPhone and Android phones (more information is available at http://dnr2.maryland.gov/Pages/dnrapp.aspx).

Please make sure that each hunter is aware they must call or log on to the Internet site within 24 hours of harvest to officially check their deer. They will need their DNRid and the county and land code for where they harvested their deer. Unfortunately, there is no longer a code in our system for Blossom Point, so please instruct hunters to check their deer as Charles County (county code 08), private land, land code 492. We are strongly encouraging operators of managed hunts to check their hunters' Harvest Report Cards and confirm they have completed in ink the species, date, county, sex, and weapon, and have checked the "Managed Hunt Deer" box on the card before they leave the property with their deer.

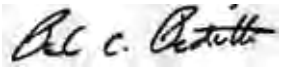
Hunters are required to complete the Harvest Report Card (except for the confirmation number) before moving the deer from the place of kill. They also must field tag their deer before moving them from the place of kill. Field tags are provided in the "2017-2018 Guide to Hunting & Trapping in Maryland" or they can make their own.

After correctly attaching the Field Tag and completing the Maryland Big Game Harvest Record, the hunter can move the deer from the place of harvest and complete the harvest registration. To complete the registration, the hunter may use one of the three methods outlined above to obtain a confirmation number that is recorded in the same block on the Big Game Harvest Record. Hunters must register their game within 24 hours of taking the deer. Additional Big Game Harvest Records can be obtained from license vendors or online via the hunter's COMPASS account (https://compass.dnr.maryland.gov/dnrcompassportal).

The confirmation number recorded on the Big Game Harvest Record serves as the hunter's possession tag and must remain permanently attached until the deer head is destroyed. Hunters can consult page 32 in the annual hunting and trapping guide for further instructions for registering big game.

If you have any questions regarding your hunts or other deer management activities, feel free to contact Brian Eyler at 301-842-0332. Thank you for working with the Department and providing this opportunity once again to the BOW hunters.

Sincerely,



Paul A. Peditto
Director,
Wildlife & Heritage Service

Cc: B. Eyler
D. Heilmeier
H. Spiker
G. Timko
K. Stonesifer
Regional NRP

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, *Governor*
Boyd Rutherford, *Lt. Governor*
Mark Belton, *Secretary*
Joanne Throwe, *Deputy Secretary*

11/20/17

Mr. William Cole
Garrison Manager
USAG Adelphi Laboratory Center
2800 Powder Mill Road
IMAL-ZA
Adelphi, MD 20783

Dear Mr. Cole,

I would like to thank you and the Blossom Point Field Test Facility staff for working with MD DNR on the recent "Becoming an Outdoors Woman" (BOW) deer hunt at Blossom Point. As always Jack Kaiser, Bridget Butcher, and the rest of the Blossom Point Field Test Facility staff were excellent to work with and together we produced a great event that reflects well on both of our agencies.

In addition to the management of the Deer population on Blossom Point Field Test Facility hunts like this (by keeping the deer moving) contribute to the success of hunters (and deer management) on the adjacent Cedar Point WMA. This continued hunting effort by both of our agencies on these lands is beneficial from a large scale management approach helping both agencies work toward their deer management goals.

Just as importantly events like these provide a great recreational (and educational) opportunity for those interested in getting involved in hunting. The staff at Blossom Point Field Test Facility have created a situation where new hunters can learn about hunting practices, safety, and ethics in a safe and structured environment. Working together with our DNR staff that implements the "BOW" program Blossom Point staff are responsible for providing the opportunity for a lot of people to learn about and get involved in hunting in a great setting. I could tell by the response of our "BOW" hunt participants there at Blossom Point everyone had a great experience whether they were successful at harvesting a deer or not.

Again thank you for allowing your staff to work with us on this great event. We look forward to many more "Becoming an Outdoors Woman" events at Blossom Point Field Test Facility in the years to come.

Thank you,
David Heilmeier

MD DNR Wildlife and Heritage Service
Southern Region Manager

Cc: Bridget Butcher
Jack Kaiser

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, *Governor*
Boyd Rutherford, *Lt. Governor*
Mark Belton, *Secretary*
Joanne Throwe, *Deputy Secretary*

September 26, 2018

Mr. Kenneth E. Noppenberger
Garrison Manager
U.S. Army Garrison Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, MD 20783-1197

Dear Mr. Noppenberger:

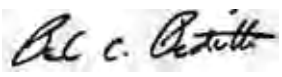
Under authority of Annotated Code of Maryland 10-206, I approve November 3, 2018 as the Blossom Point BOW firearm deer hunt. Any deer taken during this hunt will be exempt from Maryland's regular deer bag limit. Hunts like the BOW deer hunt are important for helping to control deer numbers, which reduces habitat damage due to browsing, and they also serve a vital role in recruiting new hunters.

Hunters in your program must follow all other laws and regulations for deer hunting in Maryland. They must have a valid hunting license, wear fluorescent orange or pink during the appropriate seasons, and field tag and check-in their deer using the DNR registration system. Please note that the requirement for field tagging and registering deer has changed for the 2018 season and hunters now have the option of maintaining their Harvest Record electronically. Please see pages 32 – 33 in the "2018 – 2019 Guide to Hunting & Trapping in Maryland" for further instructions.

Deer hunters can continue to register their deer one of three ways. They can use the Internet at www.gamecheck.dnr.state.md.us or the Big Game Registration Phone Line at 1-888-800-0121. They can also use the mobile phone app AccessDNR available for iPhone and Android phones (more information is available at http://dnr2.maryland.gov/Pages/dnrapp.aspx). Please make sure that each hunter is aware they must call or log on to the Internet/app site within 24 hours of harvest to officially check their deer. They will need their DNRid and county/land codes for where they harvested the deer. At this time there is not a code in our system for Blossom Point, so please instruct hunters to check their deer as Charles County (county code 08), private land, land code 492.

If you have any questions regarding your hunts or other deer management activities, feel free to contact Brian Eyler at 301-842-0332. Thank you for working with the Department and providing this opportunity once again to the BOW hunters.

Sincerely,



Paul A. Peditto
Director, Wildlife & Heritage Service

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Jeannie Haddaway-Riccio, Secretary

September 3, 2019

Mr. James Krake
Director of Public Works (A)
Chief, Environmental Division
APG/ALC Directorate of Public Works
U.S. Army Garrison Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, MD 20783-1197

Dear Mr. Krake:

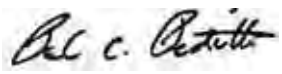
Under authority of Annotated Code of Maryland 10-206, I approve November 2, 2019 as the Blossom Point Research Facility (BPRF) BOW firearm deer hunt. Likewise, I authorize BPRF to conduct managed hunts using firearms from October 4, 2019 – January 25, 2020. Any deer taken during these hunts will be exempt from Maryland's regular deer bag limit. As specified, the bag limit will be 4 antlerless deer for the BOW hunt and 4 antlerless deer for the managed hunts. Limited antlered deer harvest will be permitted on a random basis during the BOW and managed hunts. Managed deer hunts are essential for helping to control deer numbers, which reduces habitat damage due to browsing, and they also serve a vital role in recruiting new hunters.

Hunters in your program must follow all other laws and regulations for deer hunting in Maryland. They must have a valid hunting license, wear fluorescent orange or pink during the appropriate seasons, and field tag and check-in their deer using the DNR registration system. Please consult the "2019 – 2020 Guide to Hunting & Trapping in Maryland" for further instructions.

Deer hunters can continue to register their deer one of three ways. They can use the Internet at www.gamecheck.dnr.state.md.us or the Big Game Registration Phone Line at 1-888-800-0121. They can also use the mobile phone app AccessDNR available for iPhone and Android phones (more information is available at http://dnr.maryland.gov/Pages/dnrapp.aspx). Please make sure that each hunter is aware they must call or log on to the Internet/app site within 24 hours of harvest to officially check their deer. Hunters will need their DNRid and county/land codes for where they harvested the deer. The land code for Blossom Point is 408.

If you have any questions regarding your hunts or other deer management activities, feel free to contact Brian Eyler at 301-842-0332. Thank you for working with the Department and providing this opportunity once again to the BOW hunters.

Sincerely,



Paul A. Peditto
Director, Wildlife & Heritage Service

Cc: K. Stonesifer G. Timko
T. Larney
H. Spiker
D. Heilmeier
B. Eyler

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Jeannie Haddaway-Riccio, Secretary

September 3, 2019

Mr. James Krake
Director of Public Works (A)
Chief, Environmental Division
APG/ALC Directorate of Public Works
U.S. Army Garrison Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, MD 20783-1197

Dear Mr. Krake:

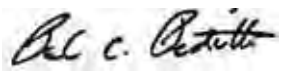
Under authority of Annotated Code of Maryland 10-206, I approve November 2, 2019 as the Blossom Point Research Facility (BPRF) BOW firearm deer hunt. Likewise, I authorize BPRF to conduct managed hunts using firearms from October 4, 2019 – January 25, 2020. Any deer taken during these hunts will be exempt from Maryland's regular deer bag limit. As specified, the bag limit will be 4 antlerless deer for the BOW hunt and 4 antlerless deer for the managed hunts. Limited antlered deer harvest will be permitted on a random basis during the BOW and managed hunts. Managed deer hunts are essential for helping to control deer numbers, which reduces habitat damage due to browsing, and they also serve a vital role in recruiting new hunters.

Hunters in your program must follow all other laws and regulations for deer hunting in Maryland. They must have a valid hunting license, wear fluorescent orange or pink during the appropriate seasons, and field tag and check-in their deer using the DNR registration system. Please consult the "2019 – 2020 Guide to Hunting & Trapping in Maryland" for further instructions.

Deer hunters can continue to register their deer one of three ways. They can use the Internet at www.gamecheck.dnr.state.md.us or the Big Game Registration Phone Line at 1-888-800-0121. They can also use the mobile phone app AccessDNR available for iPhone and Android phones (more information is available at http://dnr.maryland.gov/Pages/dnrapp.aspx). Please make sure that each hunter is aware they must call or log on to the Internet/app site within 24 hours of harvest to officially check their deer. Hunters will need their DNRid and county/land codes for where they harvested the deer. The land code for Blossom Point is 408.

If you have any questions regarding your hunts or other deer management activities, feel free to contact Brian Eyler at 301-842-0332. Thank you for working with the Department and providing this opportunity once again to the BOW hunters.

Sincerely,



Paul A. Peditto
Director, Wildlife & Heritage Service

Cc: K. Stonesifer G. Timko
T. Larney
H. Spiker
D. Heilmeier
B. Eyler

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Jeannie Haddaway-Riccio, Secretary

September 17, 2020

Mr. Vance Hobbs
Chief, Environmental Division
APG/ALC Directorate of Public Works
U.S. Army Garrison Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, MD 20783-1197

Dear Mr. Hobbs:

Under authority of Annotated Code of Maryland 10-206, I authorize BPRF to conduct managed hunts using firearms from October 5, 2020 – December 18, 2020. Any deer taken during these hunts will be exempt from Maryland's regular deer bag limit. As specified, the bag limit will be eight antlerless deer per hunter for the season. Hunters will be allowed to harvest white-tailed deer in the proposed order: one antlerless, one antlered, two antlerless, one antlered, and then up to three antlerless deer. The total limit of deer that can be harvested during this program will be 65 animals. Managed deer hunts are essential for helping to control deer numbers, which reduces habitat damage due to browsing, and they also serve a vital role in recruiting new hunters.

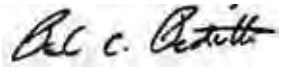
Hunters in your program must follow all other laws and regulations for deer hunting in Maryland. They must have a valid hunting license, wear fluorescent orange or pink during the appropriate seasons, and field tag and check-in their deer using the DNR registration system. Please consult the "2020 – 2021 Maryland Guide to Hunting & Trapping" for further instructions.

Please note that straight-walled cartridge rifles are now legal in all Maryland counties during the designated firearm seasons. This change can also apply to managed hunts that currently limit hunters to shotguns. It is at the discretion of the hunt manager to decide whether to allow these weapons, but it may be beneficial to do so to provide consistency for hunters, who may be more comfortable and more effective using the same weapon throughout the hunting season.

Deer hunters can continue to register their deer one of three ways. They can use the Internet at www.gamecheck.dnr.state.md.us or the Big Game Registration Phone Line at 1-888-800-0121. They can also use the mobile phone app AccessDNR available for iPhone and Android phones (more information is available at http://dnr.maryland.gov/Pages/dnrapp.aspx). Please make sure that each hunter is aware they must call or log on to the Internet/app site within 24 hours of harvest to officially check their deer. Hunters will need their DNRid and county/land codes for where they harvested the deer. The land code for Blossom Point is 408.

If you have any questions regarding your hunts or other deer management activities, feel free to contact Brian Eyler at 301-842-0332. Thank you once again for working with the Department to effectively manage Maryland's white-tailed deer population.

Sincerely,



Paul A. Peditto
Director, Wildlife & Heritage Service

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Jeannie Haddaway-Riccio, Secretary
Allan Fisher, Acting Deputy Secretary

July 6, 2021

Mr. Vance Hobbs
Chief, Environmental Division
APG/ALC Directorate of Public Works
U.S. Army Garrison Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, MD 20783-1197

Dear Mr. Hobbs:

Under authority of Annotated Code of Maryland 10-206, I authorize BPRF to conduct managed hunts using firearms from October 1, 2021 – December 17, 2021. Any deer taken during these hunts will be exempt from Maryland's regular deer bag limit. As specified, the bag limit will be eight antlerless deer per hunter for the season. Hunters will be allowed to harvest white-tailed deer in the proposed order: one antlerless, one antlered, two antlerless, one antlered, and then up to three antlerless deer. The total limit of deer that can be harvested during this program will be 65 animals. Managed deer hunts are essential for helping to control deer numbers, which reduces habitat damage due to browsing, and they also serve a vital role in recruiting new hunters.

Hunters in your program must follow all other laws and regulations for deer hunting in Maryland. They must have a valid hunting license, wear fluorescent orange or pink during the appropriate seasons, and field tag and check-in their deer using the DNR registration system. Please consult the "2021 – 2022 Maryland Guide to Hunting & Trapping" for further instructions.

Deer hunters can continue to register their deer one of three ways. They can use the Internet at www.gamecheck.dnr.state.md.us or the Big Game Registration Phone Line at 1-888-800-0121. They can also use the mobile phone app AccessDNR available for iPhone and Android phones (more information is available at http://dnr.maryland.gov/Pages/dnrapp.aspx). Please make sure that each hunter is aware they must call or log on to the Internet/app site within 24 hours of harvest to officially check their deer. Hunters will need their DNRid and county/land codes for where they harvested the deer. The land code for Blossom Point is 408.

If you have any questions regarding your hunts or other deer management activities, feel free to contact Brian Eyler at 301-842-0332. Thank you for proactively managing deer on military property.

Sincerely,

Paul A. Peditto
Director, Wildlife & Heritage Service

APPENDIX E

USDA Wildlife Services Correspondence, Plans, and Reports

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

REPLY TO
ATTENTION OF

IMAL-PWE

22 October 2015

Mr. Kevin J. Sullivan
State Director
MD/DE/DC
United States Department of Agriculture
Animal and Plant Health Inspection Service, Wildlife Services
1568 Whitehall Road
Annapolis, MD 21409

Dear Mr. Sullivan,

This letter and the enclosed White-tailed Deer (*Odocoileus virginianus*) Management Plan are intended to highlight and provide insight into U.S. Army Garrison Adelphi Laboratory Center's (ALC) deer management program and the problems associated with the overabundance of deer for the limited natural habitats available.

Our most recent deer census taken in April of 2015 by USDA-APHIS indicated that the deer population was 32. We assume with the addition of new fawns that the population could now be closer to 50 deer. Although the total acreage of the campus is 207 acres, we estimate that there is approximately 120 acres of habitat available to the deer herd. The other acreage consists of buildings, paved surfaces, landscaping and other developed areas. It is the Garrison's position that the deer herd be reduced to 5 to 10 deer.

In our opinion, the USDA-APHIS sharpshooting program is the only viable lethal deer management option which can effectively manage the growth of ALC's deer herd. Thus, we are requesting the services of USDA-APHIS in 2015-16 to harvest deer on the Garrison to bring the herd to a sustainable level. We request the deer be provided to a local food bank.

Sincerely,

Bridget Kelly Butcher

Bridget Kelly Butcher
Natural Resources Manager

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

REPLY TO
ATTENTION OF

IMAL-PWE

22 February 2015

Mr. Kevin J. Sullivan
State Director
MD/DE/DC
United States Department of Agriculture
Animal and Plant Health Inspection Service, Wildlife Services
1568 Whitehall Road
Annapolis, MD 21409

Dear Mr. Sullivan,

This letter and our White-tailed Deer (*Odocoileus virginianus*) Management Plan are intended to highlight and provide insight into U.S. Army Garrison Adelphi Laboratory Center's (ALC) deer management program and the problems associated with the overabundance of deer for the natural habitats available.

Our most recent deer census taken in April of 2015 by USDA-APHIS indicated that the estimated deer population on Blossom Point Research Facility (BPRF) was 113. We assume with the addition of fawns and deer that were not counted that the population is much higher. The recommended sustainable number of deer for BPRF's 1,600 acres is about 50 deer.

In previous years, the deer herd at BPRF was managed via the five deer hunts (35 hunters per hunt) that took place each season. The hunts were suspended in 2011 due to staff and budget cuts. In 2015, two hunts (20 hunters per hunt) took place at BPRF and 20 deer were harvested. ALC staff hope to add an additional hunt at BPRF (with 20 hunters) in the 2016 season bringing the total to three hunts per season.

Due to the fact that the hunts were suspended for three seasons and a limited number of hunts were held in 2015, we feel the deer herd is still too large and that the health of the herd will continue to decline. In our opinion, the USDA-APHIS sharpshooting program is an additional management option for this year. Thus, we are requesting the one time service of USDA-APHIS in March 2016 to harvest deer on BPRF. We request the deer be provided to a local food bank.

Sincerely,

Bridget Kelly Butcher

Bridget Kelly Butcher
Natural Resources Manager

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services
1568 Whitehall Rd.
Annapolis, MD
21409

410-349-8055
410-349-8258 Fax

April 6, 2016

George Timko
Assistant Deer Project Leader
MD DNR, Wildlife & Heritage Service
Washington Monument State Park
6620 Zittlestown Road
Middletown, MD 21769

SUBJECT: Deer Management Activity Report for Operational Plan Permit Number 55461-ALC-2016

Dear Mr. Timko:

This letter and attachment serve as a written summary of the deer control actions that the USDA, Animal and Plant Health Inspection Service, Wildlife Services has executed under the Deer Cooperator Permit, Operational Plan Permit Number 55461-GSF-2016, issued by Maryland Department of Natural Resources. This summary is for the sharpshooting operations Wildlife Services conducted at Adelphi Laboratory Center, US Army Garrison in Adelphi Maryland.

The attachment titled "Deer Removal and Carcass Disposal Summary" provides data for the deer control actions at Adelphi including the number of deer removed, date of removal, and disposition of the carcasses. A total of 49 white-tailed deer were removed under the authority of this permit at Adelphi to protect natural resources, property and human health and safety on the Center. Harvest data was taken from the deer removed from the Center and is enclosed with this letter.

The corresponding used Non-hunting Deer Tags were distributed with the meat that was prepared and donated through John's Butcher Shoppe, and the corresponding bottom tag portions are enclosed. Please do not hesitate to contact me if you have comments or need additional information.

Sincerely,

Robert Fey
USDA-APHIS
Wildlife Services

Attachment: Deer Removal and Carcass Disposal Summary

DEER REMOVAL and CARCASS DISPOSAL SUMMARY

OPERATIONAL PLAN PERMIT NUMBER: 55461-ALC-2016

White-tailed deer control at Adelphi Laboratory Center

Date	Buck	Doe	Not Recovered	Total	Disposition	Pounds of Venison
1/13/16	8	4	0	12	12 Delivered to Clayton's Butcher Shop	317
1/14/16	4	16	0	20	20 Delivered to Clayton's Butcher Shop	521
2/10/16	4	7	0	11	11 Delivered to Clayton's Butcher Shop	289
2/17/16	5	1	0	6	6 Delivered to Clayton's Butcher Shop	158
Total	**21**	**28**	**0**	**49**	Delivered to Clayton's Butcher Shop	**1285**

Date(s) 3/28/17

DEER COOPERATOR DATA COLLECTION LOG

Deer Cooperator Permit Number 55461-BPR-2017 Location Blossom Point Research Facility Collector(s) FEY

Non-Hunt Deer Tag # List Red number from tag	Deer Sex Indicate (circle one) M-Male or F-Female	Deer Age Indicate (circle one) Fawn - F or Adult - A	Body Condition Index Indicate overall body condition (circle one) G-Good / F-Fair / P-Poor	Note any abnormalities, deformities, presence of disease, injuries, parasites, other
40630	M / (F)	F / (A)	(G) / F / P	
631	M / (F)	F / (A)	(G) / F / P	
632	M / (F)	F / (A)	(G) / F / P	
633	M / (F)	F / (A)	(G) / F / P	
634	M / (F)	F / (A)	G / (F) / P	
635	M / (F)	F / (A)	(G) / F / P	
636	(M) / F	F / (A)	(G) / F / P	SHED
637	M / (F)	F / (A)	(G) / F / P	
638	(M) / F	F / (A)	(G) / F / P	SHED
639	(M) / F	F / (A)	(G) / F / P	SHED
640	(M) / F	F / (A)	G / (F) / P	SHED
641	(M) / F	F / (A)	(G) / F / P	SHED
642	M / (F)	F / (A)	(G) / F / P	
643	(M) / F	F / (A)	(G) / F / P	SHED
644	(M) / F	F / (A)	(G) / F / P	SHED

Date(s) 3/26/17

DEER COOPERATOR DATA COLLECTION LOG

Deer Cooperator Permit Number 55461-BPR-2017 Location Blossom Point Research Facility Collector(s) FEY

Non-Hunt Deer Tag # List Red number from tag	Deer Sex Indicate (circle one) M-Male or F-Female	Deer Age Indicate (circle one) Fawn - F or Adult - A	Body Condition Index Indicate overall body condition (circle one) G-Good / F-Fair / P-Poor	Note any abnormalities, deformities, presence of disease, injuries, parasites, other
645	M / (F)	F / (A)	(G) / F / P	
646	(M) / F	F / (A)	(G) / F / P	SITED
647	M / (F)	F / (A)	(G) / F / P	HEALED BROKEN REAR LEG
648	M / (F)	F / (A)	(G) / F / P	
649	M / (F)	F / (A)	(G) / F / P	
650	M / (F)	(F) / A	(G) / F / P	
651	(M) / F	(F) / A	(G) / F / P	B,B
652	(M) / F	F / (A)	(G) / F / P	SITED
653	(M) / F	(F) / A	G / (F) / P	B,B
654	M / (F)	F / (A)	(G) / F / P	
655	(M) / F	F / (A)	(G) / F / P	SITED
656	M / (F)	F / (A)	G / (F) / P	
657	M / (F)	F / (A)	(G) / F / P	
658	M / (F)	F / (A)	(G) / F / P	
659	M / (F)	F / (A)	(G) / F / P	

Date(s) 3/28/17

DEER COOPERATOR DATA COLLECTION LOG

Deer Cooperator Permit Number 55461-BPR-2017 Location Blossom Point Research Facility Collector(s) Fey

Non-Hunt Deer Tag # List Red number from tag	Deer Sex Indicate (circle one) M-Male or F-Female	Deer Age Indicate (circle one) Fawn - F or Adult - A	Body Condition Index Indicate overall body condition (circle one) G-Good / F-Fair / P-Poor	Note any abnormalities, deformities, presence of disease, injuries, parasites, other
660	(M) / F	F / (A)	(G) / F / P	SHED
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	
	M / F	F / A	G / F / P	

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services
1568 Whitehall Rd.
Annapolis, MD 21409

410-349-8055
410-349-8258 Fax

April 11, 2018

George Timko
Assistant Deer Project Leader
MD DNR, Wildlife & Heritage Service
Washington Monument State Park
6620 Zittlestown Road
Middletown, MD 21769

SUBJECT: Deer Management Activity Report for Operational Plan Permit Number 55461-ALC-2018

Dear Mr. Timko:

This letter and attachment serve as a written summary of the deer control actions that the USDA, Animal and Plant Health Inspection Service, Wildlife Services has executed under the Deer Cooperator Permit, Operational Plan Permit Number 55461-ALC-2018, issued by Maryland Department of Natural Resources. This summary is for the sharpshooting operations Wildlife Services conducted at the Adelphi Laboratory Center, US Army Garrison, Adelphi, MD (Adelphi).

The attachment titled "Deer Removal and Carcass Disposal Summary" provides data for the deer control actions at Adelphi including the number of deer removed, date of removal, and disposition of the carcasses. A total of 24 white-tailed deer were removed under the authority of this permit at Adelphi to protect natural resources, property and human health and safety on the Center. Per the special condition in the operational plan, MDNR Specified no more than 15% of the total harvest may be antlered deer and no antler spread wider than distance between the deer's ears. This condition was satisfied as 0% of the total harvest was antlered (0 antlered deer). Harvest data was taken from the deer removed from the Center and is enclosed with this letter.

The corresponding used Non-hunting Deer Tags were distributed with the meat that was prepared and donated through John's Butcher Shoppe, and the corresponding bottom tag portions are enclosed. Please do not hesitate to contact me if you have comments or need additional information.

Sincerely,

Dan Emanueli
USDA-APHIS
Wildlife Services

Attachment: Deer Removal and Carcass Disposal Summary

DEER REMOVAL and CARCASS DISPOSAL SUMMARY

OPERATIONAL PLAN PERMIT NUMBER: 55461-ALC-2018

White-tailed deer control at Adelphi Laboratory center

Date	Buck	Doe	Not Recovered	Total	Disposition	Pounds of Venison
3/14/18	4	8		12	12 delivered to Clayton's butcher shop	336
3/19/18	9	3		12	12 delivered to Clayton's butcher shop	336
Total	**13**	**11**		**24**	24 Delivered to Clayton's Butcher Shop	**672**

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services
1568 Whitehall Rd.
Annapolis, MD 21409

410-349-8055
410-349-8258 Fax

April 11, 2018

George Timko
Assistant Deer Project Leader
MD DNR, Wildlife & Heritage Service
Washington Monument State Park
6620 Zittlestown Road
Middletown, MD 21769

SUBJECT: Deer Management Activity Report for Operational Plan Permit Number 53331-BPR-2018

Dear Mr. Timko:

This letter and attachment serve as a written summary of the deer control actions that the USDA, Animal and Plant Health Inspection Service, Wildlife Services has executed under the Deer Cooperator Permit, Operational Plan Permit Number 53331-BPR-2018, issued by Maryland Department of Natural Resources. This summary is for the sharpshooting operations Wildlife Services conducted at Blossom Point Research Facility (BPR).

The attachment titled "Deer Removal and Carcass Disposal Summary" provides data for the deer control actions at BPR including the number of deer removed, date of removal, and disposition of the carcasses. A total of 33 white-tailed deer were removed under the authority of this permit at BPR to protect natural resources, property and human health and safety at the facility. Per the special condition in the deer cooperator permit, MDNR Specified no more than 15% of the total harvest may be antlered deer and no antler spread wider than distance between the deer's ears. This condition was satisfied as 0% of the total harvest was antlered (0 deer). Harvest data was taken from the deer removed from the facility, and is enclosed with this letter.

The corresponding used Non-hunting Deer Tags were distributed with the meat that was prepared and donated through John's Butcher Shoppe, and the corresponding bottom tag portions are enclosed. Please do not hesitate to contact me if you have comments or need additional information.

Sincerely,

Dan Emanueli
USDA-APHIS
Wildlife Services

Attachment: Deer Removal and Carcass Disposal Summary

DEER REMOVAL and CARCASS DISPOSAL SUMMARY

OPERATIONAL PLAN PERMIT NUMBER: 53331-BPR-2018

White-tailed deer control at Blossom Point Research facility

Date	Buck	Doe	Not Recovered	Total	Disposition	Pounds of Venison
3/12/18	11	9		20	20 Delivered to Clayton's Butcher Shop	560
3/27/18	5	8		13	13 Delivered to Clayton's Butcher Shop	364
Total	**16**	**17**		**33**	33 Delivered to Clayton's Butcher Shop	**924**

APPENDIX O:
Integrated Wildland Fire Management Plan

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U.S. Army Corps of Engineers
Baltimore District

INTEGRATED WILDLAND FIRE MANAGEMENT PLAN

U.S. Army Garrison Aberdeen Proving Ground
Adelphi Laboratory Center,
Montgomery and Prince George's Counties, MD
Blossom Point Research Facility,
Charles County, MD

December 2020

Prepared for:	**Environmental Division** **U.S. Army Garrison Aberdeen Proving Ground** **Adelphi Laboratory Center** **Adelphi, Maryland 20783**
Prepared by:	**U.S. Army Corps of Engineers, Baltimore District** **10 South Howard Street** **Baltimore, Maryland 21201**

L	C	E	S
Lookouts	Communications	Escape Routes	Safety Zones

The 10 Standard Fire Orders

Fire Behavior

1. Keep informed on fire weather conditions and forecasts.
2. Know what your fire is doing at all times.
3. Base all actions on current and expected behavior of the fire.

Fireline Safety

4. Identify escape routes and safety zones and make them known.
5. Post lookouts when there is possible danger.
6. Be alert. Keep calm. Think clearly. Act decisively.

Organizational Control

7. Maintain prompt communications with your forces, your supervisor and adjoining forces.
8. Give clear instructions and insure they are understood.
9. Maintain control of your forces at all times.

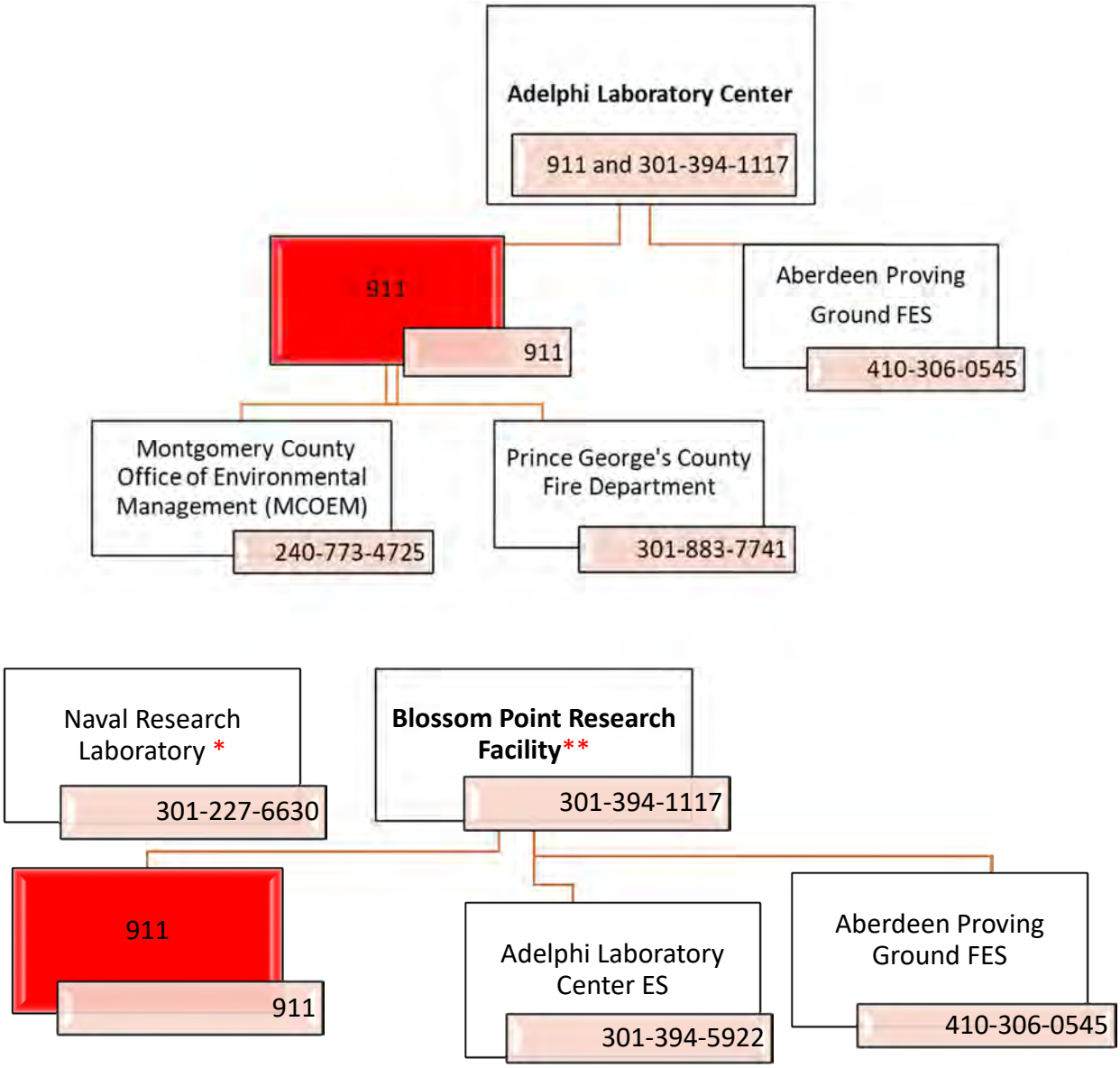
If 1-9 are considered, then...

10. Fight fire aggressively, having provided for safety first.

The 10 Standard Fire Orders are firm. We don't break them; we don't bend them. All firefighters have the right to a safe assignment.

The 18 Watch Out Situations

1. Fire not scouted and sized up.
2. In country not seen in daylight.
3. Safety zones and escape routes not identified.
4. Unfamiliar with weather and local factors influencing fire behavior
5. Uninformed on strategy, tactics, and hazards.
6. Instructions and assignments not clear.
7. No communication link between crewmembers and supervisors.
8. Constructing line without safe anchor point.
9. Building line downhill with fire below.
10. Attempting frontal assault on fire.
11. Unburned fuel between you and the fire.
12. Cannot see main fire, not in contact with anyone who can.
13. On a hillside where rolling material can ignite fuel below.
14. Weather gets hotter and drier.
15. Wind increases and/or changes direction.
16. Getting frequent spot fires across line.
17. Terrain or fuels make escape to safety zones difficult.
18. Feel like taking a nap near fireline.



*** NRL must notify BPRF after calling 911 if a fire occurs in the NRL lease area. BPRF must also notify NRL after contacting 911 in the event of a wildfire on the property.**
**** The ALC Environmental Division (301-394-1062) will be contacted by BPRF after the fire is suppressed.**

INTEGRATED WILDLAND FIRE MANAGEMENT PLAN

U.S. Army Garrison Aberdeen Proving Ground
Adelphi Laboratory Center,
Montgomery and Prince George's Counties, MD
Blossom Point Research Facility,
Charles County, MD

December 2020

Prepared for:

Environmental Division
U.S. Army Garrison Aberdeen Proving Ground
Adelphi Laboratory Center
Adelphi, Maryland 20783

Prepared by:

U.S. Army Corps of Engineers, Baltimore District
10 South Howard Street
Baltimore, Maryland 21201

Integrated Wildland Fire Management Plan
U.S. Army Garrison Aberdeen Proving Ground
Adelphi Laboratory Center
Montgomery and Prince George's Counties
Blossom Point Research Facility,
Charles County

Prepared By:
U.S. Army Corps of Engineers
Baltimore District
10 S. Howard Street
Baltimore, Maryland, 21201

Approved by:

SULEK.SEAN.CHRISTIAN.1237832473 Digitally signed by SULEK.SEAN.CHRISTIAN.1237832473 Date: 2020.12.18 14:54:29 -05'00'

Sean Sulek
Site Manager
U.S. Army Garrison
Aberdeen Proving Ground, MD
Blossom Point Research Facility, MD

BALLARD.ADAM.CHRISTOPHER.1163504681 Digitally signed by BALLARD.ADAM.CHRISTOPHER.1163504681 Date: 2021.02.09 14:49:05 -05'00'

Adam Ballard
Chief, Fire and Emergency Services
U.S. Army Garrison
Aberdeen Proving Ground, MD

HOBBS.VANCE.G.1229303801 Digitally signed by HOBBS.VANCE.G.1229303801 Date: 2021.02.26 14:21:50 -05'00'

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

ALTENBURG.FRANK.ROBB.1041861955 Digitally signed by ALTENBURG.FRANK.ROBB.1041861955 Date: 2021.01.28 14:40:56 -05'00'

F. Robb Altenburg
Garrison Manager (A)
U.S. Army Garrison
Aberdeen Proving Ground, MD
Adelphi Laboratory Center, MD

KUCHAR.THOMAS.P.1032242304 Digitally signed by KUCHAR.THOMAS.P.1032242304 Date: 2021.05.17 15:28:39 -04'00'

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

GRIGGS.BRUCE.EDWARD.1049463240 Digitally signed by GRIGGS.BRUCE.EDWARD.1049463240

Bruce E. Griggs
Director of Operations
U.S. Army Garrison
Aberdeen Proving Ground, MD

Timothy E. Druell
Colonel, U.S. Army
Commander, U.S. Army Garrison
Aberdeen Proving Ground, MD

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TABLES

FIGURES

APPENDICES

CHAPTER 1 - INTRODUCTION

1.1 PURPOSE AND SCOPE

The primary purpose of the Integrated Wildland Fire Management Plan (IWFMP) is to define the Wildland Fire Management program at U.S. Army Garrison Aberdeen Proving Ground (APG) Adelphi Laboratory Center (ALC) and Blossom Point Research Facility (BPRF), which includes the responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while protecting public and firefighter health and safety and supporting military preparedness. The installations included in this plan are ALC and BPRF. The IWFMP provides the planning framework for all fire management decision-making, and specifies the uses of fire for prescribed burns, which are consistent with land management objectives.

1.2 LOCATION

ALC

ALC (Latitude 39 -1'-45"N, Longitude 76 -58'-19"W) is located in Adelphi, Maryland (Figure 1). The site straddles the border between two Maryland jurisdictions, Prince George's and Montgomery Counties. Of the total 207 acre area, 84 acres are within Montgomery County and 123 acres are within Prince George's County. ALC is approximately 6 miles from the District of Columbia. The installation is located within one mile of the Capital Beltway (Interstate 495) and Interstate 95 (I-95). ALC lies in the Anacostia River drainage basin which is a tributary of the Potomac River. It is bordered by residential areas on the east and south and by the General Service Administration's Federal Center on the north and west. ALC consists of four main building areas with parking lots, forested lands and two stream corridors, Paint Branch and Hillandale Tributary.

BPRF

BPRF (Latitude 38 -24 -50"N, Longitude 77 5 -50"W) occupies approximately 1,600 acres on Cedar Point Neck in southern Charles County, Maryland (Figure 1). It is located approximately 65 miles southeast of ALC. BPRF is approximately 35 miles south of the District of Columbia. The closest town is La Plata, MD, which is approximately 9 miles northeast of the facility. BPRF is situated on Cedar Point Neck, a peninsula on the north side of the Potomac River and is bounded on three sides by the Potomac and Nanjemoy Creek. The area to the north of the facility includes sparsely populated agricultural and forest lands. BPRF is largely forested with wetlands, open fields, testing areas, and a few buildings.

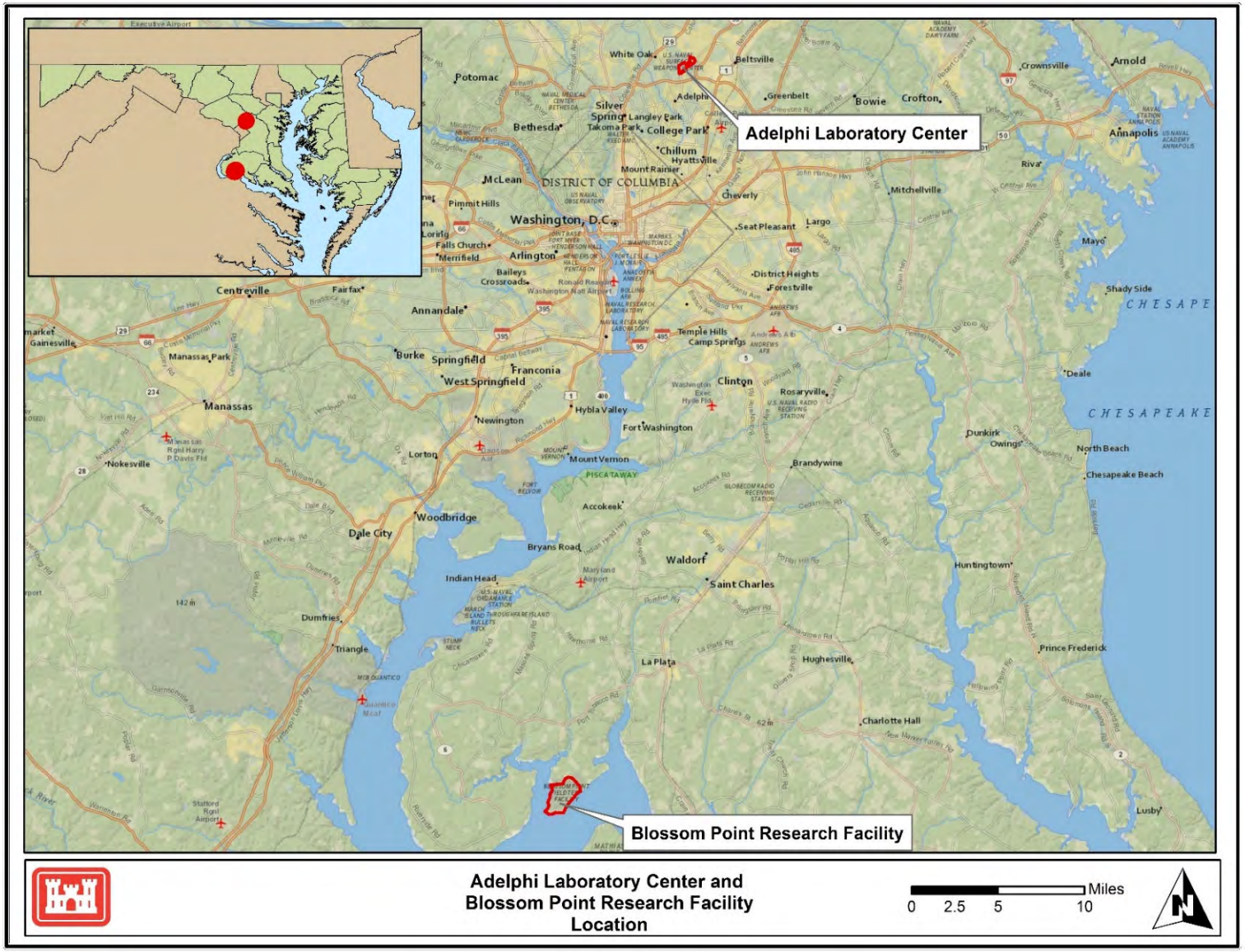

Figure 1 - ALC and BPRF Location Map

1.3 FIRE MANAGEMENT ZONES

ALC

ALC is divided into five zones—100 Area, 200 Area, 400 Area, 500 Area and 600 Area. Land use activities occurring at ALC include administrative and maintenance functions, research laboratories, flammables storage sites, and explosive storage sites. Fire Management Zones and land cover types for ALC are presented in Figure 2.

100 Area: This area consists of approximately 35 acres and is the most developed/maintained fire management zone at ALC. A small strip of hardwood forest borders the 100 area buildings and the residential neighborhood to the west.

200 Area: The 200 area consists of 65 acres and contains a number of laboratories and administrative buildings bordered by mature hardwood forest.

400 Area: The 400 area consists of 39 acres containing developed/maintained land used primarily for explosive testing and storage bounded by hardwood forest and by Paint Branch on the west.

500 Area: The 500 area is 26 acres and consists of laboratories and mature hardwood forest.

600 Area: This area consists of 52 acres and contains an administration building surrounded by an oak dominant forest with overgrowth of invasive vegetation.

BPRF

BPRF is divided into three zones—referred to as A, B, and C, respectively. The zones are labeled alphabetically to avoid confusion with the numerical forest compartment and forest stand numbering system developed for the BPRF Forest Management Plan (FMP). Land use activities occurring at BPRF include administrative and maintenance functions, tenant leases, research and development areas for testing of pre-deployed weapons systems, and ammunition storage sites. Fire Management Zones and land cover types for BPRF are presented in Figure 3.

A: This zone consists of approximately 401 acres and is considered the cantonment area of the BPRF installation. Zone A contains administration and maintenance structures, testing areas, ranges and firing points, and an impact area.

B: This zone encompasses the forest compartments and forest stands delineated in the BPRF FMP.

C: This zone is approximately 291 acres of which 42 is leased by the U.S. Naval Research Laboratory (NRL). NRL will coordinate with the ALC Environmental Division for controlled burns at this location.

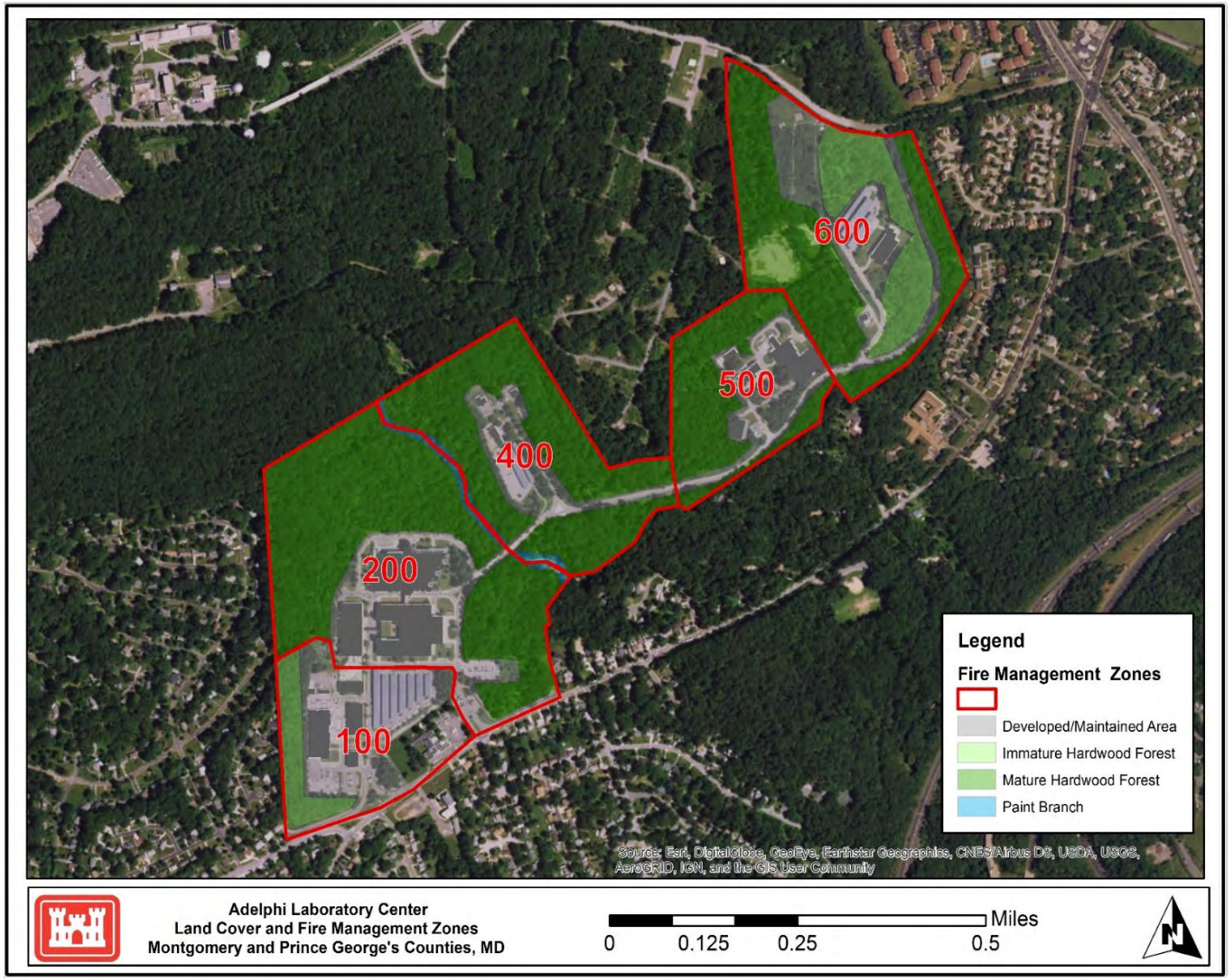

Figure 2 - ALC Land Cover Types and Fire Management Zones

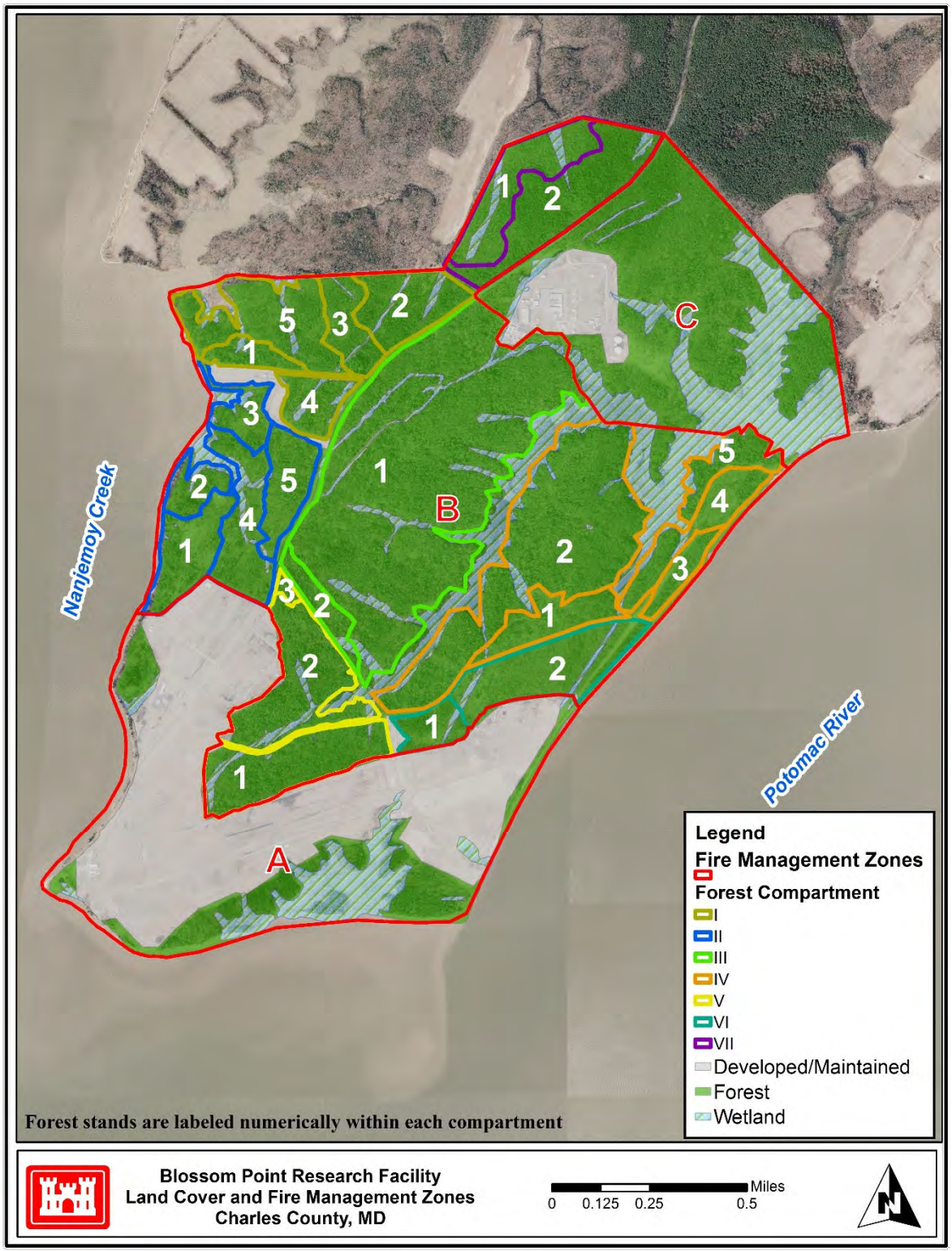

Figure 3 - BPRF Land Cover and Fire Management Zones

1.4 APPLICABLE REGULATIONS AND GUIDANCE

This IWFMP has been developed in accordance with the 2002 Department of Army (DA) Wildland Fire Policy Guidance. Although this policy is currently being revised, it presents the standards by which the wildland fire control and prescribed burning programs will be conducted. This plan is intended to be an integral component of the Integrated Natural Resources Management Plan (INRMP) for the installation and also complements the BPRF FMP (2017 Update). This plan would also be integrated with other plans at ALC and BPRF, including the Integrated Cultural Resources Management Plan (ICRMP).

1.5 GOALS AND OBJECTIVES

The goal of the IWFMP is to establish fire management procedures and protocols to provide ALC and BPRF the capability to complete its mission to maintain combat readiness and fulfill resource management intent. Implementation of this IWFMP maintains and enhances the health, productivity, and biological diversity of ALC and BPRF lands. The Integrated Wildland Fire Management program for ALC and BPRF was developed to support the following goals:

- Reduce wildfire potential on the installation and suppress undesired wildfires to protect lives, property, and natural and cultural resources in a cost-effective manner.
- Provide for the safety of fire crews on every wildland fire management activity.
- Provide an effective communication plan with clear roles and procedures for wildland fire response at ALC and BPRF.
- Maintain fire as a management tool option in the INRMP.

Objectives of the IWFMP include:

- Communication - Provide a system that ensures timely notification of wildfire.
- Fuels Management - Maintain fuel loads at levels appropriate for the prevention of major wildfires from occurring at ALC and BPRF.
- Education - Communicate and educate other departments on fire prevention and prescribed burns.
- Interagency Agreements - Update interagency agreements as necessary to ensure prompt and complete cooperation during wildland fire incidents.
- Program Updates - Complete, update, and maintain this Integrated Wildland Fire Management Plan. Continually evaluate and improve upon fire management policies and procedures with the goal of constantly improving the level of fire protection.

1.6 WILDLAND FIRE HISTORY

ALC

There have been no major forest fires reported at ALC.

BPRF

No major fires have been reported at BPRF. Minor fires are generally restricted to the impact area and occur during various fuze test procedures at BPRF. These are extinguished in accordance with the BPRF #0001 SOP.

The last known major wildfire fire near BPRF was in 2000 when an arsonist set fire to 88 acres outside of the BPRF site. The wildfire was extinguished before Army/Navy land was harmed.

1.7 THE THREAT OF WILDFIRE TO THE MISSION AND NATURAL RESOURCES

Fire prevention and suppression activities are intended to reduce risks to ALC and BPRF personnel and the public and maintain the infrastructure necessary to complete the mission, which includes environmental and cultural resource management.

Positive effects to the mission from implementation of the IWFMP include prevention and minimization of risks to people, structures and infrastructure; reducing fuel loads and potential for wildland fires; reducing impacts to mission activities by decreasing chances of wildland fires; and protecting natural and cultural resources from loss due to wildland fires.

Negative effects to the mission from implementation of the IWFMP is limited to minor impacts of prescribed burns that may temporarily close off an area; prescribed burns would be managed and impacts would be minimized through smoke management and planning and execution of prescribed burns in accordance with Maryland requirements.

ALC

Because of the research and development mission of ALC, which includes the storage of explosives and flammable materials, fire management consists of preventing fires. Regular mowing is conducted around the various structures and laboratories at ALC. Any fire at the installation could pose a serious risk to both installation personnel and the public in the surrounding area.

BPRF

BPRF has two ultra-high-pressure water systems with foam capability mounted on utility vehicles (UTV) for wildfire suppression. Wildfire suppression essentially entails maintaining existing firebreaks and responding rapidly to contain the spread of wildfires when they do occur to prevent further losses to natural resources and other Army property.

1.8 KEY DEFINITIONS

Extended Attack: Actions taken on a wildfire that has exceeded the initial response.

Extended Attack Incident: An incident that exceeds the capability of the initial attack resources and/or organization to successfully manage the incident to conclusion.

Initial Response: The initial decisions and actions taken in reaction to a reported incident.

Initial Attack (IA): A preplanned response to a wildfire given the wildfire's potential. Initial Attack may include size up, patrolling, monitoring, holding action or suppression.

Prescribed Fire: Controlled, purposeful application of fire to wildland fuels in either their natural or modified state, under specified environmental conditions which allow the fire to be confined to a predetermined area and produce the fire behavior and fire characteristics required to attain planned fire treatment and resource management objectives.

Protection: The actions taken to mitigate the adverse effects of fire on environmental, social, political, economic, and community values at risk.

Suppression: Management action to extinguish a fire or confine fire spread beginning with its discovery.

Wildfire: An unplanned, unwanted wildland fire, including unauthorized human caused fires, naturally occurring wildland fires, and escaped prescribed fires, where the objective is to put out the fire.

Wildland: An area in which development is essentially nonexistent, except for roads, railroads, power lines and similar transportation facilities. Structures, if any, are widely scattered.

Wildland Fire: Any non-structure fire occurring in the wildland that is not meeting management objectives and thus requires a suppression response.

Wildland Fire Use: The application of the appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives in pre-defined designated areas outlined in Fire Management Plans.

CHAPTER 2 - PROGRAM OVERVIEW

Chapter 2 outlines roles and responsibilities for executing the IWFMP. Clear, defined roles and communication are essential when responding to wildland fire and preparing and executing a prescribed burn. This chapter also includes coordination with other agencies and parties, and identifies values to be protected, smoke management, and risk assessment to ensure this plan is executed in an effective manner to protect human health and safety and in support of the mission.

2.1 ORGANIZATIONAL STRUCTURE, RESPONSIBILITIES

ALC operates as a Standard Garrison Organization (SGO) and an indirect reporting garrison under Aberdeen Proving Ground (APG). The ALC Garrison Manager exercises command authority and management leadership over both ALC and BPRF.

There are several Directorates under the Garrison Manager. These directorates include Human Resources; Emergency Services; and Public Works. Offices in the SGO include Public Affairs and the Installation Safety Office. BPRF is regarded as a sub-installation of ALC.

The ALC Environmental Division's Natural Resources Manager serves as the Wildland Fire Program Manager. The Environmental Division will also monitor and manage fuel loads to reduce the risk of wildland fires via the Forest Management Plan. The Wildland Fire Program Manager will insure that fire management activities are in compliance with the INRMP. The BPRF Site Manager will work in conjunction with the Wildland Fire Program Manager and will oversee wildfire prevention/range safety activities via fuel reduction and firebreak maintenance at BPRF.

ALC

In accordance with the Memorandum of Understanding (MOU) between the ALC Director of Emergency Services (ES) and the Montgomery County Office of Environmental Management (MCOEM) the ALC ES will be responsible for prompt notification to Headquarters, US Army Installation Management Command (IMCOM) in the event of a wildfire. ALC ES (in conjunction with APG Fire and Emergency Services [FES]) will also serve as the information resource to IMCOM and Montgomery County Officials when requested and will promptly notify the Montgomery County Department of Fire and Rescue concerning any wildfire that could breach the boundary of the installation and affect the citizens of Montgomery County. Installation personnel can also directly notify 911 of fires and medical emergencies.

MCOEM also maintains an MOU with Prince George's county in the event that additional support is needed. All emergencies that require outside assistance will be reported to the APG Dispatch Center. Upon receiving this notification the dispatch center will notify the on duty supervisor for the Fire Department. A copy of the MOU can be found in Appendix A.

BPRF

In accordance with the BPRF Emergency SOP, the Nanjemoy Rescue Squad and Fire Department will respond in the event of a wildfire. All emergencies that require outside assistance will be reported to the APG Dispatch Center. Upon receiving this notification the dispatch center will notify the on duty supervisor for the Fire Department. All incidents will be reported within one hour of occurrence to the Directorate of Emergency Services, the ALC Garrison Manager and the Site Manager for BPRF.

2.2 PERSONNEL

All personnel using or working at ALC and BPRF are responsible for detecting and reporting wildfires. All wildfires at BPRF must be reported to 911 in accordance with the Emergency SOP. Wildfires at ALC are reported to 911 and ALC Emergency Services (301-394-1117). An ALC officer will provide instructions if needed when first responders arrive.

ALC

Montgomery County Fire Department will provide Incident Command (IC) on wildfires. The Prince George's County Fire Department is a mutual aid resource that can support fire response activities that require additional resources on ALC.

In the case of larger fires, mutual aid can be requested by the counties to the MDNR Forest Service and the U.S. Department of Agriculture Forest Service (USDA FS) through the Maryland Emergency Management Agency (MEMA). Current Mutual Aid Agreements (MAAs) and MOUs are included in Appendix A.

BPRF

Currently, the Nanjemoy Volunteer Fire Department will provide IC on wildfires. The Charles County Fire Department is a mutual aid resource that can support fire response activities that require additional resources on BPRF.

In the case of larger fires, mutual aid can be requested from the MDNR Forest Service and the USDA FS through MEMA. Current MAAs and MOUs for BPRF and are also included in Appendix A.

2.3 PRESCRIBED FIRE

Prescribed burning is currently not used at BPRF, but has been suggested as a vegetation management tool for the recent line of site clearing for the NRL. The 2014 EA for that project provides more details. Prescribed burning is also listed as a management tool in the Forest Management Plan. This section provides information should prescribed fire be used in the future.

Prescribed fires will be administered by a burn team assembled from representatives from ALC, BPRF and outside agencies. There are currently no National Wildfire Coordinating Group (NWCG) trained individuals at ALC and BPRF. The use of outside agencies will be coordinated through ALC and APG FES. ALC can request assistance with prescribed burns through the Prescribed Burning Agreement Form in Appendix A. All prescribed burns will require a Burn Plan, signed and approved by the Garrison Manager of ALC and Garrison Commander of APG. A complete ignition plan will be completed and implemented the day of the burn.

All prescribed fire operations shall comply with MDNR regulations COMAR 08.07.04 Forest Fire Protection and MD MDE regulations COMAR 26.11.07 Open Fires Authority.

2.3.1 Prescribed Fire Burn Plans

In compliance with the above regulations, for prescribed fires occurring before 4 pm EST, all prescribed fire practices greater than one acre shall have a written prescribed burn plan. Any practices less than one acre may be approved with a verbal plan at the Project's discretion and issued a MDNR Forest Service Burning Permit. Prescribed burn plans shall be submitted in the MDNR Forest Service Prescribed Burn Plan template (Appendix B) or may be submitted in other written format containing all of the same required information. Plans shall have attached maps including general site location, site map of proposed burn area, and one and five mile smoke impact radius from burn site.

A representative of the APG Fire and Emergency Services in conjunction with the ALC Environmental Division and BPRF personnel, shall prepare the prescribed burn plan. The plan shall be approved and signed by the Garrison Manager of ALC and Garrison Commander of APG. Once approved by the Garrison Commander the applicant shall submit the prescribed burn plan to the Forest Service **at least 30 days prior** to the projected start date of the plan. A Prescribed Burn Plan number shall be assigned by the Fire Manager using the region-year-# format (e.g., Western 2010-1001; Southern 2010-2001; Central 2010-3001; Eastern 2010-4001). The Fire Manager shall review and approve the plan **within 15 days** or request additional information needed from the applicant. Upon approval the plan shall be returned to the applicant and a copy sent to the local Forest Service office. Prescribed Burn Plans shall be valid for the calendar year in which the burn is scheduled to occur as specified in the plan.

The applicant is responsible for compliance with all other federal, state, and local jurisdiction laws and regulations and acquiring any necessary permits from those agencies. All firebreaks are to be constructed and completed in compliance with the approved prescribed burn plan. Upon completion, the applicant shall notify the local Forest Service office. A DNR Forest Service Burning Permit may then be issued for the site. Full guidance from the MDNR can be found at: http://dnr.maryland.gov/forests/Documents/fire/prescribedfire2010-204.pdf.

2.4 INTERAGENCY COOPERATION AND MUTUAL AID AGREEMENTS

Installations are encouraged to develop regional partnerships through reciprocal agreements among DoD installations and other federal, state, local, and private entities to share training/planning/ management strategies and resources. These reciprocal agreements must be in

place if emergency assistance is planned off the installation. Emergency assistance and MAAs will conform to the guidelines stated in DODI 6055.6 – DoD Fire and Emergency Services Program and AR 420-90, Fire and Emergency Services.

The MAA's for each of the listed organizations can be found in Appendix A. Additional MAA's will be established for assistance with prescribed fires as needed. A copy of the MDNR Forest Service Prescribed Burning Agreement form can be found in Appendix A.

2.5 RESPONSIBILITIES

Protection of natural resources on ALC and BPRF lands, to include forests, is the responsibility of the ALC Garrison Manager using appropriated funds. Protection of Army's forests from fires will be done by assigned personnel trained and equipped to control forest fires.

The Installation Wildland Fire Program will be managed by ALC Environmental Division. The Division will review and approve burn plans for prescribed fires to ensure consistency with the IWFMP, the Forest Management Plan, INRMP, and the Maryland regulations. The ALC Environmental Division will plan for prescribed burns with the APG Fire Department and a contractor or outside agency. The ALC Environmental Division will coordinate with appropriate state and federal agencies when planning and executing prescribed burns. During a prescribed fire, the Burn Boss is responsible for the firefighters, their equipment and coordination with the local fire departments and partnering organizations/agencies. The BPRF Site Manager will coordinate with the Wildland Fire Program Manager to manage fuel loads to reduce the risk of wildland fires.

2.6 VALUES TO BE PROTECTED

The values to be protected on Army lands from wildland fire include human safety, built up improvements (structures, buildings, warehouses, docks, equipment, and ammunition storage), natural resources, and cultural resources. Unauthorized and abandoned structures will be allowed to burn during wildland fire, so that no life will be risked. Fire breaks will be bulldozed and maintained to prevent migration of fires and to allow fires to burn out as appropriate.

2.6.1 Human Safety

The primary concern during any fire is human safety and protection. Neighboring towns and industrial areas provide additional priority protection considerations. Additionally, firefighters on the line, in the air, and at the command post must all be properly trained, outfitted, and informed of all threats and safety measures. Fire management safety concerns on military lands include threats posed by fire and smoke to local residents, employed personnel, and wildland firefighters.

The BPRF Safety Office will communicate any risks to human health and safety, both on and off the installation, during a wildland fire incident and in preparation for a prescribed burn, as appropriate.

2.6.2 Structures and Infrastructure

ALC includes 1.1 million square feet of gross floor area in 36 buildings over the 207 acre site. Facilities include research/laboratory facilities, utility plants, maintenance yards, fabrication shops, and administrative complexes including a fitness center and cafeteria. BPRF includes 70,000 square feet of enclosed area in 46 buildings over the 1,600 acre site.

Firefighting activities will attempt to protect structures and infrastructure as much as possible without risking human safety.

2.6.3 Natural and Cultural Resource Considerations

Sensitive natural resources and historic properties have been identified in the INRMP and ICRMP. Every reasonable effort will be made to conserve these sites during wildland and prescribed fire operations. A Programmatic Environmental Assessment has been prepared in conjunction with this plan to address potential impacts of wildland fire fighting activities and prescribed fire operations on these resources.

2.6.3.1 Endangered Species Act

The Endangered Species Act (ESA) of 1973 requires all federal agencies to carry out programs for the conservation of endangered and threatened species. In addition, each agency shall ensure that any action authorized, funded or carried out, is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. Wildfire, as well as suppression and pre-suppression activities, can have significant deleterious effects on endangered species. Fire has both direct and indirect impacts on endangered species. The direct effect is mostly considered negative, as it could kill the species. Indirect effects include destruction or modification of habitat and a change in the species composition. As required by the ESA, USAG ALC shall conduct Section 7 consultation with the USFWS on fire management actions that may affect listed species. Endangered species and natural resources sensitive areas are identified in the INRMP and will be avoided by firefighting personnel when maintaining and constructing firebreaks or other soil-disturbing activities.

ALC

No Federal or state listed plant and/or animal species were observed on the ALC during surveys conducted in 2011 and 2015.

The Powder Mill Bog, a small Fall-Line Terrace Gravel Bog, exists on ALC. This site is a remnant of a once more widely distributed plant community that has been largely destroyed by development. Its nutrient poor, gravelly soils support a distinctive plant community that is considered Highly Globally Rare. Fewer than ten Fall Line Terrace Gravel Bogs are known to exist worldwide. Five rare and uncommon plant species were documented at the Powder Mill Bog in 2002 and 2007. None of these species were observed during surveys conducted in 2011 and 2015, though it is possible that these species persist on site.

The northern long-eared bat (*Myotis septentrionalis*) is listed as a threatened species under the

Endangered Species Act, due largely to the impacts of white-nose syndrome. An acoustic bat survey with focus on the NLEB was conducted at ALC and BPRF during the summer of 2016. The NLEB was recorded during the survey at both ALC and BPRF.

BPRF

Habitat for two listed species exists at BPRF, the federally threatened small whorled pogonia (*Isotria medeloides*), which is believed to be extirpated from the state of Maryland and the state threatened rainbow snake (*Farancia e. erytrogramma*). Neither species was observed on the BPRF during Rare, Threated, and Endangered (RTE) species surveys conducted in 2011 and 2015.

Bald eagles (*Haliaeetus leucocephalus*) - while removed from the Federal List of Endangered and Threatened Species in 2007 - are still protected under the Federal Bald Eagle and Golden Eagle Protection Act and Migratory Bird Treaty Act. All forest management activities at BPRF will be executed in alignment with the INRMP and in a manner that enhances protection of bald eagle habitat.

Prescribed burns within 660' of eagle nests must also occur outside of the breeding season-preferably mid-September – mid-November - and can only be implemented when temperatures are cool, winds calm to light, and fuels are not excessively dry. The midstory, understory, and duff levels that surround trees containing eagle nests are to be inspected and managed in order to protect the tree prior to burning implementation. Addition information on bald eagles is provided in the ALC BPRF Bald Eagle Management Plan.

See above for information on the NLEB at BPRF.

2.6.4 National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966, as amended, requires Garrison Managers and Commanders to identify, evaluate, and take into account the effects of undertakings on historic properties. Section 106 also requires consultation with the State Historic Preservation Officer when an agency action may have an adverse impact on eligible and historic properties. Known cultural resources at ALC and BPRF are identified and mapped in the ICRMP.

As soil is an excellent insulator, fires are unlikely to affect any resource that is buried by two or more inches of soil. Fire suppression activities, however, especially tractor plow lines and to a lesser degree, hand lines, can severely damage cultural resources. In the case of a wildland fire, the ALC Cultural Resources Manager (Conservation Specialist) will be consulted. Fire crews will take special care to avoid anything that may represent a cultural resource when they are in the vicinity of cultural resources so long as life and property are not threatened.

2.7 SMOKE MANAGEMENT AND AIR QUALITY

Smoke management is an important responsibility for fire fighters at ALC and BPRF. The goal of smoke management is to reduce the risk of decreased visibility and risk to human health of ALC and BPRF personnel and the public. Wildland fire managers should be aware of sensitive

populations and sites that may be affected by prescribed fires, such as medical facilities, schools, or nursing homes, and plan burns to minimize the smoke impacts.

Fire weather will be monitored to advise ALC and BPRF personnel and local fire departments of potential or existing weather conditions, such as wind direction changes or temperature inversions that may cause low air quality events. All wildland fire management activities will comply with the Clean Air Act (CAA) and all local and State of Maryland requirements.

2.7.1 Sensitive Smoke Receptors and Public Safety

There are numerous sensitive smoke receptors on and around ALC and BPRF, including the research laboratories, cantonment area, as well as the neighboring residences and businesses.

Every reasonable effort will be made to minimize impacts to public health and safety. During wildland fire operations, public access to the identified operations area will be restricted. Access restrictions will be enforced if necessary. Smoke impacts will be assessed prior to and during operations. Smoke sensitive areas will be notified by the ALC Public Affairs Office (PAO) if a pending impact is predicted.

ALC

ALC is located adjacent to Hillandale, MD, a surburban residential community. The land adjacent to the installation has a variety of land use designations. The General Services Administration (GSA) owns a large business complex adjacent to the ALC to the north and slightly west, which is the headquarters for the U.S. Food and Drug Administration (USFDA). Areas to the east and south of the installation are primarily rural and suburban residential in nature. Paint Branch Park is immediately south of the installation. Prince George's and Montgomery Counties are highly urbanized areas surrounding Washington, D.C. ALC is located just outside the Capital Beltway, which is heavily developed by government agencies, business complexes, commercial areas, and residential communities. Within the area of ALC, there are also several greenways along stream corridors. The greenway for Paint Branch is adjacent to ALC as Paint Branch flows through the installation.

BPRF

BPRF is located on the Cedar Point Neck, a peninsula adjacent to agricultural lands. Charles County is located in southern Maryland between the Patuxent and Potomac Rivers. This county is largely comprised of agricultural lands and forest lands with some residential and urban development. The area surrounding BPRF is presently zoned for a mixture of agricultural and rural residential uses. Most of the land north of the facility has been designated as an "Agricultural Conservation District." The Charles County Comprehensive Master Plan uses this classification to specify property on which only one residential dwelling per every five acres can be placed. This low density designation is intended to preserve the existing farmland resources and the agricultural economy of the county. The shoreline along Cedar Point Neck, not including the portion on the BPRF, is designated as a "Resource Protection District." This land use classification carries

restrictions on new development at one residential dwelling per every 20 acres. This area was classified in compliance with the State of Maryland's Chesapeake Bay Critical Area Law.

2.7.2 Wildfire Smoke Management

As an emergency action, wildfires do not fall under the scope of the CAA. Smoke from wildfires will be managed to the extent that the IC deems feasible and necessary. Smoke management will not trump other safety or containment priorities or objectives.

2.7.3 Prescribed Burn Smoke Management

The ALC Environmental Division will apply for and obtain an air emissions permit from the Maryland Department of the Environment (MDE) before any prescribed burns, as appropriate. Smoke emissions from prescribed burns will be tracked by the ALC Environmental Division in the form of total acres burned annually.

2.8 MISSION CONSIDERATIONS

Fires will be suppressed when necessary to protect mission lands and resources whether they are military or natural. Fires not only affect ecosystems, they also affect the military's ability to accomplish its mission. ALC and BPRF support several missions and is also the home of several tenant activities.

ALC

The ALC is currently under the command of APG and is home to the Headquarters for the Army Research Laboratory (ARL). ARL provides America's Soldiers a technological edge through scientific research, technology development, and analysis (U.S. Army, 2004). The mission of ARL is to provide the underpinning science, technology, and analysis that enable full-spectrum operations. The Laboratory also provides critical analysis on existing developmental weapon systems, with emphasis on factors such as survivability, lethality, man-machine interface, and battlefield environmental effects. The ARL is unique because it serves as one of the few Army Laboratories that provides highly advanced, specialized, and one-of-a-kind research facilities. The laboratory works in a variety of technical disciplines, through direct in-house laboratory efforts and joint programs with government, industry, and academia.

The mission of the ALC is to support innovative science and technology by providing service and infrastructure while optimizing resources, sustaining the environment, and enhancing the well-being of the Army’s workforce and community.

BPRF

The BPRF is a sub-installation of the ALC. The primary activity at BPRF is the conduct of field research on fuzes, ordnance, pyrotechnical devices, and electronic telemetry. Typical types of field tests include aircraft tests for light scatter studies; radar air target, encounter simulation; and

helicopter drop/recovery of telemetry-instrumented, simulated projectiles for purposes of gathering baseline data on developmental proximity fuzing. In addition, the BPRF tests firing, recovery, and disassembly of explosive-loaded, fuzed projectiles for rockets, mortars, and cannons. The explosive testing facilities at the BPRF are also available to other interested parties. The U.S. Naval Research Laboratory also holds a lease on 42 acres of which 15 acres currently are leased to the National Aeronautics and Space Administration (NASA).

2.9 MONITORING REQUIREMENTS

2.9.1 Prescribed Fire Monitoring

Photo points will be established on most burn units prior to prescribed fire activities. Data at these points will be collected prior to implementing planned burns, post burn, one year after, and two years after. Objectives are reviewed during the first post-burn visit to determine to what degree they were met. Burns that have an ecological objective as the primary goal will be monitored with more detailed plots. These plots will be established by the ALC Environmental Division.

2.9.2 Wildland Fire Monitoring

Wildland fires will be monitored at ALC and BPRF using those measures typically associated with wildfire suppression. However, each wildland fire would be evaluated by the ALC Environmental Division to determine the extent of damages to resources. Any post-fire management of the affected area will be determined by the ALC Environmental Division, and could include activities such as debris removal.

2.10 PUBLIC RELATIONS

The Sikes Act requires that military installations provide for public awareness of natural resource use to the extent that public access is appropriate and consistent with the military mission. The ALC PAO will be responsible for providing information concerning wildfires or prescribed burns to the public for both ALC and BPRF. If a wildfire situation requires public notification, the information will be forwarded to the ALC command staff.

Public relations within ALC and BPRF, such as newspaper articles and email notifications, are also completed through the PAO. Should a prescribed burn be implemented, the information will be provided to the command staff, the Safety Office and the PAO. The public will be notified of planned prescribed burns, as appropriate.

Off-post agencies, such as local fire departments, will be directly contacted when necessary. The IC will notify local fire departments in the case of a wildfire requiring their assistance.

2.11 FUNDING REQUIREMENTS

Funding for the control and suppression of wildland fires at ALC and BPRF will be directly supported by the installation. Prescribed burning will be funded by the Directorate of Public Works or through MAAs.

2.12 RISK ASSESSMENT PROCESS

Safety of ALC and BPRF personnel, firefighters, civilians, and neighbors is of paramount importance in all wildland fire actions. Sound operational risk management will be the foundation for all wildland fire management plans and activities. The fire danger rating system will be used and posted inside of Range Control at BPRF (Building 511) and inside Building 203 at ALC.

Risk assessment will be conducted when planning for a prescribed burn. A Prescribed Burn Plan will be developed to include issues and conditions that must be considered before conducting prescribed burns. Environmental factors that will be measured prior to ignition of a prescribed fire treatment are also identified in the project plan. The Burn Boss, who will supervise the prescribed burn, will review conditions to determine fire hazard, severity, intensity, and other significant factors affecting the completion of the burn.

A complexity analysis must be completed during the planning process for each burn prior to implementation of any project plan. The complexity analysis is used to help identify the type and number of resources needed to successfully complete the burn plan. A copy of the Wildland Fire Complexity Analysis worksheet is in Appendix C.

2.12.1 Fire Danger Rating

The National Fire Danger Rating System (NFDRS) is used to provide a measure of the relative seriousness of burning conditions and threat of fire. The fire danger rating will be routinely checked during fire season, as it provides guidance of importance for military training and operations. An interactive map of up-to-date fire danger ratings can be accessed here: http://maps.wfas.net/.

CHAPTER 3 - WILDLAND AND PRESCRIBED FIRE MANAGEMENT

This chapter discusses general procedures for wildland fire management and suppression strategies as well as prescribed burn management. The fire management goals and objectives presented in Chapter 1 guide employment of these strategies at ALC and BPRF; protection of life and property remains the highest priority through all activities.

3.1 FIRE PREVENTION

Most wildfires are caused by lightning during extreme dry or drought weather conditions. However, an alarming number of fires are ignited by acts of human carelessness. All personnel using or working at ALC and BPRF are responsible for detecting and reporting wildfires.

By following several installation-wide and personnel tips, the risks of fires can be minimized:

- Don't park vehicles on dry grass.
- At the first sign of a wildfire, leave area immediately by established trails or roads. Notify the local fire department, by calling 911, as soon as possible.
- Store flammable liquid containers in a safe place.
- If off-road vehicle use is allowed, internal combustion equipment requires a spark arrester.
- All vehicles in Range and Unexploded Ordnance (UXO) areas must carry a fire extinguisher.
- Roads are to be maintained as fire breaks throughout BPRF and ALC, accordingly.
- A risk assessment shall be completed for all facility tests. If this assessment indicates an increased risk for wildfire, a Fire Department Standby could be requested.

3.1.1 Preparedness Activities

Preparedness actions include fire prevention activities, community education, annual training needs assessment, fire readiness, fire weather and fire danger assessments, and index-trend monitoring.

The ALC and BPRF prevention program consists of a combination of regulations enforcement, safety inspections, hazard fuel management and reduction, and related maintenance activities such as maintaining firebreaks.

3.2 FIRE DANGER RATING

The U.S. Forest Service uses the following scale for rating the fire danger. It is based upon a number of factors, including fuel moisture content, weather conditions etc. The fire danger rating will be posted inside of Range Control at BPRF (Building 511) and in Building 203 at ALC.

Low	Fuels do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may burn freely a few hours after rain, but woods fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting.
Moderate	Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.
High	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High-intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.
Very High	Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long-distance spotting and fire whirlwinds when they burn into heavier fuels.
Extreme	Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.

3.3 FUELS MANAGEMENT

The ALC Environmental Division, in coordination with the BPRF Site Manager, is in charge of fuel management. Fuel management consists mainly of mowing of grasses, trimming and removal of dead vegetation and use of prescribed burns. In keeping with the moisture content of vegetation and weather conditions, fuels management activities will be monitored.

3.4 FIRE LINES

Firelines are manmade or natural barriers to fire. They are essential for the control of wildfire and for the implementation of prescribed fires. The main purpose of firelines is to prevent fire from leaving ALC or BPRF, but they also prevent fire from spreading outside an area within the installations boundaries.

3.4.1 Construction and Maintenance

Construction and maintenance of firelines may be performed by DPW or BPRF personnel. Firelines will be constructed around all burn units except where adequate natural fire breaks exist, such as roads. Special emphasis will be placed upon those firelines that separate BPRF and ALC from adjoining landowners. Firelines can be sown with a variety of short grasses to control erosion.

3.4.2 Types of Fire Lines

Permanent fire lines consist of paved and gravel roads, trails, and lines constructed with the intent of establishing control lines for future burns in permanently established burn units. Once established these firelines require little or no pre-burn preparation.

Temporary fire lines are made by clearing an area of combustible material to mineral soil. Hand lines are constructed by hand and are a minimum of three feet wide cleared to mineral soil. Hand lines can be cleared to prepare for a prescribed burn or while controlling a wildfire. Mowed lines are made by clearing a line a minimum of six feet wide by mowing with a brush hog or similar equipment. Mowed lines are typically cleared in preparation for a prescribed burn. The standard operating guideline for this class is to wetline or foam prior to ignition.

The BPRF Site Manager will maintain records of fireline construction and maintenance at BPRF. Roads and/or trails that are used as firelines are an exception. All documentation will be shared with the Wildland Fire Program Manager. Documentation will consist of:

- Date(s) fireline was constructed/maintained
- Agency/Person who performed the work
- Map depicting location and length of the work.

3.5 FIRE SUPPRESSION

Outside organizations cooperating in MAAs will be utilized for ALC and for BPRF when necessary. Ammunition, explosives, and/or flammable storage facilities at ALC and BPRF provide additional challenges to wildfire suppression operations.

Low intensity, slow moving, ground fires can usually be contained through the use of backpack water tanks. High intensity fires will best be controlled using a dozer equipped with a fireplow. Helicopters supplied with drop buckets may be necessary on larger wildfires. In the case of larger fires, mutual aid is requested from local organizations such as the Maryland National Guard and the Maryland Department of DNR Forest Service.

Fire suppression to combat a wildland fire can be in the form of a direct attack or indirect attack. The priority in controlling any wildfire shall be public health and safety. Secondary to that is

providing protection for sensitive areas, such as munitions storage. Fire suppression operations will be safe, prompt, cost effective approach with minimum damage to resources using appropriate managerial strategies.

Strategies include:

- Life, property, and other resources will be protected from unwanted fire. Firefighter and public safety are the highest priority at ALC and BPRF.

- All wildland fire will be suppressed in the most cost efficient manner considering safety, management objectives, and other constraints (i.e., a quick and aggressive initial attack which results in minimal fire spread and resource damage.)

- MAAs are in place with other agencies to facilitate wildland fire management on and adjacent to ALC and BPRF.

- Existing fuel breaks and access routes will be maintained to provide safe access, anchor points, and escape routes for suppression resources.

Fire suppression will follow the appropriate fire management responses of confine, contain, or control.

Confine – The least aggressive wildland fire suppression strategy, typically allowing wildland fire to burn itself out within predetermined boundaries such as rocky ridges, streams, and possibly roads. Suppression actions may be minimal and limited to surveillance under appropriate conditions.

Contain – A moderately aggressive wildland fire suppression strategy which can reasonably be expected to keep the fire within established boundaries of control lines as needed under prevailing and predicted conditions.

Control – To complete the control line around a fire or any spot fires to be saved; burn out any unburned area adjacent to the fire side of the control lines; and cool down all hot spots that are immediate threats to the control lines, until the lines can reasonably be expected to hold under foreseeable conditions.

Priority in fire control planning will be based upon providing for protection to human safety and sensitive areas (such as those at the wildland/urban interface) and existing infrastructure. Firefighter safety will be top concern in all scenarios. Individuals not involved in suppression will be evacuated if needed.

3.5.1 Reporting

The ALC Wildland Fire Program Manager in conjunction with the APG Wildland Fire Program Manager, will develop an after-action report of all wildfires. These reports should include the following:

- Incident Name
- Date and Time
- Incident Commander
- Location Size in Acres (include 6-8 digit coordinates for fire)
- GIS mapping of areas that were burned
- Time needed to suppress fire
- Fuel Type
- Brief Description of Events
- Documented After-Action-Review:
  - What did we set out to do (what was planned)?
  - What actually happened?
  - Why did it happen that way?
  - What should be sustained? What can be improved?

3.6 PRESCRIBED FIRE

The ALC Wildland Fire Program Manager will determine when planned burning is the most advantageous to enhance both military and environmental objectives at BPRF. Prescribed fire will not be implemented at ALC.

3.6.1 Objectives

If prescribed burning is used at BPRF, it will be used to provide a wide variety of benefits. The most significant benefit is that prescribed fire reduces the amount of fuel that can potentially burn and create an environmentally damaging wildfire.

Prescribed fire is a cost effective tool to control undesirable and exotic vegetation without resorting to the application of chemicals. Correctly applied prescribed burning of a given area will reduce invasive plants, excessive woody debris, harmful insects, and maintain a healthy forest.

3.6.2 Procedures

Forest stands would be evaluated and scheduled for prescribed burning by the Wildland Fire Program Manager in accordance with the management recommendations presented in the 2017 BPR FMP. Time windows will be established for each of the stands. These time windows will be selected to maximize results, while minimizing distractions to other operations on BPRF and possible negative environmental damage. The ALC Wildland Fire Program Manager will prepare a detailed Prescribed Fire Burn Plan and hire a contractor or outside agency to conduct the prescribed burns. Tenant agencies, such as the NRL and NASA, will coordinate with the ALC Wildland Fire Program Manager and the ALC Environmental Division when conducting any prescribed burns on their leased lands.

The APG Fire Chief shall ensure that proper staffing requirements are in accordance with the DoD Instruction 6055.06-DoD Fire and Emergency Services (F&ES) Program, and established manpower staffing standards. In addition to the requirements of DODI 6055.6, a NWCG certified

Burn/Crew Boss, Single Resource level or better (potentially an APG firefighter) will be appointed to BPRF each of the scheduled burns. The Burn Boss will be responsible to execute all activities listed in the Project Plan. All partners through MAA's will perform supporting activities to assist the Burn Boss. The ALC Wildland Fire Program Manager will perform and record Post Burn Evaluations (Appendix C).

3.6.3 Weather Conditions

The Lower Atmosphere Stability Index, or Haines Index, was developed for fire weather use. It is used to indicate the potential for wildfire growth by measuring the stability and dryness of the air over a fire. It is calculated by combining the stability and moisture content of the lower atmosphere into a number that correlates well with large fire growth.

This index has been shown to be correlated with large fire growth on initiating and existing fires where surface winds do not dominate fire behavior. The Haines Index can range between 2 and 6. The drier and more unstable the lower atmosphere is, the higher the index.

2: Very Low Potential -- (Moist Stable Lower Atmosphere)

3: Very Low Potential

4: Low Potential

5: Moderate Potential

6: High Potential -- (Dry Unstable Lower Atmosphere)

In the case of prescribed burns, weather conditions should be reviewed. The National Weather Service (http://www.srh.noaa.gov/ridge2/fire/) provides information on current conditions, fuel moisture, fire danger classification, and long-term moisture. Additional resources for weather and fire behavior can be found here: http://www.wfas.net/index.php/weather-and-fire-behavior-links.

3.7 FIRE MANAGEMENT ZONE FIRE RISK

Fire Risk was assessed at BPRF during the 2016-2017 forest inventory and update to the BPRF FMP. Field site visits were also conducted in 2017 at ALC to assess fuel types and loads. The parameters used to determine Fire Risk was observed fuel loading (dead and down coarse woody debris), material storage and land cover/land use, neighboring fields with fine fuels, roads, and ladder fuels. For example, the 400 Area at ALC contained moderate amounts of CWD and leaf litter in sections of the surveyed forested areas adjacent to the explosives storage building. Fire Risk for ALC and BPRF can be found in Figures 4 and 5. Additional information can be found in the Forest Stand Prescription Guides "Key Stand Attributes" of the BPRF FMP.

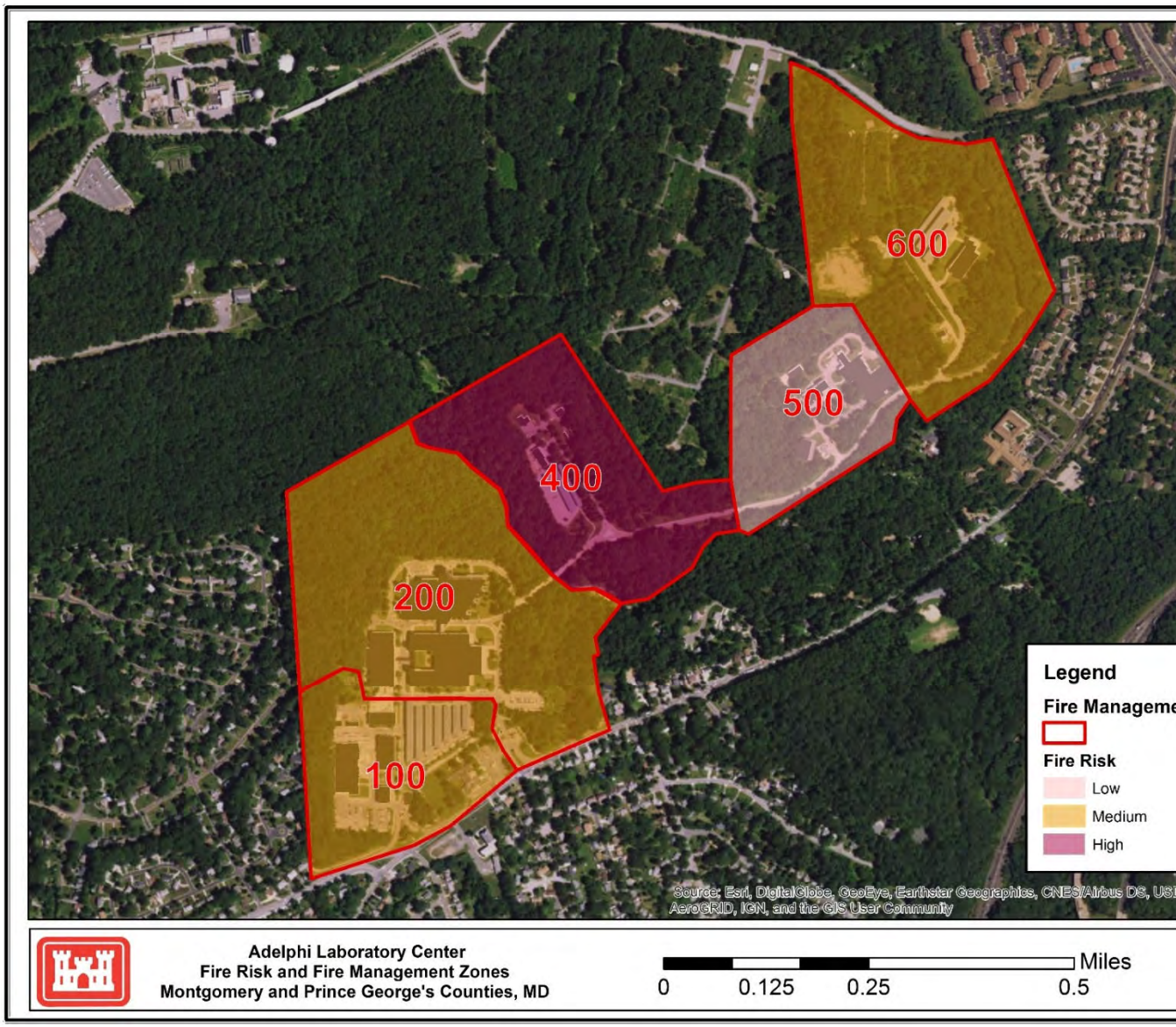

Figure 4 - ALC Fire Risk and Fire Management Zones

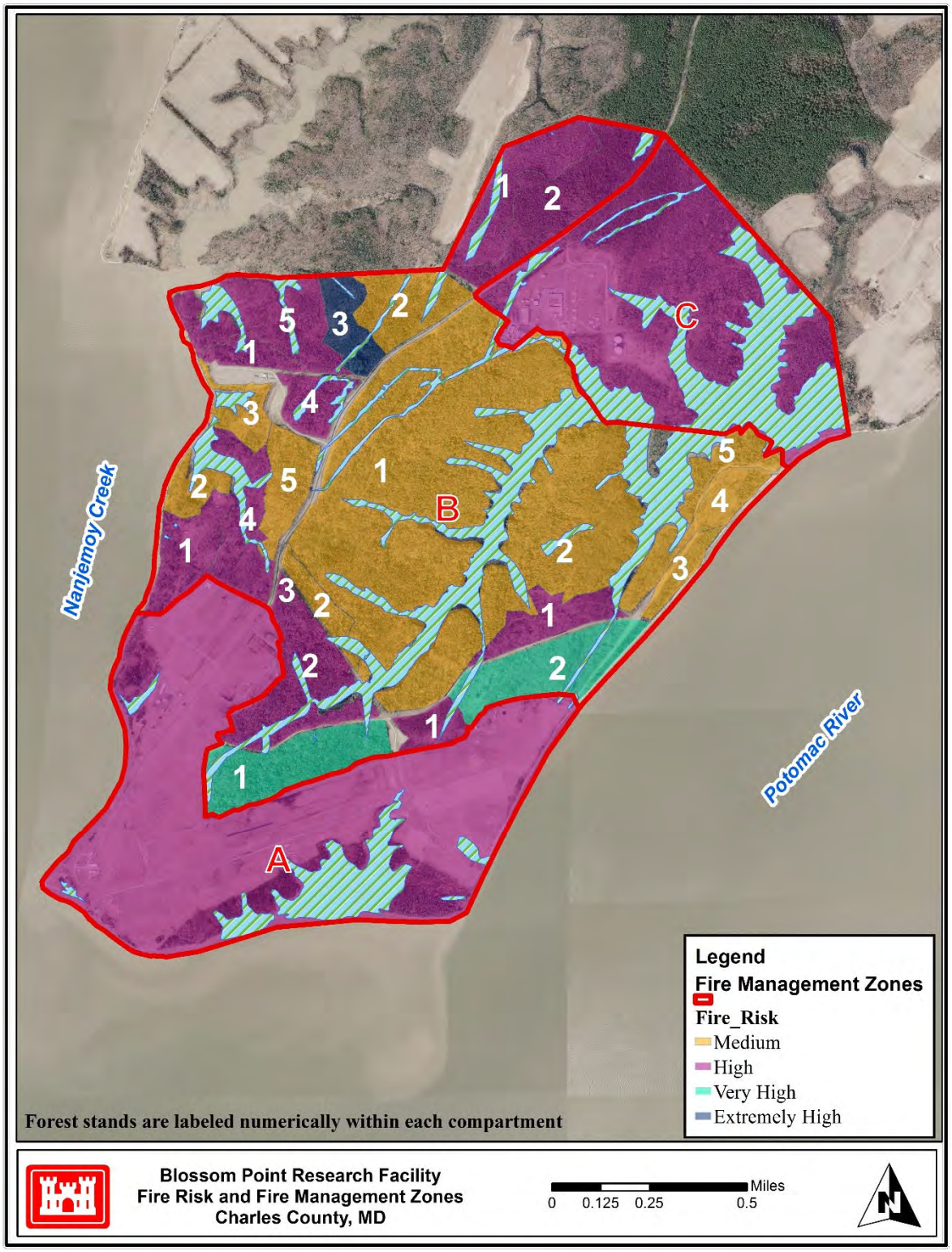

Figure 5 - BPRF Fire Risk and Fire Management Zones

CHAPTER 4 - SAFETY

4.1 SAFETY AND EMERGENCY OPERATIONS

The on-site IC will ensure that all firefighter and public safety precautions are taken and are the highest priority in wildland fire management. Except in the event of a threat to human life, no wildland fire situation will require a firefighter or other responder and equipment to be placed in extreme danger. During an actively burning fire, the IC on the ground will have overall authority; however, all safety and emergency operations are coordinated through Emergency Services and 911. Any need to evacuate BPRF due to wildland fire will be communicated to personnel by Fire and Emergency personnel and the APG Emergency Notification System. Medical emergencies requiring evacuations are coordinated through Emergency Services and the 911 system.

Due to darkness, fighting fires at night is hazardous. The limited visibility from darkness compounds firefighting efforts making steep slopes, gullies, and obstacles difficult to see. Extreme caution must be exercised when fighting fires in the dark. Proper lighting, communications, scouting, and judgment are required to fight fires safely at night. Lights on equipment, especially crawler tractors, must be checked for operability before leaving the motor pool at night.

When firefighting in areas along highways or main roads firefighters ensure that warning lights on vehicles are operational; and turned on to warn motorists. Smoke signs are utilized to warn motorists of the smoke ahead and to exercise caution. The military police are notified when smoke reduces visibility on roads or highways. If necessary, they can direct traffic and utilize their warning lights and signals to alert motorists.

4.1.1 Unexploded Ordnance (UXO)

While UXO is most likely to be encountered in the impact area, military range, Military Munitions Response Program (MMRP) cleanup sites and/or explosive testing areas, it is also known to be present throughout BPRF (Figure 6). The current MMRP areas include the shoreline of Nanjemoy Creek and the shoreline along the southern boundary of BPRF along the Potomac River.

UXO should be considered when planning for and suppressing prescribed burns or responding to wildfire. Personnel should take reasonable precautions when any metal object is encountered during a wildfire. Under no circumstances should any metal object be touched, moved, or otherwise disturbed. All such objects should be flagged and/or immediately reported to the incident commander and the BPRF Safety Officer. **The three R's of UXOs; Recognize, Retreat, and Report.**

Firefighters will not enter UXO contaminated areas to fight fires without the approval of the IC, Site Manager, and/or the BPRF Range Safety Officer. Bulldozers will not enter UXO contaminated areas without the approval of the IC, Site Manager, and/or the BPRF Range Safety Officer. Firefighting activities in potential UXO areas at BPRF will be in accordance with Department of the Army Pamphlet (DA PAM) 385-63 (if applicable) and in accordance with the BPRF Range Safety/UXO SOP.

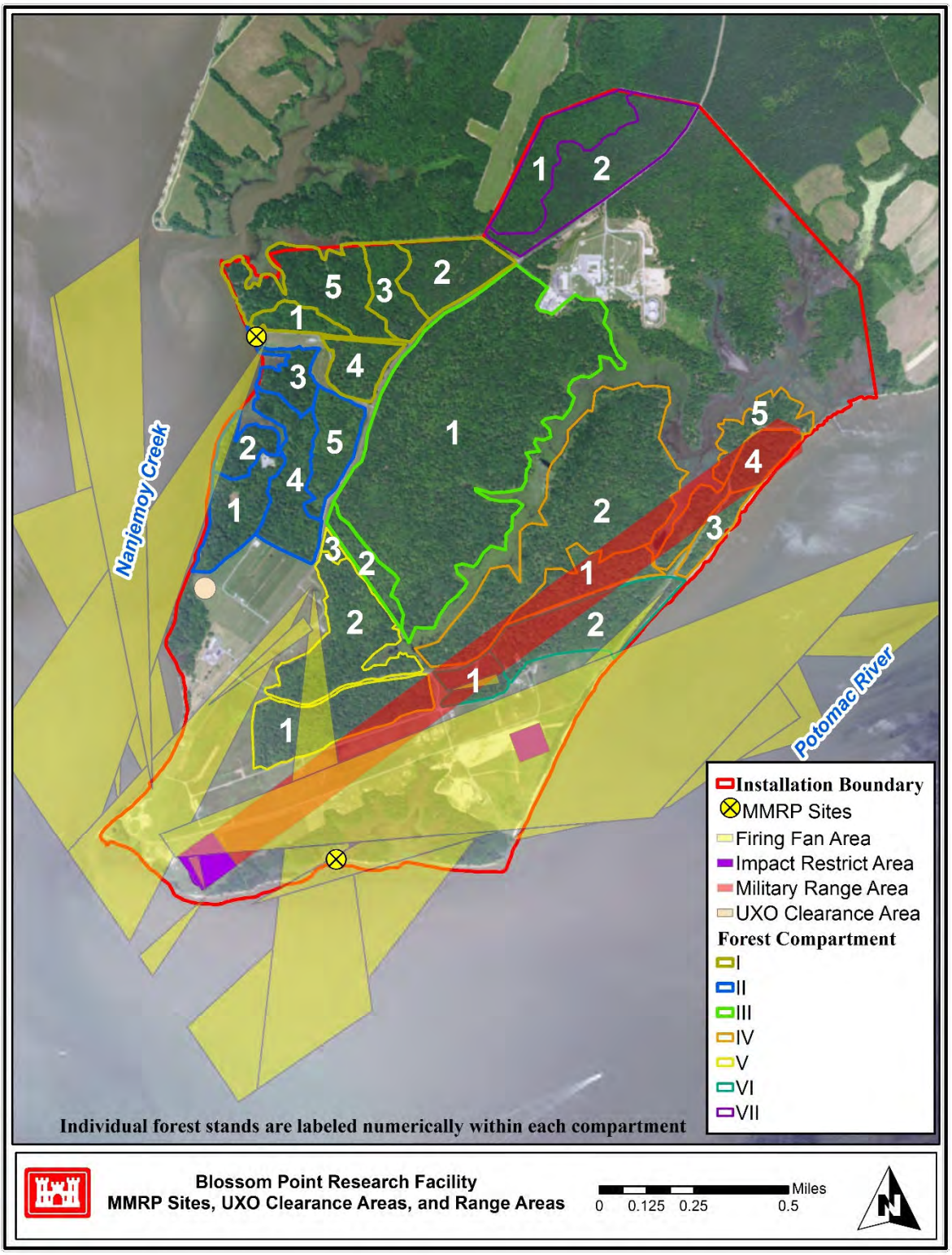

Figure 6 - BPRF UXO and Range Area

4.2 PERSONNEL TRAINING AND CERTIFICATION STANDARDS AND RECORDS

Army Regulation 420-90, Fire and Emergency Services, establishes training and qualification requirements for wildland firefighting personnel, planning, prevention, suppression, and supervision duties. The Wildland Firefighter Qualification Program is established to provide standardization for directorates and organizations that are responsible for wildfire duties under the Wildfire Management Program. Any ALC or BPRF organization or cooperating agency intending to supply human resources to wildfire incidents will be expected to meet the requirements described in this program.

Training records and certifications for wildland firefighting personnel will be maintained by the ALC Wildland Fire Program Manager. All records will be periodically reviewed to ensure that firefighting personnel are current in required aspects of training and certification.

4.2.1 Firefighter Training

All personnel engaged in suppression of wildfire and prescribed burns will be qualified IAW 2002 Army Wildland Fire Policy and according to the appropriate state and department safety and legal regulations for their position. Below is a list of NWCG training courses required for wildland firefighters. Additional training requirements may be needed for federal agencies (agency specific) assisting with wildland fires or prescribed burns. Further instruction on wildland fire qualifications can be found on the NWCG website:
https://www.nwcg.gov/publications/310-1.

1. Crew Member
    - 130 Basic Wildland Firefighting
    - S-190 Basic Wildland Fire Behavior
    - I-100 Introduction to Incident Command System
    - IS-700 National Incident Management System
    - Basic First Aid & CPR/AED
    - Annual Moderate Work Capacity “Pack” Test

2. Crew Member – Ignition Qualified
    - Same as Crew Member plus
    - Annual Arduous WCT required

3. Plastic Sphere Dispenser Operator (PLDO)
    - Same as Ignition Qualified Crew Member plus
    - Dept. Helicopter Safety Awareness Training
    - Dept. Plastic Sphere Dispenser (PSD) Training

4. Squad Boss
    - Same as Ignition Qualified Crewmember plus
    - S-131 Squad Boss/Firefighter Type 1
    - S-133 Look Up, Look Down, Look Around
    - L-180 Human Factors in the Wildland Fire Service (suggested)

5. Engine Boss
    - Same as Squad Boss plus
    - S-231 Engine Boss or Dept. Pump Training

6. Holding Boss (Specialist)
    - Same as Squad Boss plus
    - S-230 Crew Boss
    - S-290 Intermediate Fire Behavior
    - I-200 Basic ICS
    - L-280 Followership to Leadership (suggested)

7. Firing Boss
    - Same as Holding Boss plus
    - S-234 Ignition Operations

8. Aerial Ignition Specialist
    - Same as Firing Boss
    - Dept. Helicopter Safety Awareness Training
    - Dept. PSD Training

9. Burn Boss Level 3
    - Same as Firing Boss with required RxB3 task book & operational periods completed

10. Incident Commander Type 4
    - Same as Firing Boss plus
    - S-200 Initial Attack Incident Commander

11. Burn Boss Level 2
    - Same as Firing Boss except moderate WCT acceptable
    - Rx-341 Prescribed Fire Plan Preparation
    - Rx-310 Introduction to Fire Effects
    - RX-301 Prescribed Fire Plan Implementation
    - S-390 Advanced Wildland Fire Behavior Calculations

12. Burn Boss Level 1
    - Same as RxB2 plus
    - S-490 Advanced Fire Behavior Calculations
    - Rx-410 Smoke Management Techniques

ALC and BPRF staff participating in fire management activities, or outside cooperating agencies shall meet the required wildland training and physical fitness requirements outlined within each respective agency's established policies or training program.

Individuals will not be assigned to duties for which they lack training and/or certified experience. All personnel dispatched or assigned to wildfires or prescribed fires will be qualified for the fire position assigned, unless assigned as trainees under the direct supervision of higher qualified personnel at all times.

4.2.2 Physical Fitness Standards

Personnel assigned to wildfire duties are required to meet the following standards for physical fitness. Annual medical exams administered through Occupations Health will be conducted and documentation of the exams shall be placed in the employee's official personnel folders as well as documented on the fire qualification card, known as the red card. Fire personnel shall receive an annual physical as prescribed by National Fire Protection Association (NFPA) requirements and records will be maintained by the ALC Wildland Fire Program Manager and the BPRF Site Manager.

The fitness level that personnel shall meet depends on what position they are assigned. There are four levels as described below:

1. Arduous. Duties involve fieldwork requiring physical performance, over an extended period of time, calling for above-average endurance and superior conditioning. These duties may include a demand for extraordinarily strenuous activities in emergencies under adverse environmental conditions and over extended periods of time. Requirements include running, walking, climbing, jumping, twisting, bending, and lifting more than 50 pounds; the pace of work typically is set by the emergency situation.

2. Moderate. Duties involve field work requiring complete control of all physical faculties and may include considerable walking over irregular ground, standing for long periods of time, lifting 25 to 50 pounds, climbing, bending, stooping, squatting, twisting, and reaching. Occasional demands may be required for moderately strenuous activities in emergencies over long periods of time. Individuals usually set their own work pace.

3. Light. Duties mainly involve office type work with occasional field activity characterized by light physical exertion. Activities may include climbing stairs, standing, operating a vehicle, and long hours of work, as well as some bending, stooping, or light lifting. Individuals almost always can govern the extent and pace of their physical activity.

4. None. Duties are normally performed in a controlled environment, such as an incident base or camp.

4.3 EQUIPMENT

It is mandatory that all firefighting personnel be equipped with the proper Personal Protective Equipment (PPE) for fighting wildfires and those identified by the Job Hazard Analysis. Supervisors and incident commanders will ensure that personnel involved in firefighting activities are properly equipped with PPE and clothing in accordance with NFPA 1977: Standard on Protective Clothing and Equipment for Firefighters. Employees must be trained to use safety

equipment properly and effectively. Wildland firefighters must be intimately familiar with the tools used and PPE worn. Knowledge of proper selection, use, and care of the various tools used in wildland firefighting aids firefighters in performing their job as efficiently and effectively as possible. Likewise, knowledge of the proper donning, care, capabilities, and limitations of PPE, gives firefighters a better sense of which situations are tenable and which are not. Firefighting personnel will ensure that proper PPE is worn at all times when actively engaged in firefighting duties. All PPE must meet or exceed NFPA 1977. **PPE must be used at all times during operations.** Table 1 provides a checklist for equipment. Appendix D includes an equipment checklist for all wildland firefighters and further information on equipment requirements and equipment standards.

Table 1: Wildland Firefighter's Gear Checklist

PERSONAL CLOTHING	SUGGESTED PACK ITEMS
• Hardhat with chinstrap and goggles • Nomex or 100% cotton long sleeved shirt • Nomex or 100% cotton pants • Nomex jumpsuit • Leather work gloves • Cotton undergarments • Wildland Fire/Leather boots • Leather boot laces • Goggles and hearing protection • Radio to communicate with fire crew	• Fire Shelter • MREs • Trailmix/energy bars • Warm shirt or jacket • Watch cap • Two canteens (minimum) • First Aid kit • Headlamp • Mini flashlight • Extra Batteries • Extra Gloves • Compass • Flagging tape • Sunglasses (safety) • Bandanna • Pocket knife • Fuses • Extra pair of socks • Signal mirror and whistle

CHAPTER 5 - WILDLAND FUELS

5.1 WILDLAND FUEL FACTORS

Petroleum based fuels, wood products, and plastics that are associated with human development can be found in some areas of ALC and BPRF and can help spread any wildland fires that may occur. The BPRF FMP indicates that there is a large amount of dead standing and newly fallen timber in several of the compartments. In 2019, work began in the forest compartments that were rated at the highest fire danger to remove and reduce dead timber.

Fuel conditions are directly related to moisture patterns and seasonal rainfall. During short periods of no or low moisture, the burning potential of vegetation can persist throughout the year. Fluctuations in precipitation can also result in short periods of vegetation green up followed by periods of drying. Dry conditions contribute to an increase in dead foliage and litter in plant communities.

5.2 VEGETATION AS A FUEL

Vegetation is fuel for any wildfire. All vegetation is either already a fuel source or is a potential fuel source under specific conditions. The dry dead foliage, or litter, produced by all vegetation creates fuel for fire. Living vegetation becomes a viable fuel source when drought conditions dry the living plants sufficiently or when, during a wildfire, they are dried by the convective or radiant heat of the fire itself. Fuels are a combination of the dead vegetative litter, dry or flammable standing foliage, and the live vegetation that can be dried and become a fire fuel. Fuels can be defined as the portion of the biomass that is likely to burn if ignited. Descriptions of Maryland fuel types and land cover can be seen in Figure 7.

While most of the structures around ALC and BPRF are maintained, grass areas on ranges, firing points and within the ammunition, flammable, and explosives storage areas can be sources of fuel in dry conditions.

ALC contains a primarily mature oak dominant forest with an understory of American holly (*Ilex opaca*), American beech (*Fagus grandifolia*), and Sassafras (*Sassafras albidnum*). Red maple (*Acer rubrum*), tulip polar (*Liriodendron tulipifera*), and green ash (*Fraxinus pensylvanic*) are dominant in the stream valleys.

Within the forested acreage of BPRF, the most common forest cover type is oak dominated with some smaller stands of Virginia pine (*Pinus virginiana*) and loblolly pine (*Pinus taeda*). American holly is common, and in many areas dense, in the understory. Other understory species include black gum (*Nyssa sylvatica*), sweet gum, red maple, and tulip poplar.

Fuel loading, in the form of dead standing and fallen timber, are present in many of the compartments. In addition, American holly forms a dense understory in most of the stands, which not only increases the fuel load, but inhibits regeneration of desirable species by heavily shading the forest floor. Fuel loading in these areas should be reduced, either by manual removal or by

controlled burns. These recommendations are addressed further in the stand descriptions of the BPRF FMP and in Section 5.4.

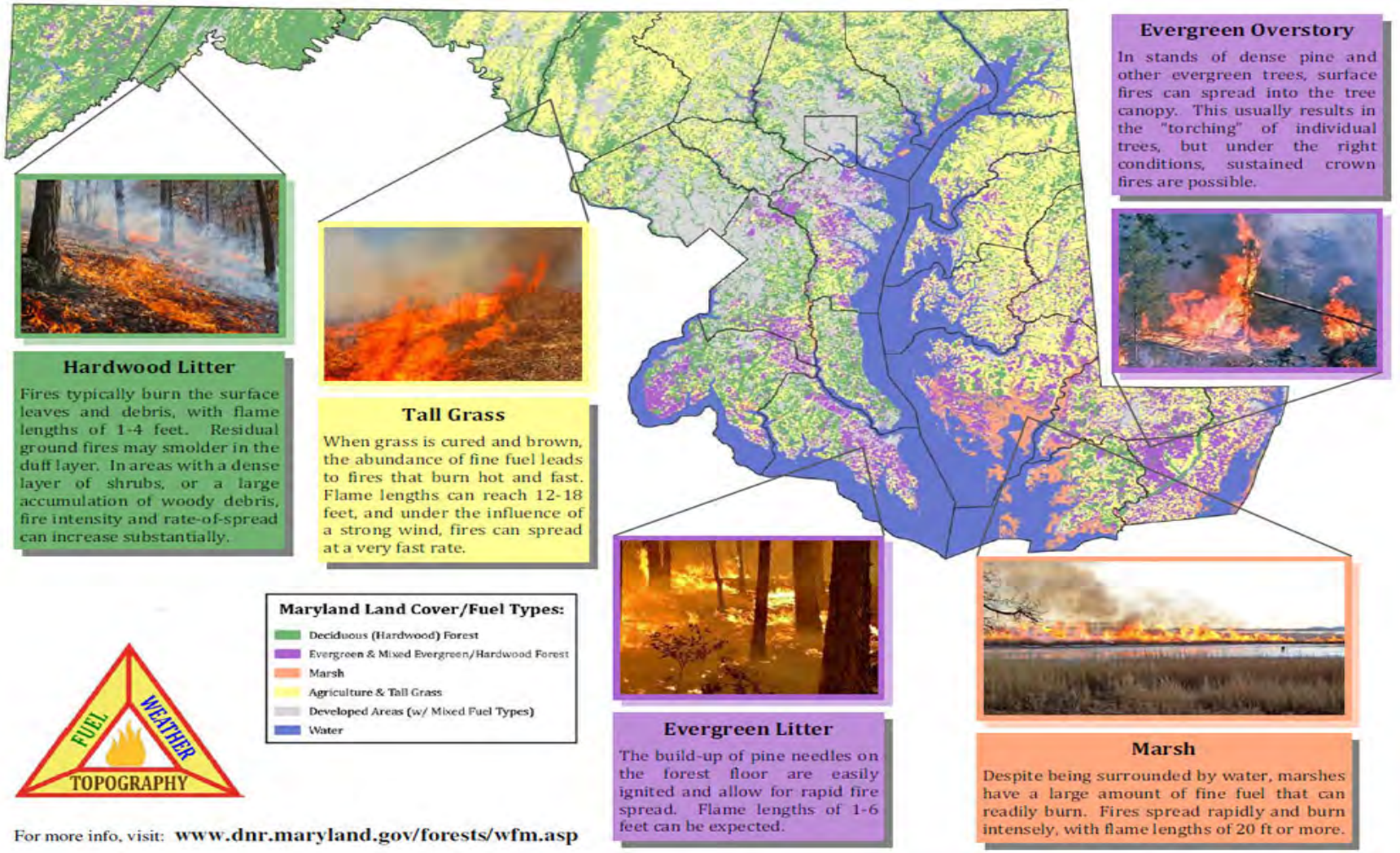

Figure 7 - Fuel Types and Land Cover in Maryland

5.3 FIRE REGIME

The fire regime classification system is used to characterize the personality of a fire in a given vegetation type, including the frequency that the fire visits the landscape, the type of pattern created, and the ecological effects. The following natural fire regimes (Table 2) are arranged along a temporal gradient, from the most frequent to the least frequent fire return interval. The definitions below are from the General Technical Report, Rocky Mountain Research Station #87 (GTR-RMRS-87).

Table 2. Natural Fire Regimes

Fire Regime	Frequency	Effect to Dominant Vegetation
Fire Regime I	0-35 years	Low Severity
Fire Regime II	0-35 years	Stand Replacement
Fire Regime III	35-100+ years	Mixed Severity
Fire Regime IV	35-100+ years	Stand Replacement
Fire Regime V	200+ years	Stand Replacement

5.4 FUEL LOAD

Fuel load is described as the amount (weight) of flammable biomass in a given area at a specific time. Fuel loading is normally measured in tons of biomass per acre. The total fuel load is sometimes broken out into the component parts (1 hour, 10 hour, etc.). Fuel loads in a given area can vary greatly depending on fuel types and environmental conditions, particularly soil moisture and soil quality.

Fuel loads are constantly in flux, and the more variable the vegetation type over time, the more difficult it is to assess the fuel conditions. Herbaceous fuels are the most difficult to estimate over time because they change so readily with alterations in climate.

The BPRF FMP indicates that there is a high percentage of Coarse Woody Debris (CWD) in several of the forest stands (CIII-S2, CIV-S3, CVII-S1&2). A large amount of wind-thrown Virginia pine can be throughout Compartments I and VII. Forest stands with an extreme high fire risk include Compartments V, VI, IV, and I. Work has begun to reduce fuel loads in forest stands (CI-S3, CIV-S1, CIV-S1&2 and CV-S1) in 2019.

A recent survey of ALC Fire Management Zones indicated a higher presence of CWD in the 100, 200 and 500 Areas. Wind-thrown Virginia pine is leading to higher CWD loads in the 500 Area and a dense accumulation of invasive species in the 600 Area.

Fuel loading is one of the primary factors in the fire behavior fuel models and the National Fire Danger Rating System (NFDRS) fuel models. Surveys of fuel loading may be used to the extent possible to monitor fuel conditions.

Fuel loads will be monitored and managed by the ALC Wildland Fire Program Manager to minimize risk of wildland fire, and also in preparation for prescribed burns. The ALC Wildland

Fire Program Manager will work in conjunction with the BPRF Site Manager for fuel management on BPRF.

5.5 FUEL MODELS

Demarcating vegetation at ALC and BPRF has been an ongoing project. This vegetation data and the field data collected at the installations are the primary sources for fuels information used in this IWFMP. However, supplemental nationwide vegetation and fuels data was referenced from Landfire for fuel types and fuel loads at both ALC and BPRF. The 13 Anderson Fire Behavior Model data (FBFM13) was used at ALC (Figure 8), while the 40 Scott and Burgan Fire Behavior Fuel Model data (FBFM40) was used for BPRF (Figure 9). The FBFM13 was used at ALC as the FBFM40 data was not available for the northern region of Maryland.

The 13 Anderson Fire Behavior Fuel Model (FBFM13) layer represents distinct distributions of fuel loading found among surface fuel components (live and dead), size classes, and fuel types. The fuel models are described by the most common fire-carrying fuel type (grass, brush, timber litter, or slash), loading and surface area-to-volume ratio by size class and component, fuelbed depth, and moisture of extinction.

The 40 Scott and Burgan Fire Behavior Fuel Model (FBFM40) layer represents distinct distributions of fuel loading found among surface fuel components (live and dead), size classes, and fuel types. This set contains more fuel models in every fuel type (grass, shrub, timber, slash) than Anderson's set of 13. The number of fuel models representing relatively high dead fuel moisture content increased, and fuel models with an herbaceous component are now dynamic, meaning that loads shift between live and dead (to simulate curing of the herbaceous component) rather than remaining constant (www.landfire.org).

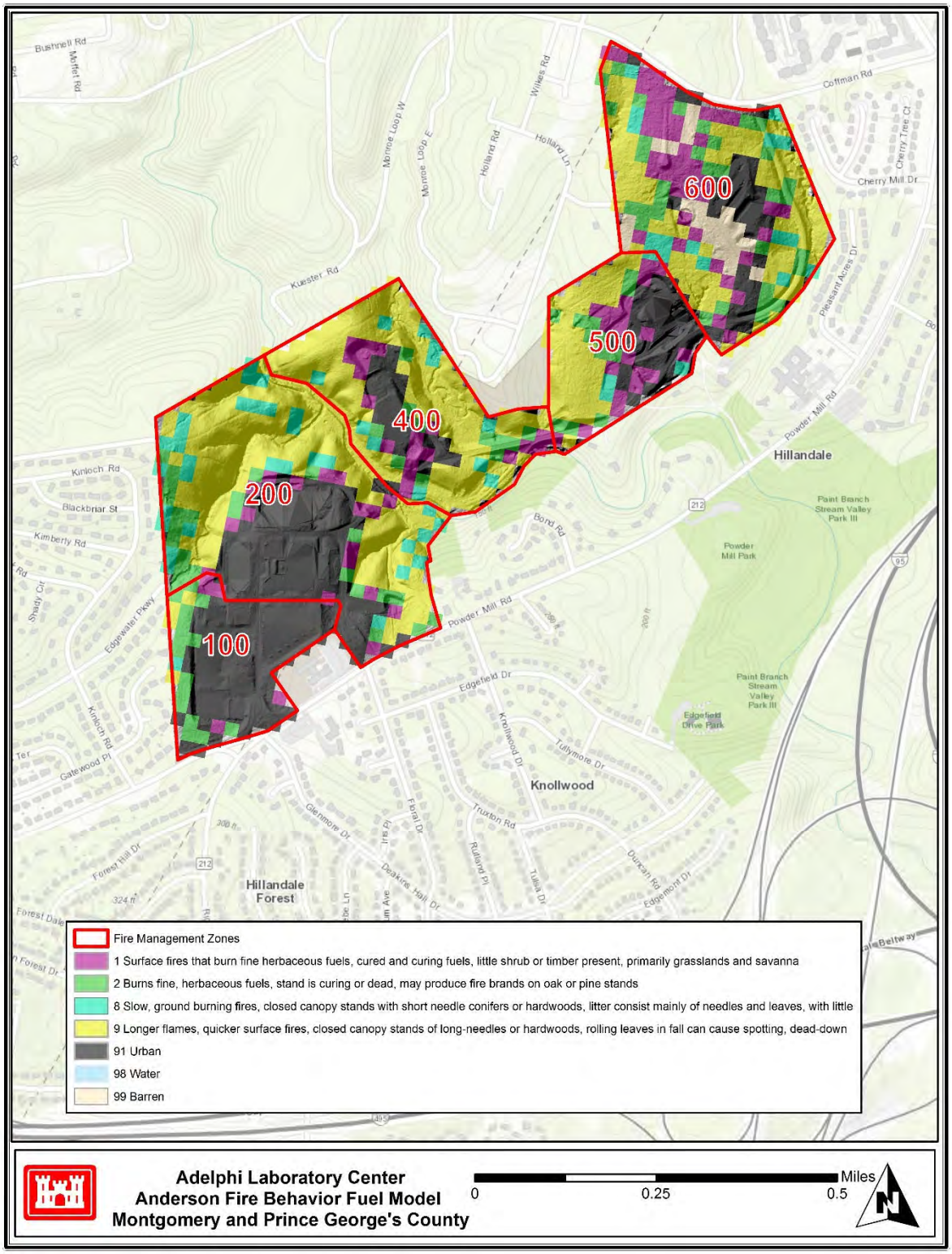

Figure 8 - ALC using the 13 Anderson Fire Behavior Model

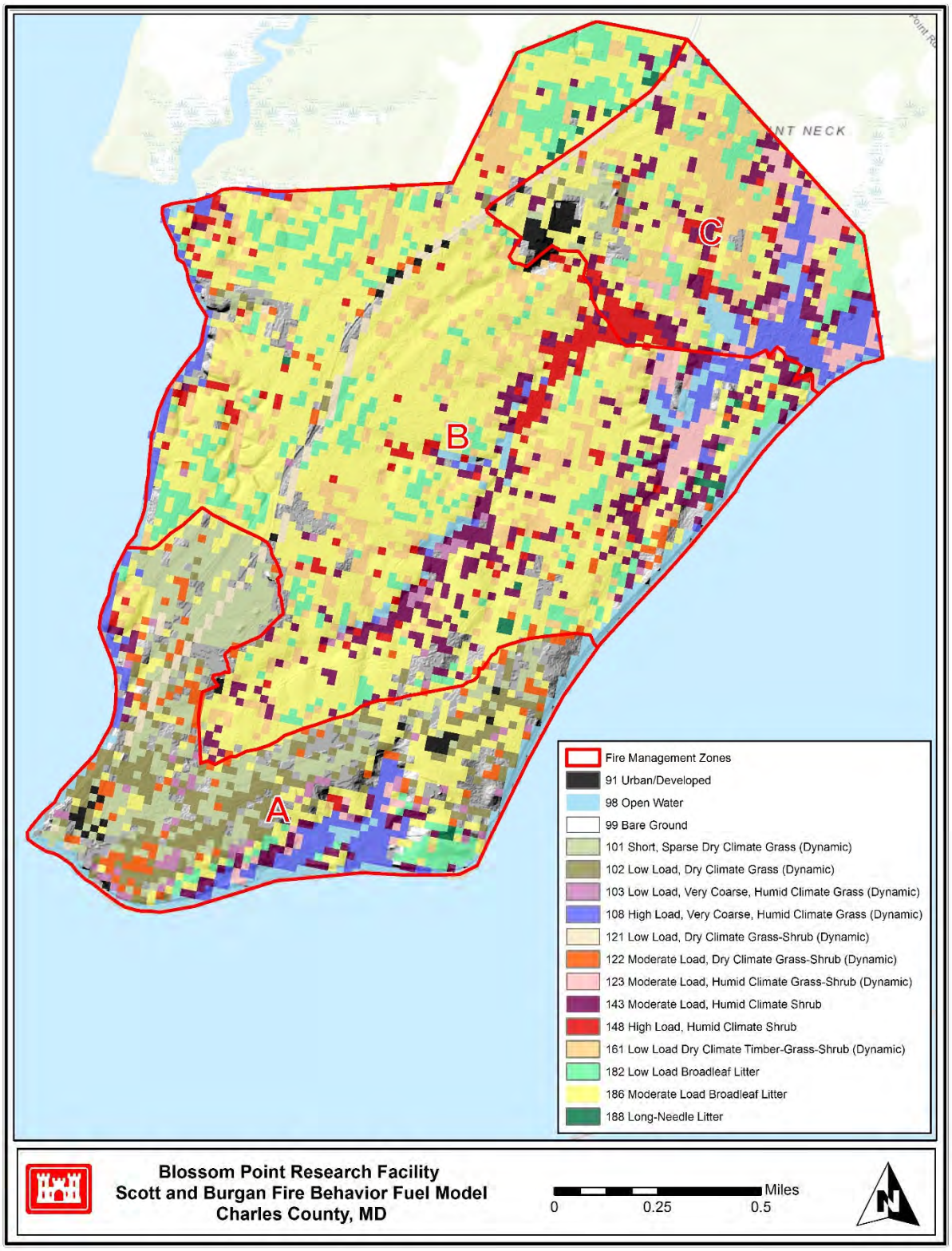

Figure 9 - BPRF using the 40 Scott and Burgan Fire Behavior Fuel Model

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CHAPTER 6 - REFERENCES

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Appendix A
MDNR Forest Service Agreement, Memorandums of Understanding (MOUs), and Mutual Aid Agreements (MAAs)

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MARYLAND DNR FOREST SERVICE
PRESCRIBED BURNING AGREEMENT

The Maryland Forest Service recognizes that under certain conditions the use of fire by prescription on specifically designated areas is a desirable procedure in preparing an area for reforestation, for controlling the growth of undesirable species of trees, shrubs and vegetation, wildfire hazard reduction, enhancing habitat and for other purpose.

The Maryland Forest Service, in an effort to aid landowners to develop the forest resources of the state, enters into an agreement with the landowner as follows;

It is mutually agreed by _____ (Landowner) on behalf of himself, and the Maryland Forest Service, that the Landowner does herein request the advice and service of the Maryland Forest Service to carry out a prescribed burning project for forestry purposes, of an approximate _____ acres(s) in Click to Select County, MD.

BURNS	ACRES	HRS.-Ft.	TOTAL
TYPE OF BURN: Click to Select Type			
FIRELINE CONSTRUCTION and day of burn $75/hr			
		TOTAL TO BE BILLED	

A. The landowner agrees to:

1. Reimburse the Maryland Forest Service the total amount due for all services, supplies and equipment cost as agreed upon. Payment is due within thirty (30) days of receipt of an itemized statement. Rate schedule included.

2. Light the initial fire on the area to be burned.

3. The Landowner agrees to protect, indemnify, and save harmless the State of Maryland, its officers, agents, and employees against all claims, demands, causes of action and liability of any kind arising out of or sustained by virtue of the performance of this Agreement. This responsibility in no way may be deemed a wavier of any and all immunities the Department may have.

4. Notify all neighboring landowners, local fire departments, county air quality officials and others as may be deemed necessary by the Maryland Forest Service representatives no later than one day in advance of the burning operation.

5. Observe the forest fire laws and secure an open air burning permit and observe air pollution regulations of Maryland pertaining to this prescribed burning operation.

6. Comply with the Prescribed Burning Plan approved by the Maryland Forest Service.

B. The Landowner is advised to obtain comprehensive liability insurance to cover bodily injury and property damage.

C. The Maryland Forest Service will:

1. Prepare or approve a Prescribed Burning Plan

2. Prepare a sketch map and designate the prescribed burning area by flagging or other means. The sketch map will become a part of this agreement and show proposed locations of exterior and interior fire line on the tract.

3. Make available, at previously prescribed rates, personnel and equipment of the Maryland Forest service to advise and assist the Landowner to conduct a safe and efficient prescribed burn.

D. It is understood that this agreement becomes a part of the Prescribed Burning Plan for the above-described property.

This Agreement shall be in effect from _____ to _____.

Witness Signature	Date	Landowner Signature	Date
Witness Signature	Date	Regional Forester Maryland Forest Service	Date

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI MD 20783-1197

IMAL-RMO

MEMORANDUM OF UNDERSTANDING BETWEEN US ARMY GARRISON ADELPHI LABORATORY CENTER AND THE MONTGOMERY COUNTY FIRE AND RESCUE SERVICE

SUBJECT: Memorandum of Understanding (MOU) between US Army Garrison Adelphi Laboratory Center, Director of Emergency Services (USAG ALC, DES) and The Montgomery County Fire and Rescue Service regarding timely and accurate information made available to the citizens of Montgomery County for all Emergency Incidents on the Premises

1. References.

a. DOD Instruction 4000.19 Interservice and Intergovernmental Support, 9 August 1995.

b. Army Regulation 190-13, The Army Physical Security Program, September 30, 1993

2. Purpose. To establish terms and conditions of an agreement between USAG ALC and MCOEM in the event of a fire, medical, hazardous material, or explosive emergency may occur here at USAG ALC.

3. Responsibilities

a. USAG ALC, DES will:

1) Be responsible for prompt notification to Headquarters, US Army Installation Management Command (IMCOM) whenever a reportable incident occurs.

2) Serve as an information resource to IMCOM or to Montgomery County officials when requested.

3) Promptly notify the Montgomery County Department of Fire and Rescue Services Emergency Communications Center of any accidental release of hazardous material that could extend beyond the site boundary and which could affect the citizens of Montgomery County

4) Notify Montgomery County Fire and Rescue Service whenever a planned release or a regulatory reportable incident involving hazardous materials which may extend beyond the USAG ALC site boundary. For any USAG ALC site incident not requiring a regulatory report, but in the professional judgment of the USAG ALC, DES, could cause apprehension or alarm to the surrounding community, DES shall communicate the circumstances of the incident to IMCOM with the recommendation that an information report be made available to the Montgomery County Emergency Communications Center.

5) Maintain a listing of all hazardous materials on site and their locations and where security and mission readiness permits will make available to the Montgomery County Office of Emergency Management those lists, site and building plans, related safety and health information and contingency plans relating to hazardous materials on the site, so that Montgomery County emergency responders may be promptly informed.

6) Make available to the Montgomery County Office of Emergency Management any information or reports which in its professional judgment will assist the County in responding to public inquiries in the event of an emergency or in planning for potential future incidents.

7) Report immediately any changes in emergency procedures; the names of designated officials, emergency telephone and/or fax numbers to the Montgomery County Emergency Communications Center and the Office of Emergency Management. Other non-emergency information will be updated annually.

4. Resources.

This is a no cost MOU.

5. Implementation Instructions

a. This MOU is effective on the date of the last signature by both parties and will remain in effect until terminated.

b. Both parties agree to review the MOU every three (3) years. This agreement is subject to review at any time upon written request by either party. Prior notice of 180 days will be provided if the agreement is to be unilaterally modified, suspended, or terminated.

SUBJECT: Memorandum of Understanding (MOU) between US Army Garrison Adelphi Laboratory Center, Director of Emergency Services (USAG ALC, DES) and The Montgomery County Office of Emergency Management (MCOEM) regarding timely and accurate information made available to the citizens of Montgomery County for all Emergency Incidents on the Premises

6. Primary points of contact (POCs) for this agreement are as follows:

USAG ALC
Gary Spegal
Director, Emergency Services
2800 Powder Mill Road
Adelphi, Maryland 20783
Phone: (301) 394-5922

MCOEM
Kevin Frazier
Explosive Ordnance Device Chief
(240) 773-8944
Kevin.frazier@montgomerycountymd.gov

Charles H. Roberson, Jr.
Chief of Police
2800 Powder Mill Road
Adelphi, Maryland 20783
Phone: (301) 394-1115

Myra Eanes
Agreements Manager
2800 Powder Mill Road
Adelphi, Maryland 20783
Phone: (301) 394-0457
Myra.r.eanes.cov@mail.mil

7. Approval.

US Army Garrison
Adelphi Laboratory Center

Joseph F. Watson
Garrison Manager

5/20/13
Date

Montgomery County
Fire and Rescue Service

Richard Bowers
Fire Chief

1/8/13
Date

APPROVED AS TO FORM AND LEGALITY.
OFFICE OF COUNTY ATTORNEY

BY _____

DATE _____

Appendix B
Prescribed Burn Checklist and Burn Plan Templates

MARYLAND DNR FOREST SERVICE
PRESCRIBED BURN CHECKLIST

YES	**NO**	Do you have an APPROVED prescribed burn plan?
YES	**NO**	Are ALL fire prescription elements met?
YES	**NO**	Are ALL smoke management specifications met?
YES	**NO**	Are ALL permits and clearances obtained?
YES	**NO**	Has an area fire weather forecast been obtained and is it favorable?
YES	**NO**	Are ALL required personnel in the prescribed fire plan on site?
YES	**NO**	Has the contingency planning process adequately considered fuels adjacent to and within a reasonable proximity to the burn area?
YES	**NO**	Has the availability of ALL contingency resources been checked and are they available?
YES	**NO**	Have ALL personnel been briefed on prescribed burn objectives and understand their assignment?
YES	**NO**	Have ALL personnel been briefed on safety hazards, escape routes, and safety zones?
YES	**NO**	Have ALL the required notifications been made?
YES	**NO**	Are the on-site holding forces adequate for containment under expected conditions?
YES	**NO**	Have on site weather observations been taken?
YES	**NO**	Are all personnel on site qualified and wearing appropriate PPE?
YES	**NO**	In YOUR OPINION, can the prescribed fire meet the planned objectives, and can it be carried out according to the approved plan?

I certify that I have reviewed the burn objectives and that all the above questions were answered "Yes".

_____ _____

Prescribed Burn Boss **Date / Time**

_____ _____

Witness **Date / Time**

Proceed with a test fire and document the current conditions, location, and results.

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MARYLAND DNR FOREST SERVICE
PRESCRIBED BURN PLAN

Burn Plan # _____

I LOCATION:

Region: Click to Select County: Click to Select Ownership: Click to Select
Property Owner: _____
Address: _____
_____

Property Location: Lat / Long _____
Address _____
_____

II PURPOSE and OBJECTIVE:

Purpose: Click to Select
Other: _____
Objective: _____

III DESCRIPTION OF BURN AREA:

Acres _____
Overstory: Type: _____Density:_____Size:_____
Understory: Type:_____Density:_____Size:_____
Fuels: Type:_____Density:_____Age:___Fuel Model: ___

IV WEATHER CONDITIONS:

Wind: Direction: _____ Wind Speed (Eye-Level): Min: _____ Max: _____
Relative Humidity: Min: _____ Max: _____
Temperature: Min: _____ Max: _____
Drought Index: Min: _____ Max: _____
Fine Fuel Moisture -1 hour: Min: _____ Max: _____
10 hour fuel moisture: Min: _____ Max: _____
100 hour fuel moisture: Min: _____ Max: _____
Mixing Height: Min: _____ Max: _____
Transport Wind Direction(s): _____
Live Fuel Moisture: ***Herbaceous***: Min: _____ Max:_____ ***Woody***: Min: _____Max:_____
Probability of Ignition of Adjacent Fuels: _____

V SMOKE MANAGEMENT PLAN:

☐ Attached Smoke Management Maps with 1 & 5 mile radius

Distance and direction from smoke sensitive area(s): _____

NOTE: BURNING SHOULD NOT BE CONDUCTED DURING POLLUTION ALERTS AS DETERMINED BY THE NATIONAL WEATHER SERVICE.

VI PRE-BURN FACTORS:

Line Construction Method: _____
Exterior: _____ Interior: _____ Total: _____
Line Firing: Feet
Exterior: _____ Interior: _____ Total: _____

VII BURN CONDITIONS AND PROCEDURES:

Test Fire Location & Procedures: _____
Firing Method/Procedures: _____
Expected Rate of Spread (chains/hr): In Burn Area: _____ In Adjacent Fuels: _____
Expected Flame Length: In Burn Area: _____ In Adjacent Fuels: _____
Estimated Burn Duration (hours): _____
Starting Time: _____ Estimated Time of Completion: _____
Time of Year: _____
Equipment Required On Site: _____
Rx Burn Hazard Signs: Number: _____ Location: _____
Control Procedures: _____
Mop-up Procedures: _____
Special Precautions: _____

VIII BURN CREW ORGANIZATION:

Burn Boss: _____
Firing Boss: _____
Holding Boss: _____
Weather Observer: _____
Number of Additional Personnel Required On Site: _____
Reinforcements Available: Location: _____Contact Name: _____Phone # _____

IX NOTIFICATION: *(Minimum of 24 hours in advance of burn)*

Adjacent Property Owners: Name:_____ Phone #: _____
Air Quality Officer (if applicable): Name:_____Phone #: _____
Fire Manager: Name: _____ Office #: _____ Cell #: _____
Land Unit Manager (State Lands): Name: _____ Office #: _____ Cell #: _____
State Restoration Ecologist (ESA only): Name: _____ Office #: _____ Cell #: _____

Notification prior to Ignition of Test Fire
County Emergency Operations Center: Name: _____ Phone #: _____
Maryland DNR Forest Service: Project Office: _____Phone #: _____
Other: _____

X ATTACHMENTS:

Area Map with Site Location: ☐ Map of Burn Area: ☐
Smoke Impact Map (1 & 5 miles smoke radius): ☐
ESA Management Map (state lands if applicable): ☐
Pre-ignition or Go/No Go Checklist: ☐

Prescribed Burning Agreement: (private property) ☐

XI APPROVAL

ESA Management (State Lands only)) – Burn Plan requires review/ approval of WHS
☐ Check if WHS review & approval has been completed

Prepared By: _____

Date: _____

Approved By: _____
Fire Manager

Date: _____

NOTE: Burn plans must be submitted a minimum of 30 days prior to planned ignition date

Revised November 2010

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PRESCRIBED FIRE PLAN

ADMINISTRATIVE UNIT NAME(S): _____

PRESCRIBED FIRE NAME:
Prescribed Fire Unit (Ignition Unit): _____

PREPARED BY:
Name (print): _____ Qualification/Currency: _____

Signature: _____ Date: _____

TECHNICAL REVIEW BY:
Name (print): _____ Qualification/Currency: _____

Signature: _____ Date: _____

COMPLEXITY RATING: _____

MINIMUM BURN BOSS QUALIFICATION: _____

APPROVED BY:
Name – Agency Administrator (print): _____

Signature – Agency Administrator: _____ Date**:** _____

Replace this page with the signed: *Agency Administrator Ignition Authorization*, PMS 485

The Agency Administrator Ignition Authorization form is a separate PDF file that must be printed and signed.

The Agency Administrator Ignition Authorization must be completed before a prescribed fire can be implemented. If ignition of the prescribed fire is not initiated prior to expiration date determined by the agency administrator, a new authorization will be required.

Replace this page with the signed: *Prescribed Fire Go/No-Go Checklist*, PMS 486

The Prescribed Fire Go/No-Go Checklist form is a separate PDF file that needs to be printed and signed by the burn boss.

Prescribed Fire Name:_____

Ignition Unit Name:_____

Element 3: Complexity Analysis Summary

This summary should include the same summary rationale that is in the complexity analysis in Appendix C of the prescribe fire plan.

ELEMENT	RISK	POTENTIAL CONSEQUENCE	TECHNICAL DIFFICULTY
1. Potential for escape			
2. The number and dependence of activities			
3. Off-site values			
4. On-site values			
5. Fire behavior			
6. Management organization			
7. Public and political interest			
8. Fire treatment objectives			
9. Constraints			
10. Safety			
11. Ignition procedures/methods			
12. Interagency coordination			
13. Project logistics			
14. Smoke management			

COMPLEXITY RATING SUMMARY	OVERALL RATING
RISK	
CONSEQUENCES	
TECHNICAL DIFFICULTY	
SUMMARY COMPLEXITY DETERMINATION	

Rationale:

Prescribed Fire Name:_____

Ignition Unit Name:_____

Fill out Elements 4 through 21 based on the guidance provided in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484.

Element 4: Description of Prescribed Fire Area

A. Physical Description

1. Location**:**
2. Size:
3. Topography:
4. Project area:
5. Ignition units:

B. Vegetation/Fuels Description:

1. On-site fuels data:
2. Adjacent fuels data:
3. Percent of vegetative type and fuels model(s):

C. Description of Unique Features, Natural Resources, Values:

D. Maps - Attach in Appendix A

1. Vicinity (Required)
2. Project/Ignition Unit(s) (Required)
3. Significant or Sensitive Features (Optional): ☐ Included ☐ Not Included
4. Fuels or Fuel Model(s)(Optional): ☐ Included ☐ Not Included
5. Smoke Impact Area (Optional): ☐ Included ☐ Not Included

Element 5: Objectives

A. Resource objectives:

Prescribed Fire Name:_____

Ignition Unit Name:_____

B. Prescribed fire objectives:

Element 6: Funding

A. Cost:

B. Funding source:

Element 7: Prescription

A. Prescription Narrative:

1. Describe how fire behavior will meet objectives

B. Prescription Parameters:

1. Environmental or fire behavior (or both)

2. Fire Modeling or empirical documentation (or both)

Element 8: Scheduling

A. Implementation Schedule:

1. Ignition Time Frames or Season(s) (or both)

B. Projected Duration:

C. Constraints:

Element 9: Pre-burn Considerations and Weather

A. Considerations:

1. On-site

2. Off-site

Prescribed Fire Name:_____

Ignition Unit Name:_____

B. Method and Frequency for Obtaining Weather and Smoke Management Forecast(s):

C. Notifications:

Element 10: Briefing

A. Briefing Checklist; including, but not limited to: (additional items may be added)

- ☐ Burn organization and assignments
- ☐ Prescribed Fire objectives and prescription
- ☐ Description of prescribed fire project area
  - ☐ Special considerations and sensitive features
- ☐ Expected weather and fire behavior
- ☐ Communications
- ☐ Ignition plan
- ☐ Holding plan
- ☐ Contingency plan and assignments
- ☐ Wildfire declaration
- ☐ Safety and medical plan
- ☐ Aerial ignition briefing (if aerial ignition devices will be used)

Element 11: Organization and Equipment

A. Positions:

B. Equipment:

C. Supplies:

Element 12: Communication

A. Radio Frequencies:

1. Command frequency(ies):

2. Tactical frequency(ies):

3. Air operations frequency(ies):

B. Telephone Numbers:

Prescribed Fire Name:_____

Ignition Unit Name:_____

Element 13: Public and Personnel Safety, Medical

A. Safety Hazards:

B. Mitigation: Measures Taken to Reduce the Hazards:

C. Emergency Medical Procedures:

D. Emergency Evacuation Methods:

E. Emergency Facilities:

Element 14: Test Fire

A. Planned Location:

B. Test Fire Documentation:

1. Weather conditions on site

2. Test fire results

Element 15: Ignition Plan

A. Firing Methods:

1. Techniques, sequences and patterns

B. Devices:

C. Minimum Ignition Staffing:

Element 16: Holding Plan

A. General Procedures for Holding:

Prescribed Fire Name:_____

Ignition Unit Name:_____

B. Critical Holding Points and Actions:

C. Minimum Organization or Capabilities Needed:

Element 17: Contingency Plan

Management Action Points or Limits:

(Optional MAP Table Format)

Management Action Point - Documentation Element	Management Action Point Narrative
Designator and Description:	
Condition:	
Management Intent:	
Recommended Action(s) to Consider:	
Recommended Resources:	
Time Frame:	
Describe the consequences of not taking the recommended action(s) (Optional):	
Responsibility:	
Date Each Action is Initiated (Optional):	

(if you need to include more MAPs, copy and paste the above template)

B. Actions Needed:

C. Minimum Contingency Resources and Maximum Response Time(s):

Element 18: Wildfire Declaration

A. Wildfire Declared By:

B. IC Assignment:

C. Notifications:

D. Extended Attack Actions and Opportunities to Aid in Fire Suppression (Optional):

Prescribed Fire Name:_____

Ignition Unit Name:_____

Element 19: Smoke Management and Air Quality

A. Compliance:

B. Permits to be Obtained:

C. Smoke-Sensitive Receptors:

D. Potential Impacted Areas:

E. Mitigation Strategies and Techniques to Reduce Smoke Impacts:

Element 20: Monitoring

A. Fuels Information Required and Procedures:

B. Weather Monitoring (Forecasted and Observed) Required and Procedures:

C. Fire Behavior Monitoring Required and Procedures:

D. Monitoring Required to Ensure that Prescribed Fire Plan Objectives are Met:

E. Smoke Dispersal Monitoring Required and Procedures:

Element 21: Post-burn Activities

A. Post-Burn Activities that must be Completed:

Prescribed Fire Name:_____

Ignition Unit Name:_____

Prescribed Fire Plan Appendices

Appendix A: Maps: Vicinity, Project or Ignition Units (or both), Optional: Significant or Sensitive Features, Fuels or Fuel Model, Smoke Impact Areas

Appendix B: Technical Reviewer Checklist

Appendix C: Complexity Analysis

Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment

Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation

Appendix F: Smoke Management Plan and Smoke Modeling Documentation (Optional)

Prescribed Fire Name:_____

Ignition Unit Name:_____

Appendix A: Vicinity Map

Insert your vicinity maps here. Refer to Element 4D in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Prescribed Fire Name:_____

Ignition Unit Name:_____

Appendix A: Project (Ignition Units) Maps

Insert your project (ignition unit) map(s) here. Refer to Element 4D in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Prescribed Fire Name:_____

Ignition Unit Name:_____

Appendix A: Significant or Sensitive Features: (Optional) Maps

Insert your significant or sensitive feature map(s) here. Refer to Element 4D in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Prescribed Fire Name:_____

Ignition Unit Name:_____

Appendix A: Fuels or Fuel Model: (Optional) Maps

Insert your fuel or fuel model map(s) here. Refer to Element 4D in *the Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Prescribed Fire Name:_____

Ignition Unit Name:_____

Appendix A: Smoke Impact Areas: (Optional) Maps

Insert your significant or sensitive feature map(s) here. Refer to Element 4D in *the Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Prescribed Fire Name:_____

Ignition Unit Name:_____

Appendix B: Technical Reviewer Checklist

Fill out this checklist based on the guidance provided in the Technical Review section in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484.

Rate each element in the following table with an "S" for Satisfactory or "U" for Unsatisfactory. Use Comment field as needed to support the element rating.

PRESCRIBED FIRE PLAN ELEMENTS	RATING	COMMENTS
1. Signature page		
2. A. Agency Administrator Ignition Authorization, PMS 485		
2. B. Prescribed Fire GO/NO-GO Checklist, PMS 486		
3. Complexity Analysis Summary		
4. Description of Prescribed Fire Area		
5. Objectives		
6. Funding		
7. Prescription: Prescription Narrative and Prescription Parameters		
8. Scheduling		
9. Pre-Burn Considerations and Weather		
10. Briefing		
11. Organization and Equipment		
12. Communication		
13. Public and Personnel Safety, Medical		
14. Test Fire		
15. Ignition Plan		
16. Holding Plan		
17. Contingency Plan		
18. Wildfire Declaration		
19. Smoke Management and Air Quality		
20. Monitoring		
21. Post-Burn Activities		
Appendix A: Maps		
Appendix C: Complexity Analysis		
Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment		
Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation		
Appendix F: Smoke Management Plan and Smoke Modeling Documentation (Optional)		
Other		

☐ **Approval is recommended** subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

☐ **Recommendation for approval is not granted**. Prescribed fire plan should be re-submitted for technical review subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

Technical Reviewer Signature: _____ Qualification and Currency:

_____

Prescribed Fire Name:_____

Ignition Unit Name:_____

Date Signed:_____

Prescribed Fire Name:_____

Ignition Unit Name:_____

Appendix C: Complexity Analysis

Please refer to Element 3: Complexity Analysis Summary in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, and the procedures in *the Prescribed Fire Complexity Analysis Rating System Guide*, PMS 424, to fill out this appendix.

Prescribed Fire Name:_____

Ignition Unit Name:_____

Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment

Please refer to your specific agency guidance to fill out this appendix.

Prescribed Fire Name:_____

Ignition Unit Name:_____

Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation

Refer to Element 7: Prescription, *in the Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Prescribed Fire Name:_____

Ignition Unit Name:_____

Appendix F: Smoke Management Plan and Smoke Modeling Documentation

(OPTIONAL)

Refer to the *Smoke Management Guide for Prescribed and Wildland Fire* (National Wildfire Coordinating Group, 2001) and Appendix B. Basic Smoke Management Practices in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484 to fill out this appendix.

Appendix C
Wildland Fire Complexity Analysis and MDNR Prescribed Burn Evaluation Form

Wildland Fire Risk and Complexity Assessment

The Wildland Fire Risk and Complexity Assessment should be used to evaluate firefighter safety issues, assess risk, and identify the appropriate incident management organization. Determining incident complexity is a subjective process based on examining a combination of indicators or factors. An incident's complexity can change over time; incident managers should periodically re-evaluate incident complexity to ensure that the incident is managed properly with the right resources.

Instructions:
Incident Commanders should complete Part A and Part B and relay this information to the Agency Administrator. If the fire exceeds initial attack or will be managed to accomplish resource management objectives, Incident Commanders should also complete Part C and provide the information to the Agency Administrator.

Part A: Firefighter Safety Assessment

Evaluate the following items, mitigate as necessary, and note any concerns, mitigations, or other information.

Evaluate these items	Concerns, mitigations, notes
LCES	
Fire Orders and Watch Out Situations	
Multiple operational periods have occurred without achieving initial objectives	
Incident personnel are overextended mentally and/or physically and are affected by cumulative fatigue.	
Communication is ineffective with tactical resources and/or dispatch.	
Operations are at the limit of span of control.	
Aviation operations are complex and/or aviation oversight is lacking.	
Logistical support for the incident is inadequate or difficult.	

Part B: Relative Risk Assessment

Values				Notes/Mitigation
B1. Infrastructure/Natural/Cultural Concerns **Based on the number and kinds of values to be protected, and the difficulty to protect them, rank this element low, moderate, or high.** Considerations: key resources potentially affected by the fire such as urban interface, structures, critical municipal watershed, commercial timber, developments, recreational facilities, power/pipelines, communication sites, highways, potential for evacuation, unique natural resources, special-designation areas, T&E species habitat, cultural sites, and wilderness.	**L**	**M**	**H**	
B2. Proximity and Threat of Fire to Values **Evaluate the potential threat to values based on their proximity to the fire, and rank this element low, moderate, or high.**	**L**	**M**	**H**	
B3.Social/Economic Concerns **Evaluate the potential impacts of the fire to social and/or economic concerns, and rank this element low, moderate, or high.** Considerations: impacts to social or economic concerns of an individual, business, community or other stakeholder; other fire management jurisdictions; tribal subsistence or gathering of natural resources; air quality regulatory requirements; public tolerance of smoke; and restrictions and/or closures in effect or being considered.	**L**	**M**	**H**	
Hazards				**Notes/Mitigation**
B4. Fuel Conditions **Consider fuel conditions ahead of the fire and rank this element low, moderate, or high.** Evaluate fuel conditions that exhibit high ROS and intensity for your area, such as those caused by invasive species or insect/disease outbreaks; continuity of fuels; low fuel moisture	**L**	**M**	**H**	
B5. Fire Behavior **Evaluate the current fire behavior and rank this element low, moderate, or high.** Considerations: intensity; rates of spread; crowning; profuse or long-range spotting.	**L**	**M**	**H**	
B6. Potential Fire Growth **Evaluate the potential fire growth, and rank this element low, moderate, or high.** Considerations: Potential exists for extreme fire behavior (fuel moisture, continuity, winds, etc.); weather forecast indicating no significant relief or worsening conditions; resistance to control.	**L**	**M**	**H**	
Probability				**Notes/Mitigation**
B7. Time of Season **Evaluate the potential for a long-duration fire and rank this element low, moderate, or high.** Considerations: time remaining until a season ending event.	**L**	**M**	**H**	
B8. Barriers to Fire Spread **If many natural and/or human-made barriers are present and limiting fire spread, rank this element low. If some barriers are present and limiting fire spread, rank this element moderate. If no barriers are present, rank this element high.**	**L**	**M**	**H**	
B9. Seasonal Severity **Evaluate fire danger indices and rank this element low/moderate, high, or very high/extreme.** Considerations: energy release component (ERC); drought status; live and dead fuel moistures; fire danger indices; adjective fire danger rating; preparedness level.	**L/ M**	**H**	**VH /E**	
Enter the number of items circled for each column.				

Relative Risk Rating (circle one):

Low	Majority of items are “Low”, with a few items rated as “Moderate” and/or “High”.
Moderate	Majority of items are “Moderate”, with a few items rated as “Low” and/or “High”.
High	Majority of items are “High”; A few items may be rated as “”Low” or “Moderate”.

Part C: Organization

Relative Risk Rating (From Part B)					
Circle the Relative Risk Rating (from Part B).		**L**	**M**	**H**	
Implementation Difficulty					**Notes/Mitigation**
C1. Potential Fire Duration **Evaluate the estimated length of time that the fire may continue to burn if no action is taken and amount of season remaining. Rank this element low, moderate, or high.** Note: This will vary by geographic area.	**N/A**	**L**	**M**	**H**	
C2. Incident Strategies (Course of Action) **Evaluate the level of firefighter and aviation exposure required to successfully meet the current strategy and implement the course of action. Rank this element as low, moderate, or high.** Considerations: Availability of resources; likelihood that those resources will be effective; exposure of firefighters; reliance on aircraft to accomplish objectives; trigger points clear and defined.	**N/A**	**L**	**M**	**H**	
C3. Functional Concerns **Evaluate the need to increase organizational structure to adequately and safely manage the incident, and rank this element low (adequate), moderate (some additional support needed), or high (current capability inadequate).** Considerations: Incident management functions (logistics, finance, operations, information, planning, safety, and/or specialized personnel/equipment) are inadequate and needed; access to EMS support, heavy commitment of local resources to logistical support; ability of local businesses to sustain logistical support; substantial air operation which is not properly staffed; worked multiple operational periods without achieving initial objectives; incident personnel overextended mentally and/or physically; Incident Action Plans, briefings, etc. missing or poorly prepared; performance of firefighting resources affected by cumulative fatigue; and ineffective communications.	**N/A**	**L**	**M**	**H**	
Socio/Political Concerns					**Notes/Mitigation**
C4. Objective Concerns **Evaluate the complexity of the incident objectives and rank this element low, moderate, or high.** Considerations: clarity; ability of current organization to accomplish; disagreement among cooperators; tactical/operational restrictions; complex objectives involving multiple focuses; objectives influenced by serious accidents or fatalities.	**N/A**	**L**	**M**	**H**	
C5. External Influences **Evaluate the effect external influences will have on how the fire is managed and rank this element low, moderate, or high.** Considerations: limited local resources available for initial attack; increasing media involvement, social/print/television media interest; controversial fire policy; threat to safety of visitors from fire and related operations; restrictions and/or closures in effect or being considered; pre-existing controversies/ relationships; smoke management problems; sensitive political concerns/interests.	**N/A**	**L**	**M**	**H**	
C6. Ownership Concerns **Evaluate the effect ownership/jurisdiction will have on how the fire is managed and rank this element low, moderate, or high.** Considerations: disagreements over policy, responsibility, and/or management response; fire burning or threatening more than one jurisdiction; potential for unified command; different or conflicting management objectives; potential for claims (damages); disputes over suppression responsibility.	**N/A**	**L**	**M**	**H**	
Enter the number of items circled for each column.					

Part C: Organization (continued)

Recommended Organization (circle one):

Type 5	Majority of items rated as "N/A"; a few items may be rated in other categories.
Type 4	Majority of items rated as "Low", with some items rated as "N/A", and a few items rated as "Moderate" or "High".
Type 3	Majority of items rated as "Moderate", with a few items rated in other categories.
Type 2	Majority of items rated as "Moderate", with a few items rated as "High".
Type 1	Majority of items rated as "High"; a few items may be rated in other categories.

Rationale:

Use this section to document the incident management organization for the fire. If the incident management organization is different than the Wildland Fire Risk and Complexity Assessment recommends, document why an alternative organization was selected. Use the "Notes/Mitigation" column to address mitigation actions for a specific element, and include these mitigations in the rationale.

Name of Incident:_____ Unit(s):_____

Date/Time:_____ Signature of Preparer:_____

Indicators of Incident Complexity

Common indicators may include the area (location) involved; threat to life, environment and property; political sensitivity, organizational complexity, jurisdictional boundaries, values at risk, and weather. Most indicators are common to all incidents, but some may be unique to a particular type of incident. The following are common contributing indicators for each of the five complexity types.

TYPE 5 INCIDENT COMPLEXITY INDICATORS

General Indicators	Span of Control Indicators
• Incident is typically terminated or concluded (objective met) within a short time once resources arrive on scene • For incidents managed for resource objectives, minimal staffing/oversight is required • One to five single resources may be needed • Formal Incident Planning Process not needed • Written Incident Action Plan (IAP) not needed • Minimal effects to population immediately surrounding the incident • Critical Infrastructure, or Key Resources, not adversely affected	• Incident Commander (IC) position filled • Single resources are directly supervised by the IC • Command Staff or General Staff positions not needed to reduce workload or span of control

TYPE 4 INCIDENT COMPLEXITY INDICATORS

General Indicators	Span of Control Indicators
• Incident objectives are typically met within one operational period once resources arrive on scene, but resources may remain on scene for multiple operational periods • Multiple resources (over 6) may be needed • Resources may require limited logistical support • Formal Incident Planning Process not needed • Written Incident Action Plan (IAP) not needed • Limited effects to population surrounding incident • Critical Infrastructure or Key Resources may be adversely affected, but mitigation measures are uncomplicated and can be implemented within one Operational Period • Elected and appointed governing officials, stakeholder groups, and political organizations require little or no interaction	• IC role filled • Resources either directly supervised by the IC or supervised through an ICS Leader position • Task Forces or Strike Teams may be used to reduce span of control to an acceptable level • Command Staff positions may be filled to reduce workload or span of control • General Staff position(s) may be filled to reduce workload or span of control

TYPE 3 INCIDENT COMPLEXITY INDICATORS

General Indicators	Span of Control Indicators
• Incident typically extends into multiple operational periods • Incident objectives usually not met within the first or second operational period • Resources may need to remain at scene for multiple operational periods, requiring logistical support • Numerous kinds and types of resources may be required • Formal Incident Planning Process is initiated and followed • Written Incident Action Plan (IAP) needed for each Operational Period • Responders may range up to 200 total personnel • Incident may require an Incident Base to provide support • Population surrounding incident affected • Critical Infrastructure or Key Resources may be adversely affected and actions to mitigate effects may extend into multiple Operational Periods • Elected and appointed governing officials, stakeholder groups, and political organizations require some level of interaction	• IC role filled • Numerous resources supervised indirectly through the establishment and expansion of the Operations Section and its subordinate positions • Division Supervisors, Group Supervisors, Task Forces, and Strike Teams used to reduce span of control to an acceptable level • Command Staff positions filled to reduce workload or span of control • General Staff position(s) filled to reduce workload or span of control • ICS functional units may need to be filled to reduce workload

TYPE 2 INCIDENT COMPLEXITY INDICATORS

General Indicators	Span of Control Indicators
• Incident displays moderate resistance to stabilization or mitigation and will extend into multiple operational periods covering several days • Incident objectives usually not met within the first several Operational Periods • Resources may need to remain at scene for up to 7 days and require complete logistical support • Numerous kinds and types of resources may be required including many that will trigger a formal demobilization process • Formal Incident Planning Process is initiated and followed • Written Incident Action Plan (IAP) needed for each Operational Period • Responders may range from 200 to 500 total • Incident requires an Incident Base and several other ICS facilities to provide support • Population surrounding general incident area affected • Critical Infrastructure or Key Resources may be adversely affected, or possibly destroyed, and actions to mitigate effects may extend into multiple Operational Periods and require considerable coordination • Elected and appointed governing officials, stakeholder groups, and political organizations require a moderate level of interaction	• IC role filled • Large numbers of resources supervised indirectly through the expansion of the Operations Section and its subordinate positions • Branch Director position(s) may be filled for organizational or span of control purposes • Division Supervisors, Group Supervisors, Task Forces, and Strike Teams used to reduce span of control • All Command Staff positions filled • All General Staff positions filled • Most ICS functional units filled to reduce workload

TYPE 1 INCIDENT COMPLEXITY INDICATORS

General Indicators	Span of Control Indicators
• Incident displays high resistance to stabilization or mitigation and will extend into numerous operational periods covering several days to several weeks • Incident objectives usually not met within the first several Operational Periods • Resources may need to remain at scene for up to 14 days, require complete logistical support, and several possible personnel replacements • Numerous kinds and types of resources may be required, including many that will trigger a formal demobilization process • DOD assets, or other nontraditional agencies, may be involved in the response, requiring close coordination and support • Complex aviation operations involving multiple aircraft may be involved • Formal Incident Planning Process is initiated and followed. • Written Incident Action Plan (IAP) needed for each Operational Period • Responders may range from 500 to several thousand total • Incident requires an Incident Base and numerous other ICS facilities to provide support • Population surrounding the region or state where the incident occurred is affected • Numerous Critical Infrastructure or Key Resources adversely affected or destroyed. Actions to mitigate effects will extend into multiple Operational Periods spanning days or weeks and require long-term planning and considerable coordination • Elected and appointed governing officials, stakeholder groups, and political organizations require a high level of interaction	• IC role filled • Large numbers of resources supervised indirectly through the expansion of the Operations Section and its subordinate positions • Branch Director Position(s) may be filled for organizational or span of control purposes • Division Supervisors, Group Supervisors, Task Forces, and Strike Teams used to reduce span of control • All Command Staff positions filled and many include assistants • All General Staff positions filled and many include deputy positions • Most or all ICS functional units filled to reduce workload

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Appendix D
Wildland Firefighter Equipment Checklist

Wildland Firefighter Equipment Checklist

The following equipment is required and/or recommended for all wildland firefighters.

- ❑ Long Sleeved Shirt
  - o Made of natural fibers or Nomex
- ❑ Trousers (Cuffless)
  - o Nomex
  - o Medium weight blue jeans
  - o Made of natural fibers (wool or cotton)
- ❑ Underclothing
  - o Made of at least 50% natural fibers (wool or cotton)
- ❑ Socks
  - o Made of at least 50% natural fibers (wool or cotton)
- ❑ Belt
  - o Non-synthetic, leather recommended
- ❑ Boots
  - o At least 8" High
  - o Made of leather
  - o Soles must be stitched, nailed, or screwed
  - o Must have deep lug Neoprene or Vibram sole
- ❑ Gloves
  - o Made of leather
- ❑ Hard Hat with chin strap
- ❑ Eye Protection
  - o Goggles, face shield, or safety glasses with side shields
- ❑ Hearing Protection
  - o Ear plugs or earmuffs
- ❑ Head Lamp
  - o Always assume you will be there after dark
  - o Bring extra batteries
- ❑ Canteens
  - o Should carry at least 1 quart of water (2 is better)
  - o Bottled water is easier.
- ❑ Bandana
  - o Good for smoke and dust (I suggest 2 or 3 as they are good for other purposes too.)
- ❑ 10 Standard Fire Orders and 18 Watch-out Situations
  - o Good reference such as helmet sticker or pocket/wallet card
- ❑ Other equipment you may want to consider
  - o Whistle (Loud, this is for emergencies, you will want to be heard.)
  - o Compass
  - o A light high energy snack (Granola bars, trail mix, etc.)
  - o NWCG Fireline Handbook
  - o Camera to take pics for the WFFWA Photo Blog ;-)

IMPLEMENTATION OF THE INTEGRATED WILDLAND FIRE MANAGEMENT PLAN AT U.S. ARMY GARRISON ABERDEEN PROVING GROUND ADELPHI LABORATORY CENTER AND BLOSSOM POINT RESEARCH FACILITY

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

December 2020

IMPLEMENTATION OF INTEGRATED WILDLAND FIRE MANAGEMENT PLAN AT U.S. ARMY GARRISON ABERDEEN PROVING GROUND ADELPHI LABORATORY CENTER AND BLOSSOM POINT RESEARCH FACILITY

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

December 2020

U.S. Army Garrison Adelphi Laboratory Center,
Montgomery and Prince George's County, MD

Blossom Point Research Facility,
Charles County, MD

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

IMPLEMENTATION OF INTEGRATED WILDLAND FIRE MANAGEMENT PLAN

Prepared For:

ALTENBURG.FRANK.ROBB.1041861955

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F. Robb Altenburg
Garrison Manager (A)
U.S. Army Garrison
Aberdeen Proving Ground, MD
Adelphi Laboratory Center, MD

Approved By:

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Vance Hobbs
Chief, Environmental Division
Directorate of Public Works
U.S. Army Garrison
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George Krause
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Approved by:

Timothy E. Druell
Colonel, U.S. Army
Commander, U.S. Army Garrison
Aberdeen Proving Ground, MD

Finding of No Significant Impact (FONSI)
Implementation of Integrated Wildland Fire Management Plan
U.S. Army Garrison Aberdeen Proving Ground
Adelphi Laboratory Center and Blossom Point Research Facility

INTRODUCTION: Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, U.S. Army Garrison (USAG) Aberdeen Proving Ground (APG) Adelphi Laboratory Center (ALC) has prepared an Environmental Assessment (EA) to evaluate potential environmental effects associated with the Proposed Action of the implementation of the Integrated Wildland Fire Management Plan (IWFMP) at ALC and Blossom Point Research Facility (BPRF). ALC is located in Adelphi, Maryland. The site straddles the border between two Maryland jurisdictions, Prince George's and Montgomery Counties. Of the total 207 acre area, 84 acres are within Montgomery County and 123 acres are within Prince George's County. BPRF occupies approximately 1,600 acres on Cedar Point Neck in southern Charles County, Maryland. It is located approximately 65 miles southeast of ALC. The ALC Garrison Manager exercises command authority and management leadership over both ALC and BPRF.

An IWFMP is required by the Department of Defense per the Army Wildland Fire Policy Guidance Memorandum dated 4 September 2002 and Army Regulation (AR) 200-1, Environmental Protection and Enhancement.

The EA was prepared in accordance with NEPA and implementing regulations issued by the Council on Environmental Quality (CEQ) and 32 Code of Federal Regulations (CFR) Part 651.

DESCRIPTION OF THE PROPOSED ACTION: The Proposed Action is the implementation of the ALC and BPRF IWFMP. The IWFMP defines the Wildland Fire Management program, which includes the responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while protecting public and firefighter health and safety and supporting military preparedness. The IWFMP provides the planning framework for all fire management decision-making, and specifies the uses of fire for prescribed burns, which are consistent with land management objectives. This document identifies responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while supporting military preparedness. The IWFMP covers all lands administered by ALC and BPRF.

The goal of the ALC and BPRF IWFMP is to establish fire management procedures and protocols to provide ALC and BPRF the capability to complete its mission to maintain combat readiness and fulfill resource management intent. Implementation of this IWFMP maintains and enhances the health, productivity, and biological diversity of ALC and BPRF lands.

PURPOSE AND NEED: The purpose of the Proposed Action is to implement an IWFMP for guidance and direction to establish and implement an effective wildland fire management program on ALC and BPRF. An IWFMP is required by the Department of Defense per the Army Wildland Fire Policy Guidance Memorandum dated 4 September 2002 and AR 200-1, Environmental Protection and Enhancement. The Proposed Action will be in compliance with Army Regulation (AR) 200-1 and all applicable resource management legal requirements including federal, state

and local statutes and regulations, and U.S. Army guidelines.

The primary purpose of the IWFMP is to define the Wildland Fire Management program at ALC and BPRF, which includes the responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while protecting public and firefighter health and safety and supporting military preparedness. The IWFMP provides the planning framework for all fire management decision-making, and specifies the uses of fire for prescribed burns, which are consistent with land management objectives. This document identifies responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while supporting military preparedness. The IWFMP covers all lands administered by ALC and BPRF.

The Proposed Action is needed to effectively manage wildland fires while protecting human health and safety, property, and natural and cultural resources. There have been no major fires reported at ALC or BPRF. Minor fires are generally restricted to the impact area and occur during various fuze test procedures at BPRF. These are extinguished in accordance with the Fire Protection Plan for the facility.

ALTERNATIVES CONSIDERED: Two alternatives were considered in the EA: Proposed Action and No Action. All natural and social environmental factors that may be relevant to the Proposed Action and No Action, including the cumulative effects thereof, were considered.

ENVIRONMENTAL ANALYSIS: At BPRF, the proposed implementation of the IWFMP will have minor adverse impacts to topography from the creation of firebreaks, and minor, short-term adverse impacts to air quality, human health and safety from smoke; recreation and utilities from executing prescribed burn activities; and to aesthetics and visual resources, vegetation and wildlife resources from clearing vegetation and habitat from a burn. Beneficial impacts are anticipated from prescribed burn activities at BPRF in the long-term to vegetation and wildlife resources as native plants could thrive after a burn and propagate a healthier ecosystem with the removal of invasive species and disease; this is also a beneficial long-term impact to aesthetics and visual resources. Beneficial impacts are also anticipated to soils, as fire alters soil chemistry, biology and structure to allow for release of nutrients. BPRF will conduct prescribed burn activities in accordance with Maryland Department of Natural Resources (MDNR) Maryland Code of Maryland Regulations (COMAR) 8.07.04 Forest Fire Protection and Maryland Department of the Environmental (MDE) regulations COMAR 26.11.07 Open Fires Authority, and employ best management practices, as necessary. Based upon these considerations, it is evident that the beneficial aspects outweigh the adverse impacts of the proposed action.

The short-term irreversible commitments of resources that would occur include planning, materials and supplies and their cost, use of energy resources during prescribed burn and wildland fire fighting activities, and labor. No irretrievable commitments of resources would result from the Proposed Action.

PUBLIC REVIEW AND COMMENT:

The EA and this Finding of No Significant Impact (FONSI) were made available for public review and comment for 30 days following the publication of a Notice of Availability (NOA) in local

newspapers (Sentinel Newspaper in Prince George's and Montgomery Counties on October 5th 2017 and Maryland Independent in Charles County on October 6th 2017). For ALC, copies of the Draft PEA and draft FONSI were available the Prince George's Library-Beltsville Branch, 4319 Sellman Rd, Beltsville, MD 20705. For BPRF, copies of the EA and FONSI were available at the Charles County Public Library-La Plata Branch, 2 Garrett Ave, La Plata, Maryland 20646. The public was invited to send comments to Mr. Philip H. Jones, Chief, Public Affairs, Adelphi Laboratory Center, 2800 Powder Mill Road, Adelphi, Maryland 20783. No comments or responses were received.

FINDING OF NO SIGNIFICANT IMPACT: After careful review of the EA which is attached hereto and incorporated by reference into this FONSI, consideration of concerns expressed during the public review period, and adherence to the Army's intent to follow prescribed regulations, acquire required permits, and implement the mitigation measures identified, I have concluded that implementation of the Proposed Action will not generate significant controversy or have a significant direct, indirect, or cumulative adverse impact on the quality of the human or natural environment. This analysis fulfills the requirements of Section 102(2)(c) of NEPA and the CEQ Regulations. An Environmental Impact Statement is not required and will not be prepared. Consequently, USAG ALC is issuing this FONSI.

Timothy E. Bruell
Colonel, U.S. Army
Commander, U.S. Army Garrison
Aberdeen Proving Ground, MD

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EXECUTIVE SUMMARY

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, U.S. Army Garrison (USAG) Aberdeen Proving Ground (APG) Adelphi Laboratory Center (ALC) has prepared an Environmental Assessment (EA) to evaluate potential environmental effects associated with the Proposed Action of the implementation of the Integrated Wildland Fire Management Plan (IWFMP) at ALC and BPRF. Two alternatives were considered in the EA: Proposed Action and No Action. All natural and social environmental factors that may be relevant to the Proposed Action, including the cumulative effects thereof, were considered.

The purpose of the Proposed Action is to implement an IWFMP for guidance and direction to establish and implement an effective wildland fire management program on ALC and BPRF. The Proposed Action will be in compliance with Army Regulation (AR) 200-1 and all applicable resource management legal requirements including federal, state and local statutes and regulations, and U.S. Army guidelines.

The primary purpose of the IWFMP is to define the Wildland Fire Management program at ALC and BPRF, which includes the responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while protecting public and firefighter health and safety and supporting military preparedness. The IWFMP provides the planning framework for all fire management decision-making, and specifies the uses of fire for prescribed burns, which are consistent with land management objectives. This document identifies responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while supporting military preparedness. The IWFMP covers all lands administered by ALC and BPRF.

The proposed implementation of the IWFMP will have minor adverse impacts to topography from the creation of firebreaks, and minor, short-term adverse impacts to air quality, human health and safety from smoke, recreation and utilities from executing prescribed burn activities, and to aesthetics and visual resources, vegetation and wildlife resources from clearing vegetation and habitat from a burn. Beneficial impacts are anticipated from prescribed burn activities in the long-term to vegetation and wildlife resources as native plants could thrive after a burn and propagate a healthier ecosystem with the removal of invasive species and disease; this is also a beneficial long-term impact to aesthetics and visual resources. Beneficial impacts are also anticipated to soils, as fire alters soil chemistry, biology and structure to allow for release of nutrients. BPRF will conduct prescribed burn activities in accordance with the Maryland Department of Natural Resources (MDNR) regulations COMAR 08.07.04 Forest Fire Protection and Maryland Department of Environment (MDE) regulations COMAR 26.11.07 Open Fires Authority and employ best management practices, as necessary. Based upon these considerations, it is evident that the beneficial aspects outweigh the adverse impacts of the proposed action.

The short-term irreversible commitments of resources that would occur include planning, materials and supplies and their cost, use of energy resources during prescribed burn and wildland firefighting activities, and labor. No irretrievable commitments of resources would result from the Proposed Action. Based on the evaluation of environmental effects summarized in Table ES-1 and 2, there are no significant adverse impacts from the proposed action, and a finding of no significant impact has been prepared.

Table ES-1: Summary of Effects of Proposed Action and No Action Alternative		
Natural Resources	**Proposed Action**	**No Action**
Land Use	No Impact	Long-term minor adverse impact
Aesthetics and Visual Resources	Short-term minor adverse impact and long-term beneficial impact	No impact
Geology and Topography	Minor adverse	No impact
Soils	Beneficial impact	No impact
Air Quality and Climate	Short-term minor adverse impact	No impact
Noise	No impact	No impact
Surface Water Resources and Floodplains	No impact	No impact
Wetlands	No impact	No impact
Vegetation	Short-term minor adverse impact and long-term beneficial impact	Long-term minor adverse impact
Wildlife Resources	Short-term minor adverse impact and long-term beneficial impact	Long-term minor adverse impact
Rare, Threatened and Endangered Species and Sensitive Habitats	No impact	Long-term minor adverse impact
Cultural Resources	No impact	No impact
Hazardous, Toxic and Radioactive Waste (HTRW)	No impact	No impact
Human Health and Safety	Short-term minor adverse	No impact
Recreation	Short-term minor adverse	No impact
Utilities	Short-term minor adverse	No impact
Socioeconomics and Environmental Justice	No impact	No impact

Table ES-2: Compliance of the Proposed Action with Environmental Protection Statutes and Other Environmental Requirements	
Federal Statutes	**Level of Compliance[1]**
Archeological and Historic Preservation Act	Full
Clean Air Act	Full
Clean Water Act	Full
Coastal Barrier Resources Act	N/A
Coastal Zone Management Act	N/A
Comprehensive Environmental Response, Compensation and Liability Act	N/A
Endangered Species Act	Full
Estuary Protection Act	N/A
Farmland Protection Policy Act	Full
Federal Water Project Recreation Act	N/A
Fish and Wildlife Coordination Act	Full
Land and Water Conservation Fund Act	N/A
Magnuson-Stevens Act	N/A
Marine Mammal Protection Act	N/A
Marine Protection, Research, and Sanctuaries Act	N/A
National Historic Preservation Act	Full
National Environmental Policy Act	Full
Resource Conservation and Recovery Act	Full
Rivers and Harbors Act	N/A
Water Resources Planning Act	Full
Watershed Protection and Flood Prevention Act	Full
Wild and Scenic Rivers Act	N/A
Executive Orders, Memoranda, etc.	
Migratory Bird (E.O. 13186)	Full
Protection and Enhancement of Cultural Environment (E.O. 11593)	Full
Floodplain Management (E.O. 11988)	Full
Protection of Wetlands (E.O. 11990)	Full
Prime and Unique Farmlands (CEQ Memorandum, 11 Aug 80)	Full
Environmental Justice in Minority and Low-Income Populations (E.O. 12898)	Full
Protection of Children from Health Risks & Safety Risks (E. O. 13045)	Full
Chesapeake Bay Protection and Restoration (E.O. 13508)	Full
Invasive Species (E.O. 13112)	Full
Indian Sacred Sites (E.O. 13007)	Full
Planning for Federal Sustainability in the Next Decade (E.O. 13693)	Full

[1] Level of Compliance:
Full Compliance (Full): Having met all requirements of the statute, E.O., or other environmental requirements for the current stage of planning.
Non-Compliance (NC): Violation of a requirement of the statute, E.O., or other environmental requirement.
Not Applicable (N/A): No requirements for the statute, E.O., or other environmental requirement for the current stage of planning.

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TABLE OF CONTENTS

APPENDICES:

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1.0 PURPOSE, NEED AND SCOPE

1.1 Introduction

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, The U.S. Army Garrison Aberdeen Proving Ground (APG) Adelphi Laboratory Center (ALC) has prepared an Environmental Assessment (EA) in order to evaluate potential environmental effects associated with the implementation of the Integrated Wildland Fire Management Plan (IWFMP) at ALC and Blossom Point Research Facility (BPRF).

ALC (Latitude 39 -1'-45"N, Longitude 76 -58'-19"W) is located in Adelphi, Maryland (Appendix A: Figure A-1). The site straddles the border between two Maryland jurisdictions, Prince George's and Montgomery Counties. Of the total 207 acre area, 84 acres are within Montgomery County and 123 acres are within Prince George's County. ALC is approximately 6 miles from the District of Columbia. The installation is located within one mile of the Capital Beltway (Interstate 495) and Interstate 95 (I-95). ALC lies in the Anacostia River drainage basin which is a tributary of the Potomac River. It is bordered by residential areas on the east and south and by the General Service Administration's Federal Center on the north and west. ALC consists of four main building areas with parking lots, forested lands and two stream corridors, Paint Branch and Hillandale Tributary.

BPRF (Latitude 38 -24 -50"N, Longitude 77 5 -50"W) occupies approximately 1,600 acres on Cedar Point Neck in southern Charles County, Maryland (Appendix A: Figure A-1). It is located approximately 65 miles southeast of ALC. BPRF is approximately 35 miles south of the District of Columbia. The closest town is La Plata, MD, which is approximately 9 miles northeast of the facility. BPRF is situated on Cedar Point Neck, a peninsula on the north side of the Potomac River and is bounded on three sides by the Potomac, Port Tobacco River to the East and Nanjemoy Creek to the West. The area to the north of the facility includes sparsely populated agricultural and forest lands. BPRF is largely forested with wetlands, open fields, testing areas, and a few buildings.

1.2 Purpose, Need and Scope

The purpose of the Proposed Action is to implement an IWFMP for guidance and direction to establish and implement an effective wildland fire management program on ALC and BPRF. The Proposed Action will be in compliance with Army Regulation (AR) 200-1 and all applicable resource management legal requirements including federal, state and local statutes and regulations, and U.S. Army guidelines.

The primary purpose of the IWFMP is to define the Wildland Fire Management program at ALC and BPRF, which includes the responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while protecting public and firefighter health and safety and supporting military preparedness. The IWFMP provides the planning framework for all fire management decision-making, and specifies the uses of fire for prescribed burns, which are consistent with land management objectives. This document identifies responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while supporting military preparedness. The IWFMP covers all lands administered by ALC and BPRF.

The Proposed Action is needed to effectively manage wildland fires while protecting human health and safety, property, and natural and cultural resources. No major fire have been reported at ALC or BPRF. At BPRF, minor fires are generally restricted to the impact area and occur during various fuze test procedures at BPRF.

The Proposed Action is also needed to outline the use of prescribed burns as a land management tool. Implementation of the IWFMP will satisfy requirements outlined in AR 200-1.

1.3 Applicable Regulations and Guidance

The IWFMP is developed in accordance with the 2002 Department of Army (DA) Wildland Fire Policy Guidance and is consistent with AR 200-1. It presents the standards by which the ALC and BPRF wildland fire control and prescribed burning programs will be conducted. The IWFMP is intended to be an integral component of the Integrated Natural Resources Management Plan (INRMP) for the installation and also complements the Forest Management Plan. The plan would also be integrated and compliant with other plans at ALC and BPRF, including, but not limited to the Integrated Cultural Resources Management Plan (ICRMP) and the Fire and Emergency Services Plan.

The IWFMP shall be in compliance with:

- AR 420-90, 4 October 2006, Fire and Emergency Services
- AR 200-1, 28 Sep 2007, Environmental Protection and Enhancement
- Code of Federal Regulations (CFR) 32 Part 651
- DoD Instruction (DoDI) 6055.6, 10 Oct 00, DoD Fire and Emergency Services Program
- Army Memorandum, 04 Sep 2002, Army Wildland Fire Policy Guidance (currently being updated)
- Federal Wildland Fire Management Policy (Federal Fire Policy) 2001
- Guidance for Implementation of Federal Wildland Fire Management Policy (February, 2009)
- National Wildfire Coordination Group (NWCG) Wildland Fire Qualifications Subsystem Guide, PM 310-1, October 2016
- National Fire Protection Association (NFPA) Standard 295 – Standard for Wildfire Control
- NFPA Standard 299 – Standard for Protection of Life and Property from Wildfire
- NFPA Standard 1051 – Standard for Wildland Fire Fighter Professional Qualifications

In accordance with NEPA, as amended (Title 42, U.S. Code [USC], 4321-4370f) and regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500-1508), this EA was prepared concurrently with and integrated with environmental impact analyses and related surveys and studies required by environmental statutes, regulations, (and their implementing regulations), and Executive Orders (EOs) as outlined in Table 1-1.

1.4 Public Involvement

Coordination with federal and state agencies including the U.S. Fish and Wildlife Service (USFWS), MDNR, MDE, U.S. Environmental Protection Agency (USEPA) Region III, Maryland Department of Planning, and MDNR Forest Service was initiated for the Proposed Action in July 2017 and again in September 2017 when the draft EA was available. Copies of coordination letters are located in Appendix B.

Public participation opportunities with respect to this EA and decision making on the Proposed Action are guided by 32 Code of Federal Regulations (CFR) Part 651. The EA was made available to the public for 30 days, along with a draft Finding of No Significant Impact (FONSI). A Notice of Availability (NOA) in local newspapers (Sentinel Newspaper in Prince George's and Montgomery Counties on October 5th and Maryland Independent in Charles County on October 6th). For ALC, copies of the Draft PEA and draft FONSI were available the Prince George's Library-Beltsville Branch, 4319 Sellman Rd, Beltsville, MD 20705. For BPRF, copies of the EA and FONSI were available at the Charles County Public Library-La Plata Branch, 2 Garrett Ave, La Plata, Maryland 20646. The public was invited to send comments to Mr. Philip H. Jones, Chief, Public Affairs, Adelphi Laboratory Center, 2800 Powder Mill Road, Adelphi, Maryland 20783. No comments or responses were received.

Table 1-1: Compliance of the Proposed Action with Environmental Protection Statutes and Other Environmental Requirements	
Federal Statutes	**Level of Compliance[1]**
Archeological and Historic Preservation Act	Full
Clean Air Act	Full
Clean Water Act	Full
Coastal Barrier Resources Act	N/A
Coastal Zone Management Act	N/A
Comprehensive Environmental Response, Compensation and Liability Act	N/A
Endangered Species Act	Full
Estuary Protection Act	N/A
Farmland Protection Policy Act	Full
Federal Water Project Recreation Act	N/A
Fish and Wildlife Coordination Act	Full
Land and Water Conservation Fund Act	N/A
Magnuson-Stevens Act	N/A
Marine Mammal Protection Act	N/A
Marine Protection, Research, and Sanctuaries Act	N/A
National Historic Preservation Act	Full
National Environmental Policy Act	Full
Resource Conservation and Recovery Act	Full
Rivers and Harbors Act	N/A
Water Resources Planning Act	Full
Watershed Protection and Flood Prevention Act	Full
Wild and Scenic Rivers Act	N/A
Executive Orders, Memoranda, etc.	
Migratory Bird (E.O. 13186)	Full
Protection and Enhancement of Cultural Environment (E.O. 11593)	Full
Floodplain Management (E.O. 11988)	Full
Protection of Wetlands (E.O. 11990)	Full
Prime and Unique Farmlands (CEQ Memorandum, 11 Aug 80)	Full
Environmental Justice in Minority and Low-Income Populations (E.O. 12898)	Full
Protection of Children from Health Risks & Safety Risks (E. O. 13045)	Full
Chesapeake Bay Protection and Restoration (E.O. 13508)	Full
Invasive Species (E.O. 13112)	Full
Indian Sacred Sites (E.O. 13007)	Full
Planning for Federal Sustainability in the Next Decade (E.O. 13693)	Full

[1] Level of Compliance:
Full Compliance (Full): Having met all requirements of the statute, E.O., or other environmental requirements for the current stage of planning.
Non-Compliance (NC): Violation of a requirement of the statute, E.O., or other environmental requirement.
Not Applicable (N/A): No requirements for the statute, E.O., or other environmental requirement for the current stage of planning.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Proposed Action is the implementation of the ALC and BPRF IWFMP. The IWFMP defines the Wildland Fire Management program, which includes the responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while protecting public and firefighter health and safety and supporting military preparedness. The IWFMP provides the planning framework for all fire management decision-making, and specifies the uses of fire for prescribed burns, which are consistent with land management objectives. This document identifies responsibilities and standard practices for fuels management, preparedness, prevention, and suppression while supporting military preparedness. The IWFMP covers all lands administered by ALC and BPRF.

The goal of the ALC and BPRF IWFMP is to establish fire management procedures and protocols to provide ALC and BPRF the capability to complete its mission to maintain combat readiness and fulfill resource management intent. Implementation of this IWFMP maintains and enhances the health, productivity, and biological diversity of ALC and BPRF lands. The Integrated Wildland Fire Management program for ALC and BPRF was developed to support the following goals:

- Reduce wildfire potential on the installation and suppress undesired wildfires to protect lives, property, and natural and cultural resources in a cost-effective manner.
- Provide for the safety of fire crews on every wildland fire management activity.
- Provide an effective communication plan with clear roles and procedures for wildland fire response at ALC and BPRF.
- Maintain fire as a management tool for BPRF land managers. Prescribed burning will not be implemented at ALC.

Objectives of the IWFMP include:

- Communication - Provide a system that ensures timely notification of wildfire.
- Fuels Management - Maintain fuel loads at levels appropriate for the prevention of major wildfires from occurring at ALC and BPRF.
- Education - Communicate and educate other departments on fire prevention and prescribed burns.
- Interagency Agreements - Update interagency agreements as necessary to ensure prompt and complete cooperation during wildland fire incidents.
- Program Updates - Complete, update, and maintain this Integrated Wildland Fire Management Plan. Continually evaluate and improve upon fire management policies and procedures with the goal of constantly improving the level of fire protection.

2.2 No Action Alternative

NEPA documents refer to the continuation of the present course of action without the implementation of or in the absence of the proposed action, as the "No Action Alternative." Inclusion of the No Action Alternative is the baseline against which Federal actions are evaluated, and is prescribed by the CEQ regulations.

Under the No Action Alternative, the IWFMP would not be implemented at ALC and BPRF. The No-Action Alternative reflects the status quo and serves as a benchmark against which federal actions can be evaluated.

2.3 Preferred Alternative

The Proposed Action is the Preferred Alternative.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the existing conditions of the natural, cultural, and social resources, against which environmental effects of the proposed action and no action alternative will be evaluated. The existing environmental conditions are presented first for each environmental resource or condition, followed immediately thereafter by evaluation of the environmental consequences of the No Action and the Proposed Action (Implementation of the IWFMP). The evaluation of the environmental consequences uses the terms impact and effect interchangeably. Impacts may be discussed as positive, negative, significant, and insignificant as appropriate to the resource area. A negative impact results when an action results in a detrimental change to the resource. Significant impacts occur when an action substantially or permanently changes or affects the resource. An insignificant impact occurs when an action causes impact, but the resource is not permanently or substantially changed. Impacts are also discussed as short- and long-term impacts, and are not associated with rigid time frames but relative time frames. Short-term impacts are typically short in duration and long-term impacts are usually more permanent in nature and occur as the direct result of the action.

The project area is defined as the installation as a whole. Specific conditions would be addressed as individual projects are developed to implement fire management plans and actions at ALC and BPRF.

3.1 Land Use

3.1.1 Affected Environment

ALC

ALC is divided into five zones—100 Area, 200 Area, 400 Area, 500 Area and 600 Area. Land use activities occurring at ALC include administrative and maintenance functions, research laboratories, flammables storage sites, and explosive storage sites. Fire management zones and land cover types for ALC are shown in Figure A-2.

100 Area: This area consists of approximately 35 acres and is the most developed/maintained fire management zone at ALC. A small strip of hardwood forest borders the 100 area buildings and the residential neighborhood to the west.

200 Area: The 200 area consists of 65 acres and contains a number of laboratories and administrative buildings bordered by mature hardwood forest.

400 Area: The 400 area consists of 39 acres containing developed/maintained land used primarily for explosive testing and storage bounded by hardwood forest and by Paint Branch on the west.

500 Area: The 500 area is 26 acres and consists of laboratories and mature hardwood forest.

600 Area: This area consists of 52 acres and contains an administration building surrounded by an oak dominant forest with overgrowth of invasive plants.

BPRF

BPRF is divided into three zones—referred to as A, B, and C, respectively. The zones are labeled alphabetically to avoid confusion with the numerical forest compartment and forest stand numbering system developed for the BPRF Forest Management Plan (BPRF FMP). Land use activities occurring at BPRF include administrative and maintenance functions, tenant leases, research and development areas for testing of pre-deployed weapons systems, and ammunition storage sites. Fire management zones and land cover types for BPRF are shown in Figure A-2.

A: This zone consists of approximately 401 acres and is considered the cantonment area of the BPRF installation. Zone A contains administration and maintenance structures, testing areas, ranges and firing points, and an impact area.

B: This zone encompasses the forest compartments and forest stands that were delineated in the BPRF FMP. Forest stand descriptions and prescribed fire recommendations are found in the FMP.

C: This zone is 291 acres, of which 42 acres is leased by the U.S. Naval Research Laboratory as a long-range communications tracking station for satellites. Naval Facilities Engineering Command (NAVFAC) in coordination with the ALC Environmental Division will manage and implement prescribed burns within this zone.

3.1.2 Environmental Consequences

Proposed Action: No impacts to land use are expected from this proposed action at ALC or BPRF.

No-Action: The no-action alternative would have long-term adverse impacts on the area due to the increased opportunity for wildfires altering the land use of ALC and BPRF facility.

3.2 Aesthetics and Visual Resources

3.2.1 Affected Environment

ALC

ALC includes 1.1 million square feet of gross floor area in 36 buildings over the 207 acre site. Much of the ALC was built in the 1970's with Buildings 601, 112, and 207 built during the 1990's. The installation is well landscaped and maintained, having the appearance of one of the most pleasant office park environments found in the region. No particularly distinguishing features or landmarks are located on the installation or in the nearby community. Wooded buffers screen most of the complex from the community except for the view from the main entrance along Powder Mill Road.

BPRF

BPRF is a typical Army installation and includes 70,000 square feet of enclosed area in 46 buildings over the 1,600 acre site. Buildings present on BPRF follow standard Army design guidelines. The surrounding area on Cedar Point Neck is sparsely populated with a distinctly rural character. The BPRF has several unobstructed panoramic views of the Potomac River. The facility also includes some large tracts of gently sloping, relatively undisturbed land consisting primarily of mixed hardwood, evergreen forest, and marshland.

3.2.2 Environmental Consequences

Proposed Action: Prescribed fires will not be implemented at ALC. Implementation of the Proposed Action at BPRF would have short-term, minor adverse impact and long-term beneficial impacts to aesthetics and visual resources. Vegetation within the area of the prescribed burn at BPRF would be cleared immediately following a burn; however, native vegetation and healthy regrowth would establish post-burn.

No-Action: Under the no-action alternative, there would be no change to the existing aesthetics or visual resources.

3.3 Geology and Topography

3.3.1 Affected Environment

ALC

Adelphi Campus is located just north of Washington, D.C. with acreage on both sides of the border between Prince Georges and Montgomery Counties, Maryland. The facility is

also located on the so-called "Fall Line", the transition zone between the Piedmont Uplands and the Atlantic Coastal Plain geological provinces. The topography of the facility includes a series of upland knolls and steep slopes and flatter areas along the floodplains and lower reaches of Paint Branch, a low order tributary of the Anacostia River that runs through the middle of the facility. Along Paint Branch there are some large eroded cliff faces and projecting exposures of bedrock that could have provided the kinds of rock shelter settings that were used for campsites by prehistoric peoples.

The upland knolls and adjacent slopes of the facility are underlain by gneiss and granite bedrock. On top of this bedrock are a variety of soil types including clayey and sandy sediments that have weathered in place from local bedrock. Also present are a series of alluvial sands, cobbles and gravels of Pleistocene age that form a veneer over the exposed bedrock and some of the weathered-in-place upland soils. Some of the upland areas also have small pockets of poorly drained soils that support small freshwater wetland areas fed by springs and seeps. The floodplains of Paint Branch have some well-drained areas, however, most of the floodplain areas are either badly eroded by the shifting stream channels of Paint Branch or are poorly drained wetlands.

BPRF

Blossom Point is located in the Atlantic Coastal Plain geological province, in southernmost Charles County, Maryland, at the confluence of Nanjemoy Creek and the Potomac River. The Potomac River is a broad estuary in the vicinity of the facility and currently contains a wide array of shellfish and fish resources. The Blossom Point facility actually occupies a broad peninsula, or "neck" of land, between Nanjemoy Creek and the Port Tobacco River. This peninsula, known as Cedar Point Neck, is relatively flat and contrasts dramatically with the more rugged and rolling topography located immediately to the north. On BPRF, elevations range from Mean Sea Level (MSL) along the Potomac River and Nanjemoy Creek to 25 feet above MSL at Upper Cedar Point. The highest elevation is 25 feet above MSL in the north central part of the installation. The approximately 7 mile shoreline has an average bluff height of about 20 feet above MSL. Tidal fluctuations are undercutting bluffs causing erosion and slumping which poses a threat to several landfill sites and other structures. The rate of erosion due to subsurface seepage and wave action along some of the shoreline area has been estimated at between one to three feet per year based on historic trends. There are beaches along the bluff line where sandpits have formed across drowned valleys.

3.3.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have minimal impact on geology or topography at BPRF due to the construction or maintenance of firebreaks. The main purpose of firebreaks is to prevent fire from leaving BPRF, but they also prevent

fire from spreading outside an area within the installation boundaries. Existing firebreaks at BPRF would be maintained in compliance with the Integrated Natural Resources Management Plan and/or an approved prescribed burn plan. New firebreaks would be created for prescribed burns at BPRF with a minimal impact to geology and topography.

No-Action: Under the no-action alternative, there would be no change to the existing geologic or topographic conditions.

3.4 Soils

3.4.1 Affected Environment

ALC

Twenty-three soil types are present at ALC. The Blocktown channery silt loam, Christiana-Downer complex, and Sassafras-Croom complex cover a majority of the facility. Upland areas have deep, very permeable soils, which are moderately to somewhat excessively well drained, and are subject to severe erosion. Soils on the intermediate elevations and slopes are generally shallower, overlying a dense fragipan, resulting in impeded internal drainage. Soils in the low areas along stream valleys are poorly drained, silty loams.

Outside of the stream corridors, development constraints that occur on the facility are generally slight to moderate and result from steep slopes or perched high water tables. Highly erodible land (HEL) determinations by the Montgomery County and Prince George's County Soil Conservation Districts identified the Croom gravelly (8% slopes or greater), and Manor soils as highly erodible soils.

BPRF

Seven soil series are present at the BPRF: Elkton, Keyport, Mattapex, Othello, Sassafras, Woodstown and Tidal Marsh. The soils are generally poorly to moderately well drained and range in texture from fine sand to silty loam and clay to coarse sand and gravel. The greatest development constraints are associated with the high to moderately high seasonal water table on the BPRF. None of the soil types are classified as Highly Erodible Lands (HEL) by the Charles County Soil Conservation District.

Surface soils are classified as part of the Elkton-Othello-Keyport association. These soils occur on level to sloping terrain and are characterized as poorly to moderately drained, loamy soils (some of which have clay-like subsoil). Texture ranges from fine sand to silty loam and silty clay to coarse sand. The Elkton silt loam is the predominant soil series. The U.S. Department of Agriculture (USDA) lists the Elkton and Othello soil series as hydric soils (U.S. Army Corps of Engineers, 2011).

3.4.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have a beneficial impact on soils at BPRF. Prescribed burns could alter the chemical, biological, and physical properties of soil due to removal of vegetation, and the heath and oxidation of fuels. Best management practices would be employed to prevent adverse impacts on soil from the removal of vegetation to minimize soil erosion. Beneficial impacts would be realized from increasing the amount of nutrients available in the soil at BPRF.

No-Action: Under the no-action alternative, there would be no change to the existing conditions.

3.5 Air Quality and Climate

3.5.1 Affected Environment

Areas that do not meet one or more of the National Ambient Air Quality Standards (NAAQS) are called non-attainment areas. Both ALC (in Prince George's and Montgomery Counties) and BPRF (in Charles County) are in the Washington, DC-MD-VA nonattainment area for failing to meet the national ambient air quality standard for ozone (O_3) air pollutants. The State of Maryland had adopted ambient air quality standards and emission regulations for the following pollutants:

- Particulate matter with a diameter of 10 microns or less (PM-10),
- Carbon monoxide (CO),
- Sulfur dioxide (SO_2),
- Nitrogen dioxide (NO_2),
- Lead (Pb),
- Ozone (O_3), and
- Fluorides.

Summers at the ALC are dominated by prevailing winds from the south and southwest which bring warm and humid conditions to the region. Warmest temperatures occur in July with a mean monthly high temperature of 89 degrees Fahrenheit (°F). Cold and dry winds from the northwest dominate the winter months. Coldest temperatures occur in January with a mean monthly average low temperature of 25°F. The mean annual temperature is approximately 56°F. Precipitation events occur evenly throughout the year and bring an average of 42 inches of precipitation to the region (www.usclimatedata.com).

For BPRF, prevailing winds from the south and southwest bring warm and humid conditions to the BPRF during the summer months. Warmest temperatures occur in July with a mean monthly high temperature of 85°F. Cold and dry winds from the northwest dominate the winter months. Coldest temperatures occur in January, with a mean monthly average low temperature of 26°F. The mean annual temperature is approximately 45°F. Precipitation events occur evenly throughout the year and bring an average of 44 inches of precipitation to the region (www.usclimatedata.com).

3.5.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have minor, temporary adverse impacts on air quality at BPRF. Prescribed fire temporarily reduces air quality by diminishing visibility and releasing components through combustion. BPRF will meet the Clean Air Act emission standards by adhering to the Maryland Air Quality requirements during all prescribed fire activities. Prior to a prescribed burn, BPRF will prepare a prescribed burn plan, to include a smoke management plan and fuel and weather prescription, and coordinate with the MDE and MDNR Forest Service at least 30 working days prior to the earliest possible date that a burn could occur.

BPRF will monitor air quality and weather prior to the prescribed burn plan and the following days to anticipate impacts and manage smoke. All firefighting activities will manage smoke, as appropriate, to minimize adverse impacts.

No impacts to climate are anticipated from the implementation of the Proposed Action. While prescribed burns could release carbon, tar, liquids, and different gases (USEPA, 1995), the prescribed burn plan would consider fuels, weather, ignition method, and fire behavior parameters to minimize impacts to air quality and minimize the release of greenhouse gases contributing to climate change. The use of prescribed burn is a controlled land treatment that would be implemented to prevent potential wildland fires that could occur with climate change that result in higher temperatures and potential increase in fuels.

No-Action: Under the no-action alternative, there would be no change to the existing air quality conditions or climate at ALC and BPRF.

3.6 Noise

3.6.1 Affected Environment

Noise is defined as any undesirable sound which interferes with communication, is intense enough to damage hearing, or is otherwise annoying (Federal Interagency Committee on Noise [FICON], 1992).

ALC

The State of Maryland has established environmental noise standards based on land use type. For a receiving residential land use, such as the Hillandale community adjacent to the ALC, the maximum noise levels at the property line in weighted decibels (dBA) are:
• Daytime – 65 decibels dBA
• Nighttime – 55 dBA

The regulations define day as the period between 7a.m. and 10 p.m. (0700-2200 hours) Noise sources at the ALC include the carpenter shop in Building 103, the metal shop in Building 203, boilers at Building 106, combined heat and power cogeneration units in Building 106, periodic testing of emergency electrical generators in Buildings 106, 202, 203, 204, 205, and 500, and outside generators servicing Buildings 207, 403, 500. Additional noise is generated by air gun testing at the Acoustics and Special Sensors Branch.

BPRF

Besides noise related to vehicular traffic and mowing and other ground maintenance activities, the major noise generator on the BPRF is firing operations. These operations are performed from 8a.m. to 4p.m. (0800 to 1600 hours). Firing is intermittent and includes various numbers of rounds. Some projects require firing high-explosive projectiles. The nearest noise-sensitive receptors are isolated individual farm residences near the shoreline of Cedar Point Neck at distances over 1.5 miles. There are no schools or churches in the immediate vicinity that the BPRF activities would impact.

Noise contours have been developed for existing detonation activities. All unacceptable noise levels (Zone III) are confined to the test area. Only a small portion of levels considered normally unacceptable (Zone II) extend outside the installation boundary, and then only into the edge of the Potomac River. All off-Post noise-sensitive receptors are located in Zone I where blast noise from the BPRF should be considered acceptable.

Acoustical testing could generate noise levels up to 155 dBA at 200 Hz one meter in front of the sound generation source. When operating at full power and during enhanced propagation conditions, the higher frequencies, 10 Hz and greater, may be heard by the residents of Mathias Point Neck area. However, the sound generation system is not normally operated at full power under enhanced propagation conditions.

3.6.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would not result in an increase in noise above the maximum noise levels. Noise associated with ALC and BPRF operations would remain at baseline conditions.

No-Action: Under the no-action alternative, there would be no change to the existing noise conditions.

3.7 Surface Water Resources and Floodplains

3.7.1 Affected Environment

ALC

The dominant hydrologic features on the installation are Paint Branch and its tributary, Hillandale Run. Paint Branch originates approximately six miles north of the installation, cuts in a southeasterly direction through the interior of the ALC, then flows another four miles south to its confluence with the Northeast Branch of the Anacostia River. Ultimately, the Anacostia River empties into the Potomac River, which discharges in Chesapeake Bay. Hillandale Run flows west to east across the ALC, and empties into Paint Branch in the north central portion of the installation.

A second tributary of Paint Branch is located primarily outside of the eastern boundary of the installation. This stream, parallel to Kuester Road, receives drainage from the 400 Area. Erosion and sediment control are problems along the streams within the ALC. Erosion problems occur at, but are not limited to, the Patrol Bridge crossing of the Paint Branch and the intersection at Hillandale Run and the Paint Branch. Hillandale Run brings a large quantity of water on Post.

BPRF

BPRF is located on the north side of the Potomac River at its junction with the Nanjemoy Creek. The Nanjemoy Creek bounds the facility on the west while the Potomac River bounds the facility on the south and east. Short streams and drainage ways dissect the research facility. There are truncated ravine heads around the marshland and large shoal areas with weakly developed channels along the shoreline. The high tide elevation is one foot above MSL. The average tidal variation is 20 to 40 inches daily. The 100-year tidal flood elevation, established by the U.S. Army Engineer District, Baltimore, is nine feet above MSL. The facility is subject to tidal flooding. Approximately one third of the installation is located within the 100- year floodplain. The BPRF is located within the Chesapeake Bay watershed and has been identified as a federal facility that has the potential

to significantly impact the bay (ALC INRMP, 2017). Activities at the site are governed by a cooperative agreement between the USEPA, the State of Maryland, and the Department of Defense to restore water quality within the bay. Activities must be consistent with the Maryland Tidal Wetland Act, the Non-tidal Wetlands Protection Act, and Chesapeake Bay Critical Areas Act.

3.7.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have no impact to water resources. Best management practices would be employed during prescribed burns at BPRF to prevent any impacts to water resources, such as from soil erosion. Any required permits would be obtained prior to conducting prescribed burns.

No-Action: Under the no-action alternative, there would be no change to the existing conditions.

3.8 Wetlands

3.8.1 Affected Environment

ALC

There are 10 wetlands on ALC, amounting to approximately 2.52 acres. The majority of the wetlands are located within the floodplains of Paint Branch and Hillandale Run. There is also a large wetland area in the center of the site that is associated with an unnamed tributary to Paint Branch that runs along the border of ALC and through ALC under Floral Drive near the center of the facility. There are scattered smaller wetlands in the forested areas on the eastern portion of the facility that drain to drainage ditches that eventually flow to Paint Branch. The Powder Mill Bog on ALC is located on the southeastern portion of ALC. This bog is a remnant magnolia bog that drains to Paint Branch. The Powder Mill Bog was observed to have decreased in size, most likely due to several dry summers and the maturation of the surrounding forest. The soils within the bog were completely saturated and coated in organic matter.

BPRF

There are approximately 260 acres of wetlands located on the BPRF. The dominant classification of wetlands on the site is palustrine marsh dominated by common reed (*Phragmites australis*), cattails (*Typha* sp.), sedges (*Carex* sp.) and rushes (*Juncus* sp.). Palustrine scrub shrub and palustrine forested wetlands are also found on the site and are dominated by wax myrtle (*Morella cerifera*), willow (*Salix sp.*), lowbush blueberry (*Vaccinium angustifolium*), highbush blueberry (*Vaccinium corymbosum*), American holly

(*Ilex opaca*), red maple (*Acer rubrum*), black gum (*Nyssa sylvatica*) and sweetgum (*Liquidambar styraciflua*) (U.S. Army Corps of Engineers, 2011).

3.8.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have no impact to wetlands. Best management practices would be employed during prescribed burns to prevent any impacts to wetland, such as from soil erosion.

No-Action: Under the no-action alternative, there would be no change to the existing conditions.

3.9 Vegetation

3.9.1 Affected Environment

ALC

Vegetation at ALC is a mix of oak-hickory-pine forest and Appalachian oak forest. A planning level survey for flora was conducted at ALC on August 2 and 3, 2011. The majority of the installation is forested with urban, developed land and mowed, maintained lawns. Tree species found on the installation include the following:

- Oak – Hickory – Pine Forest:
    - Dominant Species – hickories, loblolly pine, and white and post oaks
    - Subdominant Species – black gum, tulip poplar, sweetgum, persimmon, flowering dogwood, sourwood, Virginia pine and a variety of oak species

- Appalachian Oak Forest:
    - Dominant Species – white and northern red oaks
    - Subdominant Species – red and sugar maple, yellow birch, hickories, tulip poplar, sweetgum, beech, and several oak species

The forested areas on ALC are considered Forest Interior Dwelling Bird habitat by the MD DNR, and should be protected if possible. A stream buffer consists of the forested areas along Paint Branch and its tributaries, which is maintained to protect water resources and habitat.

Gypsy moth infestations are a continuing threat to the hardwoods and could produce significant damage to ALC's forest resources. The moth is found throughout the State of Maryland in its preferred oak forest habitat. Annual aerial surveys for gypsy moth defoliation are conducted by the U.S. Department of Agriculture's Forest Service.

BPRF

Before being cleared for development and agriculture, the BPRF was originally classified as an oak-hickory-pine forest. Medium to tall forestland of broadleaf deciduous and needle-leaf evergreen trees were characteristic of the area. Currently, vegetation types within the installation include approximately 5 acres of maintained lawn, 900 acres of forestland, 550 acres of flat, grass land and 148 acres of tidal marsh. Tree cover consists of natural stands of mixed maples (*Acer* spp.), oaks (*Quercus* spp.), black locust (*Robinia pseudoacacia*), black walnut (*Juglans nigra*), sweetgum (*Liquidambar styraciflua*), blackgum (*Nyssa sylvatica*), ash (*Fraxinus* spp.), willow (*Salix* spp.), tulip tree (*Liriodendron tulipifera*), Virginia pine (*Pinus virginiana*), red cedar (*Juniperus virginiana*) and American holly (*Ilex opaca*). There are scattered elderberry (*Sambucus canadensis*) and sycamore (*Platanus occidentalis*) along the streams and swamps. Shrubs and small trees include sumac (*Rhus* sp.), bayberry (*Myrica heterophylla*), autumn-olive (*Elaeagnus* umbellata.), dogwood (*Cornus florida*), magnolia (*Magnolia* spp.) and redbud (*Cercis canadensis*) (U.S. Army Corps of Engineers, 2011).

3.9.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would cause minor changes in species composition following controlled burns at BPRF; short-term, minor impacts to vegetation would be realized immediately following a burn, while long-term beneficial impacts would be realized from the anticipated propagation of native species. Prescribed burns can be conducted to control the spread of invasive species and disease, which is a beneficial impact and provides long-term benefits to provide for growth native vegetation. Short-term loss of vegetation from fire may increase the risk of soil erosion, which would be minimized through employing best management practices. Prescribed burns can also be used to reduce fuels, such as dead trees, which is a beneficial impact that reduces the risk of wildland fire and can help regenerate healthy vegetative growth.

No-Action: Under the no-action alternative, there could be adverse impacts from not implementing prescribed burns at BPRF as a control measure for invasive species. Invasive species could continue to grow and outcompete native species without control measures. In addition, without the use of prescribed burns to control fuels, a wildfire could burn greater areas of vegetation resulting in adverse impacts to vegetation.

3.10 Wildlife Resources

3.10.1 Affected Environment

The ALC and BPRF Integrated Natural Resources Management Plan (INRMP) provides information on the diverse community of wildlife (reptiles and amphibians, birds,

mammals, and fish) species present at ALC and BPRF. Below is a summary of the wildlife resources at ALC and BPRF.

ALC

A planning level survey for fauna was conducted at ALC on August 2 and 3, 2011. The large tract of contiguous forest provides good habitat for fauna species, especially Forest Interior Dwelling Birds. Common mammals that were observed during the survey include white-tailed deer (*Odocoileus virginianus*) and common raccoon (*Procyon lotor*). The floodplains and streams on ALC provide habitat for reptiles and amphibians including bullfrogs (*Rana catesbeiana*), eastern American toad (*Anaxyrus americanus americanus*), and eastern box turtle (*Terrapene carolina*), which were observed during the survey. Bird species observed during the survey include American robin (*Turdus migratorius*), great blue heron (*Ardea herodias*), mourning dove (*Zenaida macroura*), and red-winged blackbird (*Agelaius phoeniceus*). Blue bird boxes have been installed on ALC.

Spawning areas for brown trout, an important sport fish, are found upstream of ALC in the upper part of Paint Branch (the area upstream of Fairland Road). The Montgomery County Council has designated this area as a Special Protection Area based on its trout spawning capability, high water quality, and the threat posed by the intensity of existing and future development in the watershed.

BPRF

BPRF is suitable for many species of wildlife because of the diversity of habitats. The most common game species is the white-tailed deer (*Odocoileus virginianus*). Other wildlife includes eastern grey squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), woodchuck (*Marmota monax*), opossum (*Didelphis marsupialis*), mink (*Neovison vison*), muskrat (*Ondatra zibethicus*), striped skunk (*Mephitis mephitis*), beaver (*Castor canadensis*), raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), bobwhite quail (*Colinus virginianus*), mourning dove (*Zenaida macroura*), black duck (*Anas rubripes*) and wood duck (*Aix sponsa*) (U.S. Army Corps of Engineers, 2011).

3.10.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have short-term, minor impacts to wildlife resources during a burn at BPRF, with long-term beneficial impacts from the healthy regeneration of habitat. During prescribed burns, wildlife will likely vacate the respective areas to avoid disturbance, which is a temporary, minor adverse impact. Benefits of prescribed burns described above for vegetation, will also benefit wildlife through supporting regrowth of native plant species and improving ecosystem health.

No-Action: Under the no-action alternative, there could be adverse impacts from not implementing prescribed burns at BPRF as tool for improving wildlife habitat when combined with other management actions. Fuel reduction treatments combined with prescribed fire can lead to improved seedbed conditions for native species at BPRF while also enhancing habitat for ground foraging and ground dwelling species.

3.11 Rare, Threatened and Endangered Species and Sensitive Habitats (INRMP)

3.11.1 Affected Environment

The ESA of 1973 requires all federal agencies to carry out programs for the conservation of endangered and threatened species. In addition, each agency shall ensure that any action authorized, funded or carried out, is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. Wildfire, as well as suppression and pre-suppression activities, can have significant deleterious effects on endangered species. Fire has both direct and indirect impacts on endangered species. The direct effect is mostly considered negative, as it could kill the species. Indirect effects include destruction or modification of habitat and a change in the species composition. As required by the ESA, ALC Environmental Division shall conduct Section 7 consultation with the USFWS on fire management actions that may affect listed species. Endangered species and natural resources sensitive areas are identified in the INRMP and will be avoided by firefighting personnel when maintaining and constructing firebreaks or other soil-disturbing activities.

ALC

No Federal or State listed plant and/or animal species were observed on the ALC during surveys conducted in 2011 and 2015.

The Powder Mill Bog, a small Fall-Line Terrace Gravel Bog, exists on ALC. This site is a remnant of a once more widely distributed plant community that has been largely destroyed by development. Its nutrient poor, gravelly soils support a distinctive plant community that is considered Highly Globally Rare. Fewer than ten Fall Line Terrace Gravel Bogs are known to exist worldwide.

Five rare and uncommon plant species were documented at the Powder Mill Bog in 2002 and 2007. None of these species were observed during surveys conducted in 2011 and 2015, though it is possible that these species persist on site.

The northern long-eared bat (*Myotis septentrionalis*) is listed as a threatened species under the Endangered Species Act, due largely to the impacts of white-nose syndrome. An acoustic bat survey with focus on the northern long-eared bat (NLEB) was conducted at ALC during the summer of 2016. The NLEB was recorded at one sample site on ALC.

BPRF

Previous consultation with both USFWS and the MDNR indicated that there are no known occurrences of rare, threatened and endangered species on BPRF. This does not necessarily mean that no other potential Rare, Threatened and Endangered (RTE) species exist on the site. Per the RTE Report (2016), an American chestnut (*Castanea dentate*) was located in Forest Compartment III, Stand 1. The American chestnut is state-listed as S2/S3 (State rare/watchlist). The tree had a diameter at breast height (DBH) of 6 inches and a height of approximately 30 feet. It exhibited no signs of the chestnut blight. Prior to any forest management practices in this Stand, the American chestnut and a protection zone radius of 50 feet around it will have to be established and marked in the field.

Additionally, habitat for two listed species does exist on site, the federally threatened small whorled pogonia (*Isotria medeloides*), which is believed to be extirpated from the State of Maryland and the State threatened rainbow snake (*Farancia e. Erytrogramma*). Neither species has been observed on the BPRF during surveys in 2011 and 2015.

Bald eagles (*Haliaeetus leucocephalus*) - while removed from the Federal List of Endangered and Threatened Species in 2007 are still protected under the Federal Bald Eagle and Golden Eagle Protection Act and Migratory Bird Treaty Act. All forest management activities at BPRF will be executed in alignment with the INRMP and in a manner that enhances protection of bald eagle habitat.

Prescribed burns within 660' of eagle nests at BPRF must also occur outside of the breeding season- preferably mid-September – mid-November and can only be implemented when temperatures are cool, winds calm to light, and fuels are not excessively dry. The midstory, understory, and duff levels that surround trees containing eagle nests are to be inspected and managed in order to protect the tree prior to burning implementation.

An acoustic bat survey with focus on the NLEB was conducted at BPRF during the summer of 2016. The NLEB was recorded at one sample site on BPRF. BPRF is also within the White-nose Syndrome Buffer Zone for the northern long-eared bats. The White-nose Syndrome Buffer Zone identifies the portion of the range of the northern long-eared bat within 150 miles of the boundaries of United States counties or Canadian districts where white-nose syndrome or the associated fungus has been detected. Under Section 7 of the ESA, federal agencies must consult with the Service to ensure that any action they authorize, fund, permit or carry out does not jeopardize the existence of a listed species.

ALC Environmental Division consulted with USFWS, MD DNR, MDE, USEPA Region III, and MDNR Forest Service (Appendix B) and will coordinate all plans for prescribed burns at BPRF with these agencies.

3.11.2 Environmental Consequences

Proposed Action: While the NLEB is a listed Endangered Species at ALC and BPRF, the ALC will manage its lands with an ecosystem approach in accordance with the Maryland Coastal Zone Management Act, Bald and Golden Eagle Protection Act and all appropriate regulations, laws and policies. New listings of endangered species will be reviewed regularly and included in the updates of the INRMP. ALC will coordinate with USFWS and the MDNR, as appropriate.

Bald eagles, although no longer listed, are presently protected under the Bald and Golden Protection Act. An Endangered Species Management Plan for bald eagles at BPRF was prepared previously, when bald eagles were listed, and remains the management plan for this species.

Implementation of the Proposed Action would have no impact. Consultation with the ALC Environmental Division and BPRF Site Manager would be required prior to the use of prescribed burns or activities that could disturb listed species.

Endangered species and natural resources sensitive areas identified in the INRMP will be avoided by firefighting person when maintaining and constructing firebreaks or other soil-disturbing activities. Prescribed burns would be beneficial for rare, threatened and endangered species through clearing invasive species and allowing for regrowth of native species, and overall improving ecosystem and habitat health. USFWS, MDE, and MDNR will be coordinated with prior to any prescribed burn at least 30 working days prior to the earliest possible date that a burn could occur. BPRF will avoid prescribed burn activities during roosting season for the Northern Long-Eared bat and will comply with best management practices for federal and state-listed species with habitat on BPRF.

No-Action: Under the no-action alternative, there could be adverse impacts from not implementing prescribed burns at BPRF as a tool for improving forest habitat for threatened and endangered species.

3.12 Cultural Resources

3.12.1 Affected Environment

The Integrated Cultural Resources Management Plan (ICRMP) for ALC and BPRF was prepared in 2016. It is a 5-year plan for the integrated management of the cultural resources responsibilities at the garrison. Among the laws with special consequence to the USAG ALC are the National Historic Preservation Act (NHPA), the Native American Graves Protection and Repatriation Act (NAGPRA) and the Archaeological Resources Protection

Act (ARPA). While these laws are separate and distinct legal mandates, they each have penalties and procedural elements associated with them that can be used to halt or delay projects.

One architectural inventory and assessment has been conducted for the entirety of both ALC and BPRF. No architectural properties at either ALC or BPRF are listed in the National Register of Historic Properties (NRHP). However, as a result of the passage of time, and the \acquisition of additional acreage from the Navy at ALC, it would be prudent to revisit the 1984 inventory, especially since a few of the buildings included in the final transfer are Cold War era properties.

Nine archaeological sites have been recorded at ALC and a total of 33 archaeological sites have been recorded at BPRF. Evaluations of all nine archaeological sites recorded at the Adelphi Campus have been reviewed by the State Historic Preservation Office (SHPO), and the SHPO has concurred that only one of the recorded sites, Site 18PR466, is NRHP-eligible. The recorded sites at Blossom Point are problematic because of the lack of adequate site information. Only three of the 33 sites recorded at Blossom Point have SHPO concurrence that no further work is required, and only one site of the 33 has been determined to be NRHP eligible. A Phase II of seven sites by Tetra Tech was completed in 2001, in which they recommended another two sites had future research potential and could be eligible for the NRHP.

3.12.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have no impact. Prescribed burns would be avoided in areas of known cultural resources at BPRF. The Cultural Resources Manager would be consulted prior to any prescribed burns and cultural resources would be avoided. As stated in the IWFMP, in the case of a wildland fire, the values to be protected include human safety, built up improvements, natural resources, and cultural resources.

No-Action: Under the no-action alternative, there would be no impacts to cultural resources.

3.13 Hazardous, Toxic and Radioactive Waste

3.13.1 Affected Environment

ALC

Hazardous waste regulated by the Resource Conservation and Recovery Act (RCRA) and Maryland Department of the Environment (MDE) is permitted for storage of up to one year

in Building 104. Biannual reporting of hazardous waste generation is made to the EPA and MDE. Laboratory use of chemicals is determined by current projects. Centralized hazardous material storage is in the basement of the Zahl Building (Building 207), in the Hazardous Material Pharmacy. The Army Research Laboratory is responsible for operating the Hazardous Material Pharmacy. Building 103 has pesticide storage and a mixing area. Chemicals are mixed and used in accordance with the requirements contained in Technical Manual 5-632 and Senate Bill 3-40. All chemicals used are listed in federally approved chemical lists. Each month a report is prepared stating what and how chemicals are used. The ALC Integrated Pest Management Plan includes a detailed listing of routine chemicals procured and stored at the installation and quantities used.

BPRF

The BPRF is not used for weapon storage or stockpiling. However, minimal amounts of ammunition may be temporarily stored on site prior to scheduled test activities. The majority of ordnance required for a test event is transported to the BPRF from U.S. Army Aberdeen Proving Ground. The ammunition is stored in bunkers in the designated explosive storage area (Buildings 403, 404, 405, and 409). A 900-ft fragment distance is designated around this storage area to allow the temporary storage of high explosives. Operations and personnel restrictions apply in this area while high explosives are being temporarily stored. There is a 670-foot Explosive Safety Quantity Distance (ESQD) arc surrounding the Ordnance Loading Building (Building 504). Scrap debris generated by research activities is transported to the US Army Aberdeen Proving Grounds for disposal. Ordnance research personnel render safe explosives in the vicinity of firing range impact areas. Some of these explosives are detonated in place. Unexploded ordnance from over 40 years of testing at the BPRF contaminates a considerable portion of the installation with heaviest contamination south of Middle Road and along Nanjemoy Creek and Potomac River South. High explosives were used in past testing and the small function indicator charges could be lethal within 50 feet of detonation. The BPRF ranges operate under USEPA's "munitions rule," 40 CFR 260 et. seq.

Electromagnetic and Radiation Safety at BPRF operates a standard pole research facility to determine electromagnetic radiation patterns of fuzes and to measure fuze sensitivity. Radar and radio frequency energy sources used in this testing generally involve safety hazards only at relatively close distances to the sources, and Standard Operating Procedures insure safety during these tests. The Navy's Naval Research Lab (NRL) antenna requires a one-half mile diameter buffer zone for - 100 dBm acoustical isolation and a vertical clearance from a 500-foot diameter horizontal plane of 1.3 degrees to the horizon.

3.13.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have no impact to hazardous, toxic and radioactive waste.

No-Action: The no-action alternative would have no impact on hazardous materials or substances, as no changes in current operations would occur.

3.14 Human Health and Safety

3.14.1 Affected Environment

The primary concern during any fire is human safety and protection. Neighboring towns and industrial areas provide additional priority protection considerations. Additionally, firefighters on the line, in the air, and at the command post must all be properly trained, outfitted, and informed of all threats and safety measures. Fire management safety concerns on military lands include threats posed by fire and smoke to local residents, employed personnel, and wildland firefighters. The ALC and BPRF Safety office will communicate any risks to human health and safety, both on and off the installation, during a wildland fire incident, as appropriate. Mutual Aid Agreements are in place with local fire departments to facilitate wildland fire management on and adjacent to ALC and BPRF (ALC and BPRF IWFMP, 2017).

The values to be protected on Army lands from wildland fire include human safety, built up improvements (structures, buildings, warehouses docks equipment ammunition storage), natural resources, and cultural resources. Unauthorized and abandoned structures will be allowed to burn during wildland fire, so that no life will be risked. Fire breaks are bulldozed and maintained in the detonation area to prevent migration of fires and to allow fires to burn out as appropriate.

Smoke management is an important responsibility for fire fighters at ALC and BPRF. The goal of smoke management is to reduce the risk of decreased visibility and risk to human health of ALC and BPRF personnel and the public. Wildland Fire Managers should be aware of sensitive populations and sites that may be affected by prescribed fires, such as medical facilities, schools, or nursing homes, and plan burns to minimize the smoke impacts.

3.14.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have short-term, minimal impact on human health and safety. Response to wildland fire would continue as

it currently operates and as described in the IWFMP. ALC will not conduct prescribed burns. Prescribed burns at BPRF would be planned in accordance with MDNR regulations COMAR 08.07.04 Forest Fire Protection and MDE regulations COMAR 26.11.07 Open Fires Authority, and employ best management practices, as necessary. Safety procedures, communication plans, burn plan requirements, and air quality and smoke management requirements identified in the MDNR Prescribed Fire Policy will be followed for prescribed burning activities. Communication with the public prior to a prescribed burn is described within the Burn Plan and IWFMP. In case of any fire, the ALC Public Affairs Office (PAO) will provide the appropriate information to the public.

No-Action: The no-action alternative would have no impact on human health and safety as wildland fire response would continue as it currently operates.

3.15 Recreation

3.15.1 Affected Environment

ALC

Due to ALC's mission, outdoor recreation (such as hiking, hunting, biking) is not permitted.

BPRF

BPRF offers limited public recreational opportunities. These opportunities include hunting of game and waterfowl. Game hunting is permitted by special permit only and is strictly managed by the ALC Environmental Division to ensure safety and security. The MDNR currently manages four waterfowl blinds along the shorelines of BPRF.

3.15.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have a short-term, minor impact on recreation at BPRF. Prescribed burns would require recreation activities to be suspended for the duration of the prescribed burn and potentially for a few days following the burn.

No-Action: Under the no-action alternative, there would be no impacts to recreation at ALC and BPRF.

3.16 Utilities

3.16.1 Affected Environment

This section assesses potable water supply, wastewater systems, energy sources, communications, and solid waste service. Data presented in this section reflect the current condition of utilities at ALC and BPRF using references to the most recent available data sources. The infrastructure management goals of ALC and BPRF are directed toward accomplishing the mission with the most modern cost efficient infrastructure possible.

Potable Water Supply

ALC

The Washington Suburban Sanitary Commission (WSSC) provides water and sewerage services to the ALC. All collection systems are Government owned and maintained. This consumption includes water for laboratory, domestic lawn irrigation, and cooling tower operations. An emergency backup 10-inch water main, connected to the General Services Administration (GSA) 10-inch line at the intersection of Isherwood Road and Browne Road on the former Naval Surface Warfare Center (NSWC) property, connects the former NSWC facility to the ALC Buildings 500 and 504, creating a loop. The GSA maintains and operates the metering equipment and a WSSC approved back-flow prevention device at the connection. This line, however, has fallen into disrepair, was shut off, and is no longer in service. GSA owns an eight-inch water line crossing the ALC.

BPRF

Potable water at the BPRF is obtained from a well (302 feet deep) located under the Well House, Building 509. This water is not used for drinking water and is a backup well for the installation.. At Building 511, potable water is obtained from a well (500 feet deep) installed in 2012. This system is maintained by a Rain Soft EC4 unit. The filters are changed yearly and maintained and tested by a Rain Soft distributor. The NRL Blossom Point Tracking and Command Facility has a separate well and distribution system. They use a combination of bottled water and well water for drinking.

Wastewater System

ALC

The WSSC sewerage system serves the ALC. The WSSC Paint Branch Outfall Sewer runs through the central portion of the ALC along Paint Branch from the research and service

complexes. The rate of flow used to be controlled by the pumping rate from a 35,000-gallon sewage holding tank. A 10- inch bypass around this tank permits flow directly to the meter. The line to the holding tank has been blocked with brick and grout. Flow monitoring of the wastewater from the 400 and 500 Areas is not conducted as it flows directly to the WSSC. Instead, the wastewater flows for those areas are estimated based on water consumption. The ALC follows the WSSC Discharge Authorization specifying what may be discharged into WSSC's sewerage system. The sewage is treated at the Blue Plains Sewage Treatment Plant.

BPRF

Wastewater from the BPRF latrine (Building 511) is treated by a mound system that uses evaporation rather than a filtration system, with an existing capacity for about 65 people. Solids are collected in a tank and removed every year by a private contractor. The solid tank is 1500 gallons and the gray water tank is 2500 gallons. The NRL facility operates and maintains a septic tank with tile field disposal and several aboveground sand mound disposal systems. The BPRF's collection lines and septic tank are adequate to serve existing flow conditions and with proper maintenance, the system should continue to provide the required service. An NPDES permit is not required since there are no point source discharges at the facility.

Solid Waste

At BPRF and ALC, solid waste is collected by a custodial contractor and deposited into dumpster collection units. A refuse and recycling contractor, licensed under State of Maryland and local regulations, picks up the solid waste and removes it from government property.

Energy Sources

ALC

Electrical power is provided by the Potomac Electric Power Company (PEPCO). Service is provided by two 69 kilovolt (kV) three phase feeders that originate at one PEPCO substation, Metzerott- East. Near the south gate exit to the ALC, the overhead feeders are taken underground and run in conduit and duct to the ALC's substation, Building 107. The transformers, substation, underground duct bank system, and all lines on the installation are owned and maintained by the ALC. PEPCO owns the two 69 kV feeders.

The ALC has a central Heating and Cooling Plant, Building 106, which serves Areas 100 and 200 (with the exception of Buildings 104, 105, 107, and S-108) and has dual-fuel boilers. ALC uses more natural gas than fuel oil. High temperature hot water (HTHW) is distributed through underground lines at a maximum of 400º F and 375 psig. There is an overall design 150º–system temperature drop. Expansion loops are provided in the pipeline. Each building that is heated has an automatic HTHW differential pressure valve in the supply line and a series of heat exchangers. HTHW generators are dual-fueled. Oil storage consists of 30,000 gallon underground tanks with a high level capacity of 27,500 gallons each. The ALC has three such tanks, for a combined capacity of 82,500 gallons. These tanks were installed and designed to hold approximately a 16-day supply of heating oil. Building S-108 and facilities in the 400, 500, and 600 Areas utilize their own individual heating systems.

BPRF

Electrical power is provided by Southern Maryland Electric Cooperative (SMECO). Overhead primary conductors enter from Blossom Point Road then are brought to the transformer where it steps down. From there they are brought overhead to 19 active transformers, and underground to two pad mounted transformers for the Acoustic/Electro-Optics Propagation Site range. Of three connections, only the service at the gate is normally energized. The main service extends from the platform metering station throughout the site through a government owned two-wire, overhead, 2,400 volt radial distribution system. Secondary service where required at the facility, is provided at 120/240 volt, single phase, three wire and is derived by tapping the existing overhead primary conductors and feeding government owned pole-mounted transformers.

Emergency generators used for research are mobile and use 60 kilovolt-amperes (kVA). Streetlamps use 200-watt high pressure sodium lamps. Security lighting at the bunkers is 200-watt mercury vapor lamps. The Environmental Assessment for the US Army Garrison ALC Real Property Master Plan BPRF's states that the existing electrical distribution system consisting of 7 miles of lines is adequate to serve current requirements. The upgrading of service to three-phase is under consideration. The NRL Blossom Point Tracking and Command Facility is supplied with three phase 7,200 kV service from the SMECO overhead conductors along Blossom Point Road. Heated buildings include 301, 501, 503, 504, 506, 507, 509, 511, 512, and 514. Buildings 301, 501, 503, 509, 512, and 514 are heated by electricity. Building 504 is heated by hot water. Building 507 is oil fired. Buildings 501A, 506, and 511 are heated by electricity and propane. Buildings 301, 506, 511, 512, and 513 are cooled using electricity.

3.16.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have short-term minor adverse impacts on utilities at ALC and BPRF. Water resources to extinguish fires would be used, but is anticipated to be minor use and for the short duration of a prescribed burn. No impacts are anticipated to utilities from the Proposed Action.

No-Action: Under the no-action alternative, there would be no impacts to utilities at ALC and BPRF.

3.17 Socioeconomics and Environmental Justice

3.17.1 Affected Environment

Socioeconomic factors are defined by the interaction or combination of social and economic factors. The relevant factors related to the ALC and BPRF includes population and housing, quality of life/health and safety issues.

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low- Income Populations, directs federal agencies to address environmental and human health conditions in minority and low-income communities.

In addition to environmental justice issues are concerns pursuant to EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, which directs federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children. For the purposes of this analysis, minority, low-income and youth populations are defined as follows:

- Minority Populations: Persons of Hispanic origin of any race, Blacks, Asians, Native Americans
- Low-Income Population: Persons living below the poverty level
- Youth Population: Children under the age of 18 years

Socioeconomics

ALC

ALC is located in northeastern Montgomery County, Maryland with a portion of the installation crossing into Prince George's County, Maryland. In 2010 Montgomery County had a population of 971,777 and Prince George's County had a population of 863,420 (U.S. Census Bureau, 2010). White Oak is one of the closest neighboring communities. As of the census of 2010, there were 17,403 people, 6,520 households, and 4,227 families

residing in the White Oak. The population density of White Oak was 4,604.0 people per square mile. There were 6,865 housing units at an average density of 1,816.1 per square mile (U.S. Census Bureau, 2010).

BPRF

The BPRF resides in Charles County, MD and had a 2010 population of 146,551 (U.S. Census Bureau, 2010). The nearest population center is the town of La Plata, MD with a total 2010 population of 8,753. La Plata has a total of 3,234 housing units consisting of primarily attached and detached single-unit homes (U.S. Census Bureau, 2010).

Environmental Justice

ALC

For Montgomery County, the median income for a household in the county was $93,373 and the median income for a family was $111,737. Males had a median income of $71,841 versus $55,431 for females. The per capita income for the county was $47,310. About 4.0% of families and 6.0% of the population were below the poverty line, including 7.2% of those under age 18 and 6.3% of those age 65 or over. For Prince George's County, the median income for a household in the county was $71,260 and the median income for a family was $82,580. Males had a median income of $49,471 versus $49,478 for females. The per capita income for the county was $31,215. About 5.0% of families and 7.9% of the population were below the poverty line, including 9.6% of those under age 18 and 6.7% of those age 65 or over. The overall poverty level for the state of Maryland is 9.8%, 5.2% below the poverty rate for the United States (13.8%).

The racial makeup of the White Oak area was 27.7% White, 49.4% African American, 0.4% Native American, 8.9% Asian, 0.1% Pacific Islander, 9.1% from other races, and 4.5% from two or more races. Hispanic or Latino of any race were 18.4% of the population. 6% of White Oak's residents were White Hispanics/Latinos, 21.6% were Hispanics/Latinos from some other race, and 1.5% were Afro-Latinos. 21.6% of the population were non-Hispanic whites, 47.8% were non-Hispanic blacks, and 8.9% were non-Hispanic Asians (U.S. Census Bureau, 2010).

BPRF

For Charles County, the median income for a household in the county was $88,825 and the median income for a family was $98,560. Males had a median income of $62,210 versus $52,477 for females. The per capita income for the county was $35,780. About 3.7% of families and 5.2% of the population were below the poverty line, including 6.8% of those

under age 18 and 4.6% of those age 65 or over (U.S. Census Bureau, 2010).

In 2010, the median income for a household in La Plata was $56,490, and the median income for a family was $66,288. Males had a median income of $42,492 versus $32,125 for females. The per capita income for the town was $24,669. About 8.3% of families and 10.1% of the population were below the poverty line, including 12.0% of those under age 18 and 18.1% of those age 65 or over. The median age in the town was 38.4 years. 24.4% of residents were under the age of 18; 8.9% were between the ages of 18 and 24; 27% were from 25 to 44; 26.4% were from 45 to 64; and 13.4% were 65 years of age or older.

The racial makeup of the Charles County, Maryland was 50.3% white, 41.0% black or African American, 3.0% Asian, 0.7% American Indian, 0.1% Pacific islander, 1.3% from other races, and 3.7% from two or more races. Those of Hispanic or Latino origin made up 4.3% of the population. The racial makeup of La Plata in 2010 was 66.3% White, 26.7% African American, 0.5% Native American, 2.7% Asian, 0.1% Pacific Islander, 0.7% from other races, and 3.0% from two or more races. Hispanic or Latino of any race were 3.2% of the population (U.S. Census Bureau, 2010).

3.17.2 Environmental Consequences

Proposed Action: Implementation of the Proposed Action would have no impact on socioeconomic conditions at ALC and BPRF. Implementation of the Proposed Action would not be expected to impact the socioeconomic conditions or create to disproportionately high adverse human health concerns for minority or low-income populations at ALC and BPRF or in the surrounding community.

No-Action: Under the no-action alternative, there would be no impacts to socioeconomic resources or environmental justice at or near ALC and BPRF.

3.18 Cumulative Impacts and Other Environmental Consideration

According to CEQ regulations, the cumulative impact is defined as the impact on the natural and human environment, which results from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions. The proposed action must be evaluated with the additive effects of other actions in the project area to determine whether all the actions will result in a significant cumulative impact on the natural and human environment of the area.

The proposed implementation of the IWFMP will have minor adverse impacts to topography from the creation of firebreaks, and minor, short-term adverse impacts to air quality, human health and safety from smoke, recreation and utilities from executing

prescribed burn activities, and to aesthetics and visual resources, vegetation and wildlife resources from clearing vegetation and habitat from a burn at BPRF. The short-term irreversible commitments of resources that would occur would include planning, materials and supplies and their cost, use of energy resources during prescribed burn and wildland firefighting activities, and labor. No irretrievable commitments of resources would result from the Proposed Action.

Beneficial impacts for BPRF are anticipated from prescribed burn activities in the long-term to vegetation, wildlife resources, and threatened and endangered species as native plants could thrive after a burn and propagate a healthier ecosystem with the removal of invasive species and disease; this is also a beneficial long-term impact to aesthetics and visual resources. Beneficial impacts are also anticipated to soils, as fire alters soil chemistry, biology and structure to allow for release of nutrients at BPRF. BPRF will conduct prescribed burn activities in accordance with MD DNR regulations COMAR 08.07.04 Forest Fire Protection and MDE regulations COMAR 26.11.07 Open Fires Authority, and employ best management practices, as necessary.

The cumulative effects of the implementation of the IWFMP on other activities within the area will be minor and temporary. Prescribed burns at BPRF may limit activity in certain locations, but will be coordinated well in advance to minimize impacts to operational activities. Implementation of the Proposed Action will also support the natural resource management operations as identified in the INRMP and contribute to the beneficial impacts of the INRMP. Overall long-term beneficial impacts would be realized from the implementation of the IWFMP to improve ecosystem health and reduce the risk of wildland fire from reducing fuels. Based upon these considerations, it is evident that the beneficial aspects outweigh the adverse impacts of the proposed action as shown in Table 3-1.

Table 3-1: Summary of Effects of Proposed Action and No Action Alternative		
Natural Resources	**Proposed Action**	**No Action**
Land Use	No Impact	Long-term minor adverse impact
Aesthetics and Visual Resources	Short-term minor adverse impact and long-term beneficial impact	No impact
Geology and Topography	Minor adverse	No impact
Soils	Beneficial impact	No impact
Air Quality and Climate	Short-term minor adverse impact	No impact
Noise	No impact	No impact
Surface Water Resources and Floodplains	No impact	No impact
Wetlands	No impact	No impact
Vegetation	Short-term minor adverse impact and long-term beneficial impact	Long-term minor adverse impact
Wildlife Resources	Short-term minor adverse impact and long-term beneficial impact	Long-term minor adverse impact
Rare, Threatened and Endangered Species and Sensitive Habitats	No impact	Long-term minor adverse impact
Cultural Resources	No impact	No impact
Hazardous, Toxic and Radioactive Waste (HTRW)	No impact	No impact
Human Health and Safety	Short-term minor adverse	No impact
Recreation	Short-term minor adverse	No impact
Utilities	Short-term minor adverse	No impact
Socioeconomics and Environmental Justice	No impact	No impact

4.0 REFERENCES

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National Wildfire Coordinating Group, 2017 PMS 310-1. Website: https://www.nwcg.gov/publications/310-1

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U.S. Army Adelphi Laboratory Center. 2017. Blossom Point Research Facility Forest Management Plan. ALC Department of Public Works, Adelphi, Maryland.

U.S. Army Adelphi Laboratory Center. 2017. DRAFT ALC and BPRF Integrated Wildland Fire Management Plan. ALC Department of Public Works, Adelphi, Maryland.

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Appendix A
Figures

- **Figure A-1: Location of ALC and BPRF**
- **Figure A-2: ALC Land Cover Types and Fire Management Zones**
- **Figure A-3: BPRF Land Cover Types and Fire Management Zones**

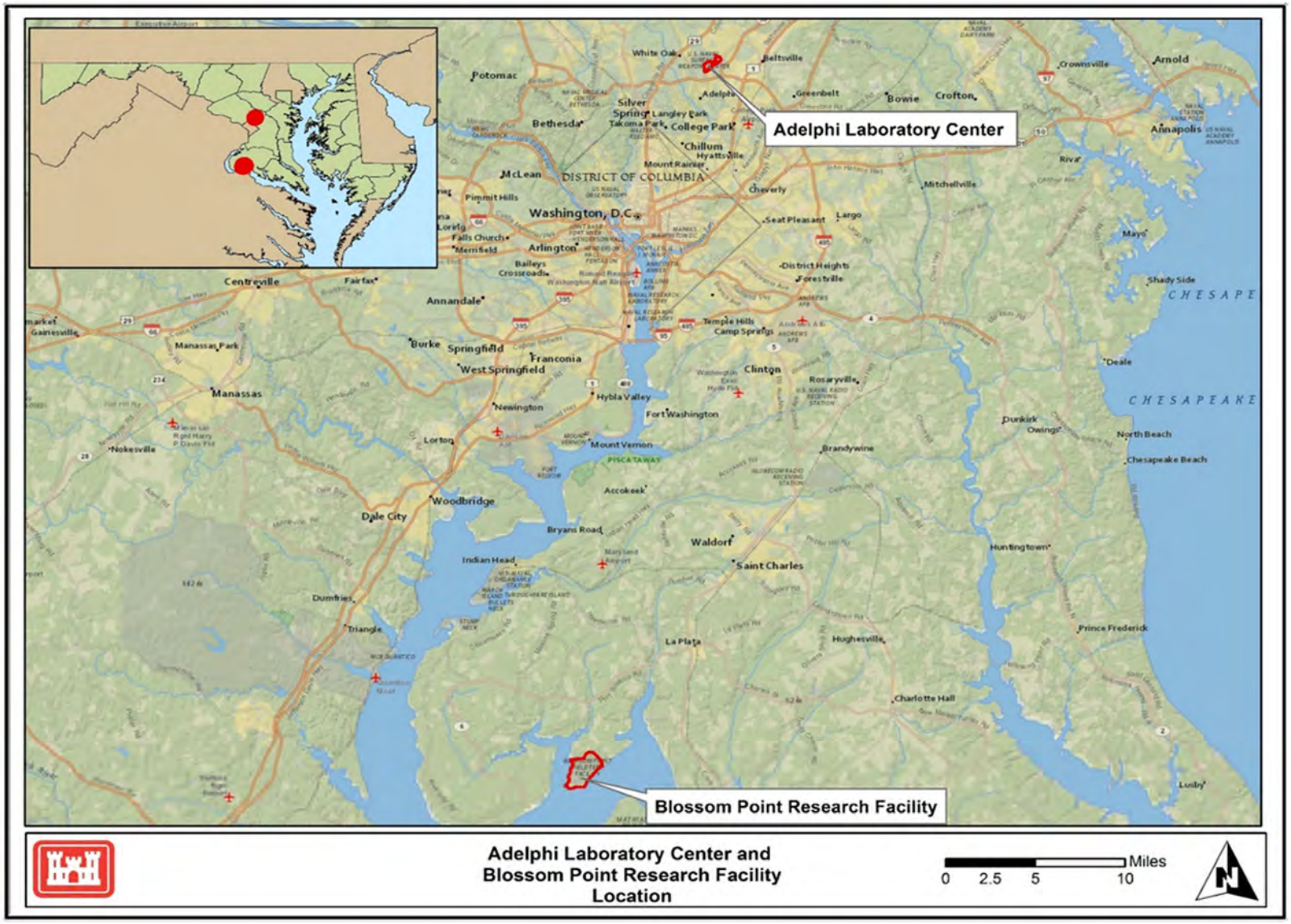

Figure A-1 – Location of ALC and BPRF

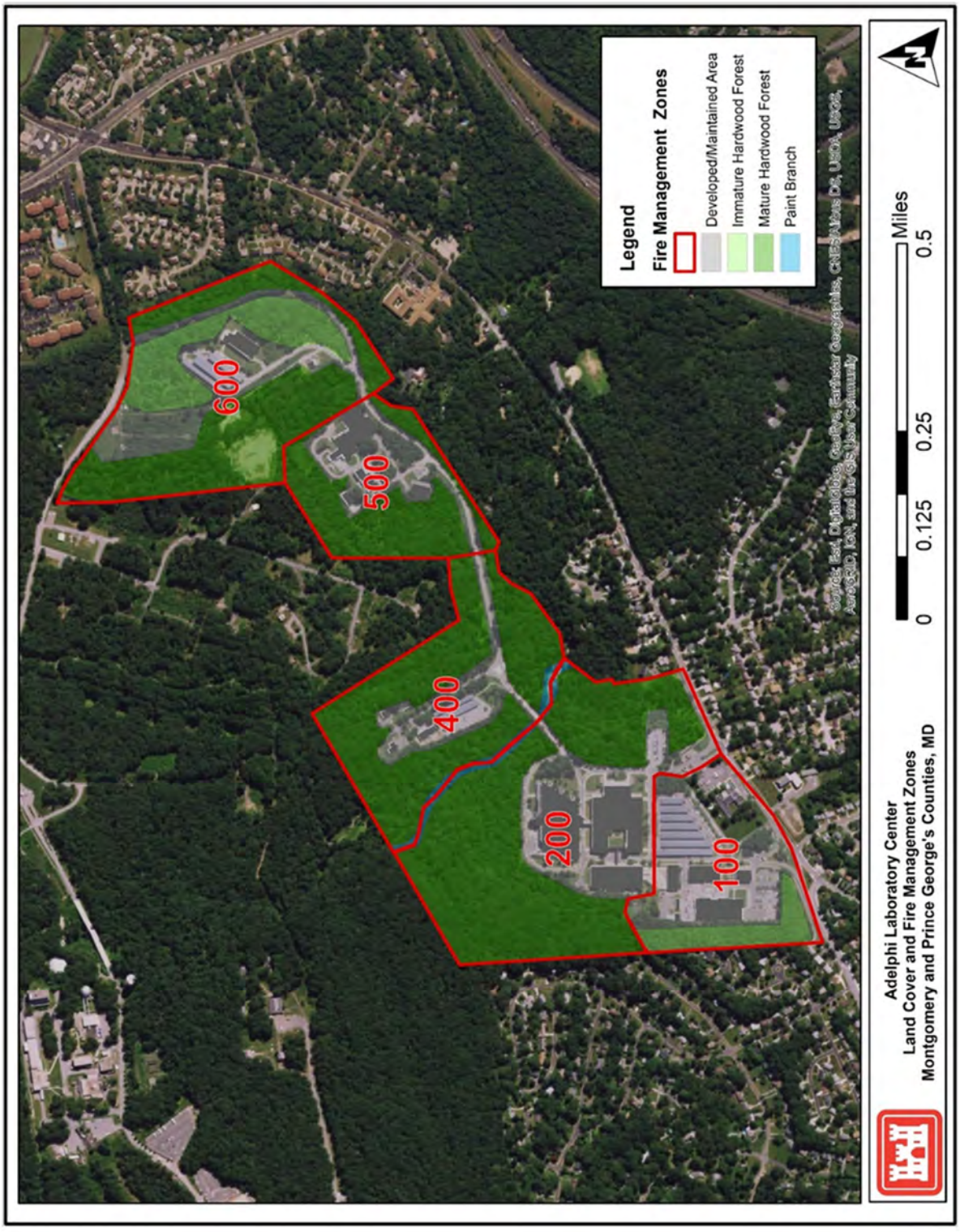

Figure A-2 - ALC Land Cover Types and Fire Management Zones

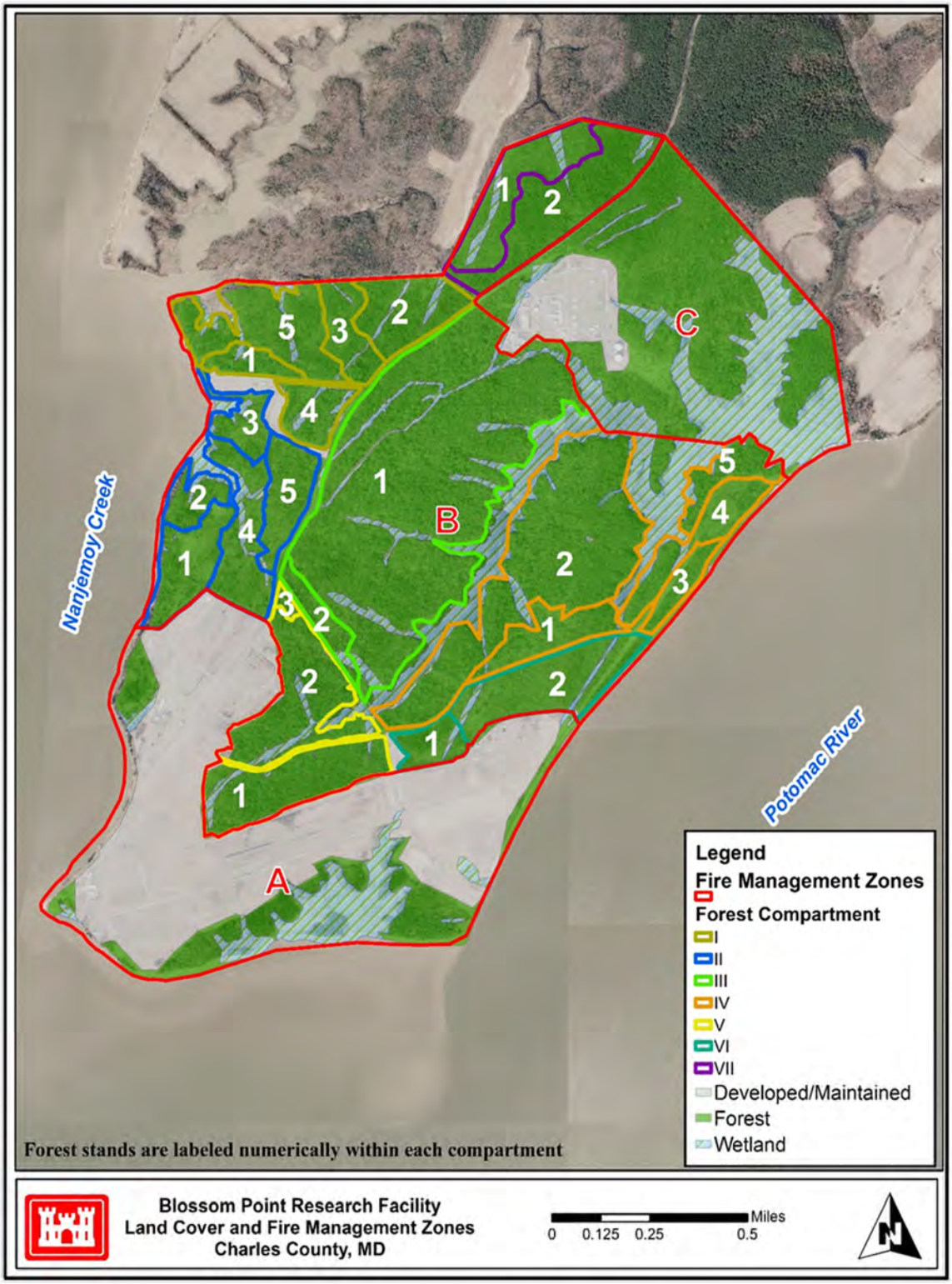

Figure A-3 – BPRF Land Cover Types and Fire Management Zones

Appendix B
Agency Coordination

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

26 July 2017

Ms. Barbara Rudnick
USEPA Region III
1650 Arch Street
Philadelphia, PA 19103
Mail Code EA30

Dear Ms. Barbara Rudnick:

U.S. Army Garrison Adelphi Laboratory Center (ALC) and Blossom Point Research Facility (BPRF) are preparing a Programmatic Environmental Assessment (PEA) to evaluate potential environmental, cultural, and socioeconomic effects associated with the implementation of an Integrated Wildland Fire Management Plan (IWFMP). BPRF, which encompasses 1,600 acres, is located on Cedar Point Neck in southern Charles County (Enclosure 1). ALC, which encompasses 207 acres, spans both Montgomery and Prince George's Counties (Enclosure 1).

The Proposed Action is to implement the IWFMP prepared for ALC and BPRF. This EA will evaluate the potential environmental effects that may occur as a result of the Proposed Action, and will be prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended.

Interested parties are invited to submit written comments for consideration within 20 days of this notice. Any comments received will be considered in the preparation of the EA. Comments must be submitted within 20 days of the date of this notice to: Adelphi Laboratory Center, 2800 Powder Mill Road, IMAL-PWE, Adelphi, MD 20783, ATTN: Bridget Kelly Butcher, or email comments to: bridget.c.kellybutcher.civ@mail.mil. For questions, please contact Ms. Kelly Butcher at 301-394-1062.

This public notice is being distributed to organizations and individuals that are known to have a stake in this project (Enclosure 2). Please feel free to bring this notice to the attention of any other organizations or individuals with an interest in this matter.

Sincerely,

James Krake

James Krake
Chief, Environmental Division
Directorate of Public Works

Enclosures: ALC and BPRF map, organization list

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

26 July 2017

Ms. Linda C. Janey
Maryland State Clearinghouse
Maryland Office of Planning, Suite 1101
301 West Preston Street
Baltimore, MD 21201-2365

Dear Ms. Linda Janey:

U.S. Army Garrison Adelphi Laboratory Center (ALC) and Blossom Point Research Facility (BPRF) are preparing a Programmatic Environmental Assessment (PEA) to evaluate potential environmental, cultural, and socioeconomic effects associated with the implementation of an Integrated Wildland Fire Management Plan (IWFMP). BPRF, which encompasses 1,600 acres, is located on Cedar Point Neck in southern Charles County (Enclosure 1). ALC, which encompasses 207 acres, spans both Montgomery and Prince George's Counties (Enclosure 1).

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Sincerely,

James Krake

James Krake
Chief, Environmental Division
Directorate of Public Works

Enclosures: ALC and BPRF map, organization list

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

26 July 2017

Mr. Luke Marcek
Maryland DNR-Forest Service
The Bhaduri Building
Maple Avenue
P.O. Box 2746
LaPlata, MD 20646

Dear Mr. Luke Marcek:

U.S. Army Garrison Adelphi Laboratory Center (ALC) and Blossom Point Research Facility (BPRF) are preparing a Programmatic Environmental Assessment (PEA) to evaluate potential environmental, cultural, and socioeconomic effects associated with the implementation of an Integrated Wildland Fire Management Plan (IWFMP). BPRF, which encompasses 1,600 acres, is located on Cedar Point Neck in southern Charles County (Enclosure 1). ALC, which encompasses 207 acres, spans both Montgomery and Prince George's Counties (Enclosure 1).

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This public notice is being distributed to organizations and individuals that are known to have a stake in this project (Enclosure 2). Please feel free to bring this notice to the attention of any other organizations or individuals with an interest in this matter.

Sincerely,

James Krake

James Krake
Chief, Environmental Division
Directorate of Public Works

Enclosures: ALC and BPRF map, organization list

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

26 July 2017

Ms. Lori Byrne
Maryland Dept. of Natural Resources
Tawes State Office Building
580 Taylor Avenue
Annapolis, MD 21401

Dear Ms. Lori Byrne:

U.S. Army Garrison Adelphi Laboratory Center (ALC) and Blossom Point Research Facility (BPRF) are preparing a Programmatic Environmental Assessment (PEA) to evaluate potential environmental, cultural, and socioeconomic effects associated with the implementation of an Integrated Wildland Fire Management Plan (IWFMP). BPRF, which encompasses 1,600 acres, is located on Cedar Point Neck in southern Charles County (Enclosure 1). ALC, which encompasses 207 acres, spans both Montgomery and Prince George's Counties (Enclosure 1).

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This public notice is being distributed to organizations and individuals that are known to have a stake in this project (Enclosure 2). Please feel free to bring this notice to the attention of any other organizations or individuals with an interest in this matter.

Sincerely,

James Krake

James Krake
Chief, Environmental Division
Directorate of Public Works

Enclosures: ALC and BPRF map, organization list

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

26 July 2017

Ms. Joanne Muller
Maryland Dept. of Environment
Clearinghouse Coordinator
1800 Washington Blvd
Baltimore, MD 21230

Dear Ms. Joanne Muller:

U.S. Army Garrison Adelphi Laboratory Center (ALC) and Blossom Point Research Facility (BPRF) are preparing a Programmatic Environmental Assessment (PEA) to evaluate potential environmental, cultural, and socioeconomic effects associated with the implementation of an Integrated Wildland Fire Management Plan (IWFMP). BPRF, which encompasses 1,600 acres, is located on Cedar Point Neck in southern Charles County (Enclosure 1). ALC, which encompasses 207 acres, spans both Montgomery and Prince George's Counties (Enclosure 1).

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This public notice is being distributed to organizations and individuals that are known to have a stake in this project (Enclosure 2). Please feel free to bring this notice to the attention of any other organizations or individuals with an interest in this matter.

Sincerely,

James Krake

James Krake
Chief, Environmental Division
Directorate of Public Works

Enclosures: ALC and BPRF map, organization list

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

26 July 2017

Mr. Leopoldo Miranda
U.S. Dept. of the Interior Fish & Wildlife Services
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

Dear Mr. Miranda:

U.S. Army Garrison Adelphi Laboratory Center (ALC) and Blossom Point Research Facility (BPRF) are preparing a Programmatic Environmental Assessment (PEA) to evaluate potential environmental, cultural, and socioeconomic effects associated with the implementation of an Integrated Wildland Fire Management Plan (IWFMP). BPRF, which encompasses 1,600 acres, is located on Cedar Point Neck in southern Charles County (Enclosure 1). ALC, which encompasses 207 acres, spans both Montgomery and Prince George's Counties (Enclosure 1).

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This public notice is being distributed to organizations and individuals that are known to have a stake in this project (Enclosure 2). Please feel free to bring this notice to the attention of any other organizations or individuals with an interest in this matter.

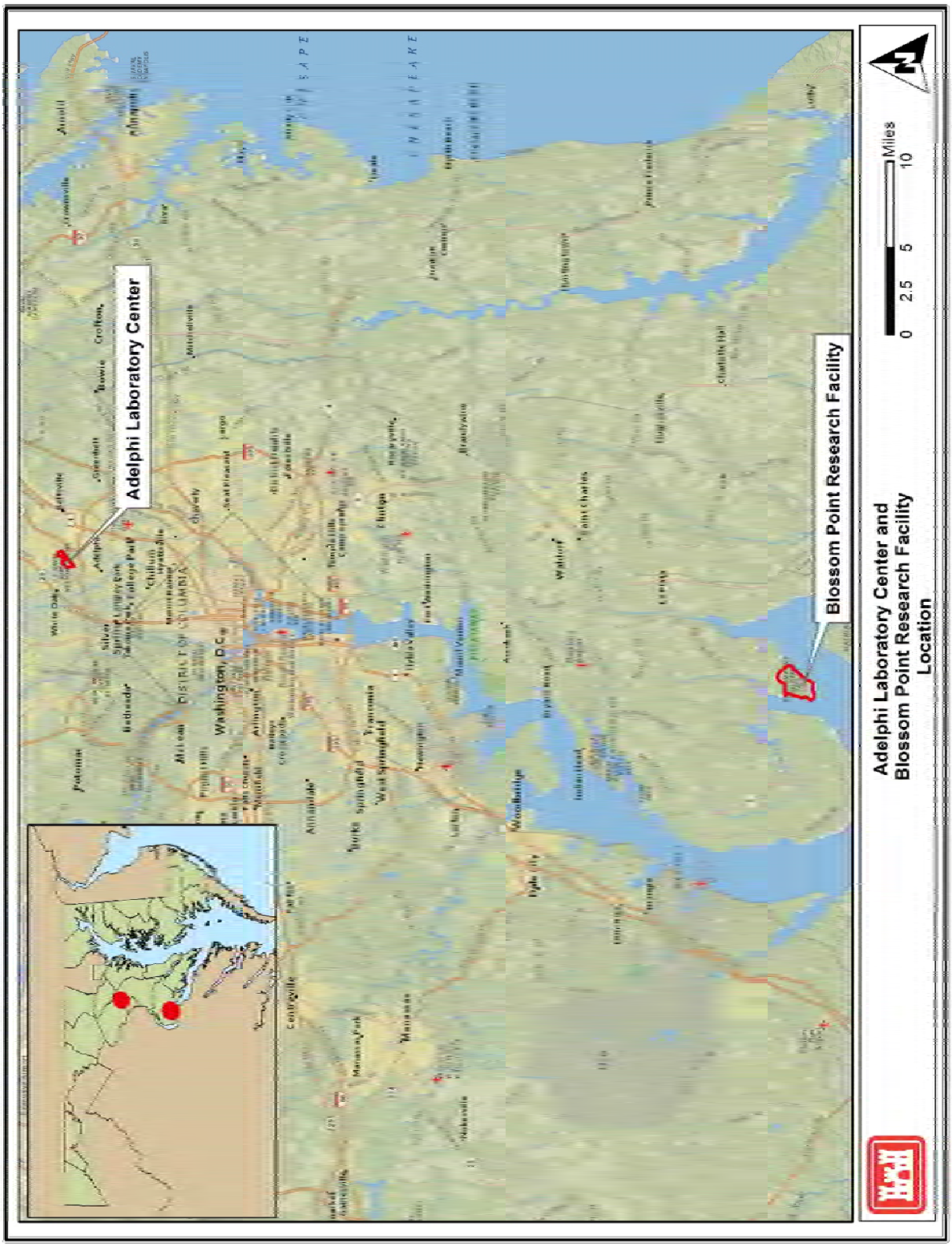
Sincerely,

James Krake

James Krake
Chief, Environmental Division
Directorate of Public Works

Enclosures: ALC and BPRF map, organization list

Enclosure 1: **Project Vicinity**



Enclosure 2: **Public Notice Mail List**

STATE AND FEDERAL AGENCIES

Ms. Lori Byrne
Maryland Dept. of Natural Resources
Tawes State Office Building
580 Taylor Avenue
Annapolis, MD 21401

Ms. Joanne Muller
Maryland Dept. of Environment
Clearinghouse Coordinator
1800 Washington Blvd
Baltimore, MD 21230

Ms. Linda C. Janey
Maryland State Clearinghouse
Maryland Office of Planning, Suite 1101
301 West Preston Street
Baltimore, MD 21201-2365

Mr. Leopoldo Miranda
U.S. Dept. of the Interior
Fish & Wildlife Services
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

Ms. Barbara Rudnick
USEPA Region III
1650 Arch Street
Philadelphia, PA 19103
Mail Code EA30

Mr. Luke Marcek
Maryland DNR-Forest Service
The Bhaduri Building
Maple Avenue
P.O. Box 2746
LaPlata, MD 20646

Appendix C
Notice of Availability

Notice of Availability

Draft Programmatic Environmental Assessment
and Finding of No Significant Impact for
Implementation of U.S. Army Garrison Adelphi Laboratory Center and
Blossom Point Research Facility
Integrated Wildland Fire Management Plan
Charles, Prince George's and Montgomery Counties, Maryland

The U.S. Army Garrison Adelphi Laboratory Center (ALC) has prepared a draft Programmatic Environmental Assessment (PEA) for implementation of an Integrated Wildland Fire Management Plan (IWFMP) at ALC and Blossom Point Research Facility (BPRF). The Proposed Action includes the implementation of the IWFMP by ALC to provide an integrated and comprehensive method to address safe and effective methods and procedures to handle wildfire hazards and manage lands to prevent these hazards. The IWFMP is compliant with all applicable legal requirements. This PEA has been prepared to evaluate the Proposed Action and alternatives, including the No Action Alternative. Resources addressed in the PEA include, land use, socioeconomics and environmental justice, infrastructure, geological resources, water resources, biological resources, cultural resources, air quality, noise, hazardous materials and waste management and safety. The results, as found in the PEA, show that the Proposed Action would not have a significant impact on the environment.

The draft PEA and draft Finding of No Significant Impact (FONSI) are available for review and comment for 30 days from publication of this notice. Copies may be obtained at the Prince George's Library-Beltsville Branch, 4319 Sellman Rd, Beltsville, MD 20705. Comments must be submitted within 30 days of the date of this notice to: Mr. Philip H. Jones, Chief, Public Affairs, Adelphi Laboratory Center, 2800 Powder Mill Road, Adelphi, Maryland 20783.

Notice of Availability

Draft Programmatic Environmental Assessment
and Finding of No Significant Impact for
Implementation of U.S. Army Garrison Adelphi Laboratory Center and
Blossom Point Research Facility
Integrated Wildland Fire Management Plan
Charles, Prince George's and Montgomery Counties, Maryland

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2736939 IN 9-22,9-29,10-6-17

Notice of Availability

Draft Programmatic Environmental Assessment and Finding of No Significant Impact for Implementation of U.S. Army Garrison Adelphi Laboratory Center and Blossom Point Research Facility Integrated Wildland Fire Management Plan Charles, Prince George's and Montgomery Counties, Maryland

The U.S. Army Garrison Adelphi Laboratory Center (ALC) has prepared a draft Programmatic Environmental Assessment (EA) for implementation of an Integrated Wildland Fire Management Plan (IWFMP) at ALC and Blossom Point Research Facility (BPRF). The Proposed Action includes the implementation of the IWFMP by ALC to provide an integrated and comprehensive method to address safe and effective methods and procedures to handle wildfire hazards and manage lands to prevent these hazards. The IWFMP is compliant with all applicable legal requirements. This EA has been prepared to evaluate the Proposed Action and alternatives, including the No Action Alternative. Resources addressed in the EA include, land use, socioeconomics and environmental justice, infrastructure, transportation, geological resources, water resources, biological resources, cultural resources, air quality, noise, hazardous materials and waste management and safety. The results, as found in the EA, show that the Proposed Action would not have a significant impact on the environment.

The draft EA and draft Finding of No Significant Impact (FNSI) are available for review and comment for 30 days from publication of this notice. Copies may be obtained at the Charles County Public Library-La Plate Branch, 2 Garrett Ave, La Plata, Maryland 20646. Comments must be submitted within 30 days of the date of this notice to: Mr. Philip H. Jones, Chief, Public Affairs, Adelphi Laboratory Center, 2800 Powder Mill Road, Adelphi, Maryland 20783.

2740158 IN 10-6-17

interest. (Matter No. 307990-1)

PLEASE CONSULT WWW.ALEXCOOPER.COM FOR STATUS OF UPCOMING SALES

Howard N. Bierman, Carrie M. Ward, et. al., Substitute Trustees

Alex Cooper AUCTIONEERING

TOWSON OFFICE 410-828-4838 WASHINGTON,DC OFFICE 800-272-3145

WWW.ALEXCOOPER.COM

2736948 IN 9-22,9-29,10-6-17

PUBLIC NOTICE

Cellco Partnership and its controlled affiliates doing business as Verizon Wireless is proposing to install a 26-foot light pole with antennas and associated equipment *in the vicinity of 2010 St. Thomas Drive, Waldorf, MD 20602.* Public comments regarding potential effects from this site on historic properties maybe submitted within 30 days from the date of this publication to: Mr. Andrew Fleming at 8610 Washington Boulevard, Suite 217, Jessup, MD 20794, 301.776.0500, or afleming@aec-env.com.

2741726 IN 10-6-17

NOTICE

Notice of Availability

Draft Programmatic Environmental Assessment and Finding of No Significant Impact for Implementation of U.S. Army Garrison Adelphi Laboratory Center and Blossom Point Research Facility Integrated Wildland Fire Management Plan Charles, Prince George's and Montgomery Counties, Maryland

The U.S. Army Garrison Adelphi Laboratory Center (ALC) has prepared a draft Programmatic Environmental Assessment (PEA) for implementation of an Integrated Wildland Fire Management Plan (IWFMP) at ALC and Blossom Point Research Facility (BPRF). The Proposed Action includes the implementation of the IWFMP by ALC to provide an integrated and comprehensive method to address safe and effective methods and procedures to handle wildfire hazards and manage lands to prevent these hazards. The IWFMP is compliant with all applicable legal requirements. This PEA has been prepared to evaluate the Proposed Action and alternatives, including the No Action Alternative. Resources addressed in the PEA include, land use, socioeconomics and environmental justice, infrastructure, geological resources, water resources, biological resources, cultural resources, air quality, noise, hazardous materials and waste management and safety. The results, as found in the PEA, show that the Proposed Action would not have a significant impact on the environment.

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00030758 1t 10/05/17

NOTICE

IN THE CIRCUIT COURT OF MARYLAND FOR MONTGOMERY COUNTY

JORDAN M. SPIVOK and PHILIP J. COLLINS,
Substitute Trustees
Plaintiffs,

v Civil Action No.: 434805-V

JOSEPH J. KRAVITZ, JR. and RENEE S. KRAVITZ
Defendants.

NOTICE

Notice is hereby given this 3RD day of OCTOBER, 2017 by the Circuit Court of Maryland for Montgomery County, that the sale of the property mentioned in these proceedings, and known as:**13400 Query Mill Road, North Potomac, Maryland 20878** reported by Jordan M. Spivok and Philip J. Collins, Substitute Trustees,

WILL BE RATIFIED AND CONFIRMED, unless cause to the contrary thereof be shown on or before the 2ND day of NOVEMBER, 2017, next, provided, a copy of this NOTICE be published at least once a week in each of three (3) successive weeks in some newspaper of general circulation published in said Montgomery County, Maryland before the 2ND day of NOVEMBER, 2017, next.

The report states the amount of sale to be $800,000.00.

BY THE COURT:
Barbara H. Meiklejohn
Clerk of the Circuit Court
Montgomery County, Maryland
00030827 3t 10/19/17

IN THE CIRCUIT COURT FOR MONTGOMERY COUNTY, MARYLAND

Edward S. Cohn
Stephen N. Goldberg
Richard E. Solomon
Richard J. Rogers
Michael McKeefery

IN THE CI
MONTGOMER

ROBERT J. KIM
Plaintiff/Substi

v.

INES CARMEN
Defendant

Notice is he
TEMBER, 201
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described in
known as 898
Maryland 208
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in Montgom
successive w
OCTOBER,
Substitute T
2017 at a pr

00030784

DIS

Thomas
8 Execut
Germa
Plain
vs.

MARYLAND DEPARTMENT OF
PLANNING

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor

Wendi W. Peters, Secretary
Ewing McDowell, Deputy Secretary

August 23, 2017

Ms. Bridget Kelly Butcher
Adelphi Laboratory Center
Department of the Army
2800 Powder Mill Road, IMALPWE
Adelphi, MD 20783

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: MD20170810-0688
Project Description: Programmatic Environmental Assessment (PEA): Integrated Wildland Fire Managerment Plan (IWFMP)
Project Address: Cedar Point Neck
Project Location: County(ies) of Charles
Clearinghouse Contact: Rita Pritchett

Dear Ms. Butcher:

Thank you for submitting your project for intergovernmental review. Participation in the Maryland Intergovernmental Review and Coordination (MIRC) process helps ensure project consistency with plans, programs, and objectives of State agencies and local governments.

Notice of your application is being provided to State and local public officials through the ***Intergovernmental Monitor***, which is a database of projects received by the State Clearinghouse for Intergovernmental Assistance. This information may be viewed at http://planning.maryland.gov/emircpublic/ . The project has been assigned a unique State Application Identifier that should be used on all documents and correspondence.

A "Project Status Form" has been enclosed and should be completed and returned after you receive notice that your project was approved or not approved.

All MIRC requirements have been met in accordance with Code of Maryland Regulations (COMAR 34.02.01.04-.06) and this concludes the review process for the above referenced project. If you need assistance or have questions, contact the State Clearinghouse staff noted above at 410-767-4490 or through e-mail at rita.pritchett@maryland.gov. Thank you for your cooperation with the MIRC process.

Sincerely,

Myra A. Barnes

Myra Barnes, Lead Clearinghouse Coordinator

MB:RP
Enclosure(s)
cc: CHAS
17-0688_NM.NEW.docx

From: TrackingUpdates@fedex.com
Sent: Wednesday, October 04, 2017 10:22 AM
To: Anderson, Mary Ann J CIV USARMY CENAB (US)
Subject: [EXTERNAL] FedEx Shipment 770405451364 Delivered

<Blockedhttp://www.fedex.com/fedextrack/images/notif-images/notif-logo-corp-small04.gif>

Your package has been delivered

Tracking # 770405451364
<Blockedhttps://www.fedex.com/apps/fedextrack/?action=track&tracknumbers=770405451364&clienttype=ivpodalrt>

Ship date:
Tue, 10/3/2017
Mary Ann J. Anderson
USACE - Baltimore
BALTIMORE, MD 21201
US

<Blockedhttp://www.fedex.com/fedextrack/images/notif-images/notif-fedex-progress-bar-details-delivered.png>
Delivered
Delivery date:
Wed, 10/4/2017 10:18 am
Mr. Leopoldo Miranda
U.S. Dept of Interior Fish and Wild
177 Admiral Cochrane Dr Chesapeake Bay Field Office
ANNAPOLIS, MD 21401
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number: 770405451364
<Blockedhttps://www.fedex.com/apps/fedextrack/?action=track&tracknumbers=770405451364&clienttype=ivpodalrt>
Status: Delivered: 10/04/2017 10:18 AM Signed for By: Signature Release on file
Signed for by: Signature Release on file
Delivery location: ANNAPOLIS, MD
Service type: FedEx Priority Overnight
Packaging type: FedEx Envelope
Number of pieces: 1
Weight: 0.50 lb.
Special handling/Services: Deliver Weekday
Standard transit: 10/4/2017 by 10:30 am

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BALTIMORE, MD 21201
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Mr. Luke Marcek
MD DNR Forest Service
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Signed for by: A.ARRANDS
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Delivered to: Receptionist/Front Desk
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Packaging type: FedEx Envelope
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Delivered to: Mailroom
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Packaging type: FedEx Envelope
Number of pieces: 1
Weight: 0.50 lb.
Special handling/Services: Deliver Weekday
Standard transit: 10/4/2017 by 10:30 am

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APPENDIX P:
Habitat Management Plan

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Baltimore District

FINAL

ADAPTIVE HABITAT MANAGEMENT PLAN

U.S. Army Garrison Adelphi Laboratory Center, Montgomery and Prince George's Counties, MD Blossom Point Research Facility, Charles County, MD

2018

Prepared for: **Environmental Division**
U.S. Army Garrison Adelphi Laboratory Center
Adelphi, Maryland 20783

Prepared by: **U.S. Army Corps of Engineers, Baltimore District**
10 South Howard Street
Baltimore, Maryland 21201

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2018

Prepared for: Environmental Division
U.S. Army Garrison Adelphi Laboratory Center
Adelphi, Maryland 20783

Prepared by: U.S. Army Corps of Engineers, Baltimore District
2 Hopkins Plaza
Baltimore, MD 21201

TABLE OF CONTENTS

1.0 INTRODUCTION

U.S. Army Garrison (USAG) Adelphi Laboratory Center (ALC) and Blossom Point Research Facility (BRPF) require management of their habitats for multiple purposes: to meet mission requirements, maintain and enhance wildlife habitat (especially rare, threatened and endangered species habitat), promote healthy ecosystems, and protect water resources (streams and wetlands).

ALC, headquarters of the Army Research Laboratory, is an active military research and development facility, approximately 207 acres in size, located partly in both Prince Georges and Montgomery Counties, Maryland. BPRF, a satellite installation to ALC, is an active military testing range, approximately 1,600 acres in size, located in Charles County, Maryland.

Habitat can be defined as simply "the physical and biological surroundings of an organism" (Bolen and Robinson 1995). It includes all of the natural components of an ecosystem that are essential for survival including food, cover, and water. This adaptive Habitat Management Plan (HMP) is a living document that provides ALC and BPRF a decision-making process; guidance for the management of ALC and BPRF habitats and lands, as well as a long-term vision, and consistency with other management plans for the installations.

The HMP is a component of the ALC Integrated Natural Resources Management Plan (INRMP). The INRMP is the foundation for ecosystem or landscape-level management of all natural resources at ALC and BPRF. The primary goal of the INRMP is to ensure that natural resources are managed in a way that maintains a balance between ecosystem viability and the sustainability of the land for military requirements and operations. This goal can be achieved through the integration of the mission activities and the natural resources management program described in the INRMP. ALC has established ten natural resource management program goals with associated objectives, or prescriptions, which are outlined in Appendix A. One of the main goals of the INRMP is to use adaptive management strategies to protect, conserve and enhance native fauna and flora with an emphasis on priority species and native biodiversity enhancement. A complete list of species observed on ALC and BPRF can be found in Appendix B.

The HMP includes an inventory of habitat resources, an assessment of habitat health, recommendations for maintenance and/or improvement of existing habitats, Geographic Information System (GIS) mapping of habitat types, and a review of pertinent federal/state rules, regulations, and policies regarding habitat management.

The ALC and BPRF HMP discusses the habitat management types found on ALC and BPRF in each of the following areas:

- Vegetation Management
- Forest Management
- Riparian Area Management
- Wetlands and Aquatic Habitat Management
- Wildland Fire Management
- Miscellaneous/Other Management Actions

Each of the areas (except for a few of the miscellaneous/other management actions) includes a general description and discussion followed by specific goals, objectives and management actions. Management actions are further divided into conservation measures and conservation projects. Conservation measures are a broad category of policies, procedures, and actions necessary to address a conservation requirement for a given species or program.

Conservation projects are actions that the ALC Environmental Division currently implements or plans to implement that will ultimately result in an overall benefit to natural resources at ALC and BPRF. In many cases, conservation projects are funding-dependent and will only be implemented if funding is available. New conservation projects are annotated with the word "NEW" in parentheses after its description; projects that are carried over from the 2017 INRMP are not annotated. Monitoring is an important aspect of habitat management at ALC and BPRF and Adaptive management based on monitoring, is adopted as necessary. Below is a schedule of recommended monitoring (Table 1).

Table 1 – Monitoring Schedule

Activity	Recurrence	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Invasive species monitoring	O											
Pest species monitoring	O											
Erosion monitoring on streambanks, shorelines and	O											
Remove Stilt Grass from Powder Mill Bog	O											
Stream Bank Erosion Survey	1											
Shoreline Erosion Survey	1											
Roadside Erosion Survey	1											
FLIR Survey	1											
Monitor Powder Mill Bog	1											
Deer Survey	1											
Rare, Threatened, and Endangered Species Survey	3											
Bat Survey	3											
Deer Browse	5											
Non-Game Species monitoring	5											
Bird Survey	5											
Steam Assessment	3											
Herpetofauna Survey	5											
Wetland Delineation	5											
Forest Stand mapping and population survey	5											

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Conduct annualy

2.0 VEGETATION MANAGEMENT

Vegetation management is a vital element of natural resources management at ALC and BPRF. Vegetation is managed to retain ecosystem function and plant and animal biodiversity, to protect sensitive plant and animal species, and to preserve and enhance habitats vital to the conservation of sensitive species. Providing for the sustainability of installation lands and long-term health and safety, supporting the military mission, and cooperating with neighboring property owners, are important considerations in vegetative management.

This chapter discusses vegetation management as it relates to invasive plant species, revegetation, and tree management at ALC and BPRF. Specific as well as holistic management activities pertaining to forest habitat management are addressed in Section 3.0.

2.1 Invasive Plant Control

Invasive terrestrial and aquatic plant species targeted were identified using the Maryland Invasive Species Council (MISC) list for the state of Maryland. Invasive species means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Alien species means with respect to a particular ecosystem, any species, including its seeds, eggs, spores or other biological material capable of propagating that species that is not native to that ecosystem.

All of ALC and BPRF are under a U.S. Department of Agriculture (USDA) quarantine to prevent the spread of the Emerald Ash Borer (EAB), a beetle destructive to ash trees. The quarantine prohibits anyone from removing ash trees or any hardwood firewood out of quarantined counties. To mitigate potential spread of the EAB, removal of firewood from ALC and BPRF to a non-quarantine county on the Eastern Shore of the Chesapeake Bay is prohibited. Firewood can be moved to a quarantined county, but only during the winter months.

ALC Environmental Division manages invasive species through the Invasive Species Management Plan (ISMP) for BPRF (USACE, 2012) and the ISMP for ALC (USACE, 2016) in accordance with Army Regulation (AR) 200-1 and Department of Defense (DoD) Instruction 4150.7.

ALC

The ALC ISMP identifies prevention as the first line of defense against the spread of invasive species to prevent them from colonizing on the facility. A current list of invasive species found at ALC can be found in Table 2. Methods of control or eradication for invasive species found on the facility vary from species to species. Generally, however, there are four methods of management: biological, chemical, manual and mechanical. Each management technique can be initiated as a standalone treatment. In most instances they can be used in conjunction with other management

techniques for greater success. The appropriate treatment may vary on a case by case basis. For example, hand pulling Japanese honeysuckle (Lonicera japonica) may be practical for a small area, but impractical for a larger area.

Table 2 Invasive Species Identified on ALC

Scientific Name	Common Name	MISC Ranking*	Overall Density on ALC
Alliaria officinalis	Garlic mustard	2	Low
Ampelopsis brevipedunculata	Porcelain berry	2, 3	Low
Berberis thunbergii	Japanese barberry	2	High
Cirsium arvense	Canada thistle	1, 2, 3	Low
Cirsium vulgare	Bull thistle	1, 2, 3	Low
Euonymus atropurpureus	Burning bush	N/A	Low
Euonymus fortunei	Winter creeper	2	Low
Glechoma hederacea	Ground ivy	N/A	Moderate
Lespedeza cuneata	Chinese bushclover	N/A	High
Ligustrum sinense	Chinese privet	N/A	Low
Lonicera japonica	Japanese honeysuckle	2	Low
Lonicera tatarica	Bush honeysuckle	2	Low
Microstegium vimineum	Japanese stiltgrass	2	High
Miscanthus sinensis	Chinese silvergrass	2	Low
Persicaria perfoliata	Mile-a-minute	2	Moderate
Phragmites australis	Common reed	1, 2, 3	Moderate
Phyllostachys aurea	Golden bamboo	2	Low
Pyrus calleryana	Bradford pear	2, 3	Low
Rosa multiflora	Multiflora rose	2, 3	Low
Rubus phoenicolasius	Wineberry	N/A	Low
Securigera varia	Crownvetch	N/A	Low
Vinca minor	Periwinkle	N/A	Low
Wisteria sinensis	Chi	2	Low

* MISC Ranking –

1= Currently regulated by state and/or federal law

2= Widely recognized by biologists and natural resource and/or negatively impact native species

3 = Known to have a negative economic impact on natural agricultural or resources.

4 = Known or potential negative impacts on human (or animal) health.

** Listed as an invasive species by MISC; however, not currently given a key code

BPRF

The ALC Environmental Division has implemented an ISMP at BPRF as a framework for invasive plant control in accordance with AR 200-1 and DoD Instruction 4150.7. A current list of invasive species found at ALC can be found in Table 3. The ISMP utilizes both nonchemical and chemical control to suppress or prevent pests from exceeding an acceptable population or damage threshold. Emphasis is placed on minimizing environmental disruption. Integrated Pest Management (IPM) strategies depend on surveillance to establish the need for control and to monitor the effectiveness of management efforts (ISMP 2013). Mechanical, manual, biological, and chemical components of the ISMP are used or may be used to manage invasive plant species on BPRF.

Table 3 Invasive Species Identified on BPRF

Scientific Name	Common Name	MISC Ranking*	Overall Density on BPRF
Ailanthus altissima	Tree of heaven	2, 3	Low
Alliaria officinalis	Garlic mustard	2	Low
Allium vineale	Wild garlic	1, 3	Low
Berberis thunbergii	Japanese barberry	2	Low
Cirsium vulgare	Bull thistle	1, 2, 3	Low
Elaeagnus umbellata	Autumn olive	2	Low
Hedera helix	English ivy	2	Low
Lonicera japonica	Japanese honeysuckle	2	High
Microstegium vimineum	Nepalese browntop	2	High
Paulownia tomentosa	Princess tree	**	Low
Phragmites australis	Common reed	1, 2, 3	Moderate
Rosa multiflora	Multiflora rose	2 ,3	Low
Rubus phoenicolasius	Wineberry	**	High
Sorghum halepense	Johnson grass	1, 2, 3	Low

* MISC Ranking –

1= Currently regulated by state and/or federal law

2= Widely recognized by biologists and natural resource and/or negatively impact native species

3 = Known to have a negative economic impact on natural agricultural or resources.

4 = Known or potential negative impacts on human (or animal) health.

** Listed as an invasive species by MISC; however, not currently given a key code

2.1.1 Goals, Objectives and Actions for Invasive Plant Control

The goal of invasive plant control at ALC and BPRF is to protect natural resources, improve habitat, sustain land available for military training, and provide for health and safety. The invasive species control policy at ALC and BPRF is guided by the IPMP, which ensures that the most effective, environmentally sound, and least hazardous combination of methods is used to control

each invasive plant species and that all applicable laws and regulations are followed. Continued prioritization and mapping of invasive species, careful diligence during invasive plant control events, and monitoring control efforts will provide for natural resources protection and improved habitat while sustaining installation lands. Use of Best Management Practices (BMPs) during testing and project activities will prevent the spread and establishment of invasive species into currently weed-free areas.

Goals

- Use ISMP practices safely to control invasive plants to protect natural resources, improve habitat, and sustain land available for military uses.

Objectives

- Consider mechanical, manual and biological controls before, or in combination with, the use of chemical methods to maximize safety and minimize pesticide use and potential hazards to humans, native plants, and animals, and their habitats.
- Control or eradicate existing invasive populations to prevent the spread and further introduction of invasive plant species throughout the installation.
- Utilize all available resources to ensure up-to-date, effective, and efficient management strategies in the control and spread of invasive plant species.

Management Actions

Conservation Measures

- Pesticide application will follow all requirements outlined in the statewide Integrated Pest Management Plan (IPMP).
- Pest management activities involving the use of chemicals, as well as non-chemical ground disturbing activities, are reviewed for environmental impact pursuant to the National Environmental Policy Act (NEPA) prior to implementation.
- Invasive plant control measures will be evaluated on their potential to impact sensitive species and their habitats. Every effort will be made to ensure that control measures will be conducted in a manner which avoids negative impacts.
- All invasive species management techniques will follow Army Policy Guidance for Management and Control of Invasive Species, June 2001.
- All persons using pesticides at ALC and BPRF will provide information required for pest management record keeping to designated ALC Environmental Division personnel for use in reporting pesticide usage on Pest Management Maintenance Records (DD Form 1532-1).

- BMPs for invasive plant management will be incorporated into project plans and specifications to prevent invasive seeds or other plant parts from establishing new or larger populations.

Conservation Projects

- Conduct a comprehensive invasive plant inventory every 5 years and document occurrences and locations needing invasive plant control.
- Monitor for new populations of invasive plant species, including new seedlings at old control sites and newly disturbed sites.
- Work in conjunction with other Federal, state, local agencies and groups to ensure a multiple organization, integrated approach to control and eradication of invasive plants at ALC and BPRF. (NEW)

Mechanical, cultural, biological, and chemical components of ISMP are used or may be used to manage invasive plant species on ALC and BPRF. Control of a particular species (found at either ALC or BPRF) is achieved using the best possible method or combination of methods available as shown in Table 4.

Table 4 Species Specific Management Prescriptions

Scientific Name	Common	Biological	Chemical	Manual	Mechanical
Ailanthus altissima	Tree of heaven		Apply Glyphosate Impazapic Triclopyr to the stump		Cut tree at ground level and apply herbicide (Glyphosate or Triclopyr) to the stump or use a stump grinder to prevent regrowth Weed wrench for smaller specimens
Alliaria officinalis	Garlic mustard		Glyphosate	Hand pulling (seedbank can last up to five years so it is important to revisit the site multiple times per year over several years)	
Allium vineale	Wild garlic		2,4-dichlorophenoxy Dicamba		

Scientific Name	Common	Biological	Chemical	Manual	Mechanical
Ampelopsis brevipedunculata	Porcelain berry		Glyphosate Triclopyr	Hand pull vines in fall or spring	Repeat cutting of large vines near ground and apply herbicide (Glyphosate or Tricolpyr) to stems
Berberis thunbergii	Japanese barberry		Glyphosate Triclopyr		Weed wrench
Cirsium arvense	Canada thistle	Specific rust fungus (presently being tested at Fort Detrick)	2,4-dichlorophenoxy Clopyralid Imazapyr	Application of several feet of hay mulch over plants	Prescribed burn, where feasible
Cirsium vulgare	Bull thistle		2,4-dichlorophenoxy Clopyralid Dicamba + Glyphosate		Use a shovel to remove the top couple inches of the root, this will kill the plant. Weed eat consistently throughout the growing season to exhaust starches in root system
Elaeagnus umbellata	Autumn olive		Glyphosate Triclopyr	Hand pull	Weed wrench or chainsaw
Euonymus atropurpureus	Burning bush		Apply Glyphosate or Triclopyr to the stump	Hand pull entire plant is effective if small in stature	Cut shrub at ground level and apply herbicide (Glyphosate or Triclopyr) to the stump or use a stump grinder to prevent regrowth
Euonymus fortunei	Winter creeper		2,4-dichlorophenoxy Clopyralid Dicamba Imazapic Imazapyr Metsulfuron- methyl Picloram Triclopyr	Hand pull small infestations	Cut stems and apply herbicide
Glechoma hederacea	Ground ivy		2,4-dichlorophenoxy Dicamba Triclopyr		
Hedera helix	English ivy		Clopyralid Glyphosate Triclopyr Triclopyr ester	Hand pull in conjunction with mechanical treatment	Cut as low to the ground as possible, revisit and retreat remaining roots Vines in trees can be killed by severing the vine from the ground
Lespedeza cuneata	Chinese bushclover		Clopyralid Glyphosate Triclopyr		Mowing Prescribed burn

Scientific Name	Common	Biological	Chemical	Manual	Mechanical
Ligustrum sinense	Chinese privet		Glyphosate		Cut stump and apply herbicide
Lonicera japonica	Japanese honeysuckle		Glyphosate Triclopyr	Hand pull	Prescribed burning in the wintertime, where feasible
Lonicera tatarica	Bush honeysuckle		Glyphosate		Cut and apply pesticide to stumps in order to kill roots or use a stump grinder to prevent regrowth. Weed wrench or chainsaw
Microstegium vimineum	Japanese stiltgrass		Glyphosate Imazapic	Hand pull	"Scalping" with a weed eater in late summer (August) prior to reseeding and repeat as necessary
Miscanthus sinensis	Chinese silvergrass		Glyphosate Imazapyr	Hand pull entire plant is effective if small in stature	
Paulownia tomentosa	Princess tree		Apply Glyphosate Triclopyr to stump		Cut tree at ground level and apply herbicide (Glyphosate or Triclopyr) to the stump or use a stump grinder to prevent regrowth Weed wrench for smaller specimens Weed wrench for smaller specimens
Persicaria perfoliata	Mile-a-minute	Rhinonco mimus latipes (weevil)	Glyphosate Triclopyr	Hand pull (protective gloves, long sleeve shirts and pants are required due to barbs on stem of vine)	
Phragmites australis	Common reed		Glyphosate (Rodeo® is preferable for use in wetlands)		Prescribed burn, where feasible
Phyllostachys aurea	Golden bamboo		Glyphosate		Repeated cutting/mowing Apply herbicide to
Rosa multiflora	Multiflora rose		Dicamba Glyphosate Triclopyr		Weed wrench Repeated cutting over several seasons

Scientific Name	Common	Biological	Chemical	Manual	Mechanical
Rubus phoenicolasius	Wineberry		Glyphosate Metsulfuron-methyl Triclopyr	Hand pull (protective gloves are required)	Pitch fork or spade can be used to remove entire plant
Sorghum halepense	Johnson grass		Fluazifop-p-butyl (repeat application) Glyphosate (repeat application)	Hand pull in conjunction with mechanical treat-ment	Hand pulling and remove any remaining roots with a shovel or pitchfork

2.1.1 Mechanical Control

This type of control removes or excludes the invasive plant or alters the environment in which the plant lives. Examples of this type of control include weeding either by hand pulling or with the use of hand tools; repeat cutting, mowing; or use of prescribed burning. Mechanical and physical controls are the preferred means for pest control whenever possible.

2.1.2 Manual Control

This method involves manipulating environmental conditions to suppress or eliminate invasive plants and to prevent their spread into weed-free areas. Examples of manual control methods include the use of good sanitary practices, utilizing certified weed-free erosion control materials, and not moving soil contaminated with noxious weed seed. These and other methods prevent the introduction of invasive species into weed free areas. Performing activities within the biological parameters of invasive plants is another form of manual control. An example of this would be avoiding road and firebreak grading during invasive plant reproductive periods.

2.1.3 Biological Control

In this control strategy, predators, parasites, or disease organisms are used to control pest populations. Biological control may be effective by itself, but it is often used in conjunction with other types of control. It is vital that the organisms used in biological control efforts are host-specific to ensure that non-target species are not affected. Weevils (*Rhinonco mimus latipes*), for example, have been used on other military installations to control mile-a-minute (*Persicaria perfoliata*).

2.1.4 Chemical Control

Chemical control is utilized to kill or prevent the growth of invasive plant species. Examples of chemical control include spraying herbicide directly on the plant to kill it or applying soil sterilizing, pre-emergent herbicides that prevent plant growth in the application zone for several years. Chemical controls are often not specific to the target species and care must be used to avoid impacts on non-target organisms. Chemical control at ALC and BPRF is used in conjunction with other control methods and is minimized as much as possible when performing control operations.

All chemical use must follow labeled directions and be administered by a certified applicator. Monitoring is used in concert with all invasive control methods. Periodic invasive pant surveys will be conducted throughout the installation. Infestations and pioneer populations of invasive species are mapped, and monitoring is used to follow-up after a particular control method has been executed. Further control methods are adopted depending on the results observed through monitoring. ALC and BPRF have prioritized the control of specific invasive plants based on their invasiveness, ability to disrupt habitat, and the impacts on sensitive species and mission needs.

2.2 Revegetation

Establishing native vegetation is a great method for limiting the spread of invasive species. Areas that have been denuded are at the greatest risk of an invasive growth. Using revegetation with native species can both limit this spread and provide important habitat to many species. This important management tool will also assist with stormwater management, erosion control, and sediment runoff.

2.1.3 Goals, Objectives and Actions for Revegetation

The goal of revegetation is to protect and enhance ecosystem integrity, protect and improve sensitive species habitats, and provide sustainable lands. By incorporating revegetation into rehabilitation of previously disturbed land as well as into future ground disturbing activities, potential erosion issues and invasive species establishment can be avoided.

Goal

- Protect and enhance ecosystem integrity, improve the quality of maintained and forest habitats, and provide sustainable areas at ALC and BPRF.

Objective

- Establish riparian vegetation using native species at ALC and BPRF.
- Plant native grasses and wildflowers in areas with bare soil (see Appendix C for United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS)-Maryland Planting List).
- Control invasive species and encouragement of native species growth.

Management Actions

Conservation Measures

- Incorporate revegetation as a rehabilitation measure following ground disturbing activities and to restore previously disturbed areas.

- Use native plant stock and certified weed-free native seed, collected locally whenever possible for revegetation projects and obtain soil components and mulches from weed-free sources.
- Ensure habitat restoration projects use pollinator friendly mixes where feasible.
- Reestablish vegetation on all bare ground (including areas denuded by fire) as soon as possible to minimize spread of invasive plants.
- Monitor all seeded sites for invasive infestation. Control all invasive plants adjacent to newly seeded areas prior to planting and treat planted areas for invasive species.
- Mulch to minimize the amount of invasive seed that will reach the soil surface and subsequently germinate.
- Continue to allow some grassy areas to remain un-mowed at ALC.

Conservation Projects

- Revegetate areas of historic, current, and future ground disturbance including but not limited to landslides, burn areas, abandoned roads and trails, and locations where mission related activities (ranges) or maintenance and construction projects cause ground disturbance. Current range management practices allow ranges to revert to grassy vegetation. Appropriate areas are maintained and cleared as firebreaks. Firebreaks, at least 50-feet wide, are required around each aboveground magazine at BPRF.
- Enhance riparian and wetland habitats by revegetating with locally collected native plant stock.
- Educate installation personnel on the environment and the importance of pollinators during National Pollinator Week and Earth Day events.
- Utilize NRCS approved native seed mixes to establish pollinator patches and native grass meadows (USDA NRCS, 2016). This can include replacement of current mowed grass areas with warm season grass or pollinator seed mixes.
- Remove nonnative and invasive plant species on ALC and BPRF as funding is available. For example, revegetate Powder Mill Bog areas after invasive stilt grass is removed.

2.3 Tree Management

Trees are an essential element of the ecosystem at ALC and BPRF. Trees provide many important ecosystem services, including wildlife habitat, erosion control, carbon storage, aesthetic appeal, lumber, and soil nutrient regeneration.

In accordance with current laws, Army regulations and guidance, and local ordinances, this section addresses the preservation, protection, pruning, removal, and mitigation for the loss of both native and non-native trees (including dead and dying trees) at ALC and BPRF. Non-native trees are also addressed because these trees, like native trees, provide habitat, shade, and aesthetic value. The majority of non-native trees are located in the cantonment areas of ALC and BPRF.

Tree management applies to all activities at ALC and BPRF, including, but not limited to: construction and maintenance activities, tenant activities, and recreational activities (e.g. hunting). Project proponents must contact the ALC Environmental Division prior to conducting any non-emergency activities that will result in tree disturbance or removal. Emergency activities that result in adverse effects to trees will be reported to the ALC Environmental Division.

2.3.1 Goals, Objectives and Actions for Tree Management

Goals

- Protect native trees to preserve ecological and mission-oriented benefits they provide to ALC and BPRF.
- Prevent impacts to special status species including those covered under the Migratory Bird Treaty Act (MBTA) that may nest in or use non-native trees.

Objectives

- Plant or replant only trees that are native following construction or deforestation activities.
- Assess tree stands on both ALC and BPRF for any possible threatened or endangered species.
- Limit unnecessary disturbance to tree stands.

Management Actions

Conservation Measures

- Promote regeneration of native tree stands.

- All tree disturbance, trimming, or removal activities will be reviewed for environmental impact pursuant to NEPA prior to implementation. Tree removal
- will occur outside of bird and bat nesting season.
- Leave snags and dead and downed wood undisturbed when they are not safety hazards.
- Monitor and manage invasive species.

Conservation Projects

- Locate and remove invasive trees and replace with native trees.
- Protect tree resources from unacceptable losses to damage agents and degradation resulting from insects and disease, invasive species, and wildfire.

2.3.2 Pruning

It is important that tree pruning be minimized and only conducted when necessary. Improper pruning can jeopardize the health and long-term survivability of trees and create hazards to property and personnel. All pruning of native trees requires environmental review by the ALC Environmental Division. Pruning cuts shall be made at the proper locations on the tree at the proper time of year for the species of tree being pruned. Deciduous native trees should be pruned in the winter months after leaf senescence. Evergreen native trees should be pruned during the later summer months when they are most dormant. All pruning should be conducted during the dormant season for that specific species, unless otherwise recommended by a tree professional. This section addresses three pruning scenarios: minor, major and emergency/time critical. Regardless of the pruning scenario, no more than 5% of any individual native tree shall be pruned in a given year unless recommended by a tree professional to conserve a tree's health.

Minor pruning involves the removal of limbs no greater than two inches in diameter using non-powered hand tools only. Pruning of this type may include trimming around buildings or utilities, or in other areas deemed necessary. Minor pruning may be conducted by the ALC Directorate of Public Works or by contracted individuals at ALC or BPRF.

Major pruning involves removal of limbs greater than two inches in diameter using non-powered or powered tools. All such pruning shall be conducted according to current standards adopted by the International Society of Arboriculture. This can be accomplished through use of the ALC Environmental Division staff trained to these standards, or by hiring a certified arborist or other qualified tree professional to supervise or conduct the pruning.

Portions of trees that block roads or trails, interfere with vehicle movements, or pose an immediate threat to health and safety may be removed immediately without environmental review with approval by the ALC and BPRF Site Manager or their designate.

2.3.3 Removal/Significant Damage to Native Trees

If native trees must be removed or significantly damaged to accommodate construction or maintenance activities (including prescribed burns), their loss shall be mitigated through replacement planting. Significant damage is defined as severe root zone, trunk or canopy damage that could be expected to result in substantial decline, or premature death of the tree. Any activity that would remove or significantly damage native trees requires environmental review by the ALC Environmental Division.

2.3.4 Mitigation for Native Tree Removal/Significant Damage

The loss of trees removed or significantly damaged as a result of construction or maintenance activities (including prescribed burns) shall be mitigated by planting native trees of the same species at a ratio of three new trees for every one tree removed. The location(s) where mitigation trees will be planted shall be provided to ALC Environmental Division and must undergo environmental review.

Replacement trees shall be one to five gallon (or equivalent) container stock and planted in an area not subject to future activities that would damage or remove them. Replacement plantings shall be monitored for survival for a period of three years. Any trees that die or significantly die during this time shall be replaced in-kind and monitored for three additional years. Supplemental watering is suggested to hasten survival, but not mandatory. Trees planted as mitigation in advance of projects or testing activities may be used as replacement trees after they have survived for a period of five years.

2.3.5 Removal of dead or dying trees (snags) and downed wood

Dead or dying trees (snags) and downed wood provide invaluable wildlife habitat, nutrient recycling and other important ecological functions. Removal of snags and downed wood shall not be conducted without consulting the ALC Environmental Division first. Downed wood from native trees shall not be collected for firewood or otherwise removed or burned.

2.3.6 Exception

Downed trees or portions of trees that block roads or trails, or pose an immediate threat to health and safety may be removed without review. All other potential exceptions to this policy are subject to prior review by the ALC Environmental Division.

2.3.7 Removal/Pruning of Non-Native Trees

Removal or pruning of non-native trees from the cantonment of ALC or BPRF is the responsibility of the Directorate of Public Works at ALC as well as the Site Manager at BPRF. To avoid potential impacts to nesting birds protected under the MBTA and other applicable laws, pruning or removal of non-native trees is subject to environmental review.

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3.0 FOREST HABITAT MANAGEMENT

Forests are an essential element of the ecosystem at ALC and BPRF. Forests offer important habitat for wildlife, provide an essential food source (i.e., nuts or berries) for wildlife, reduce erosion, and aid in soil nutrient regeneration.

ALC

The ALC installation covers approximately 345 acres and roughly 232 of those acres are forested (Figure 1). The forested acres are managed in accordance with the ALC INRMP; ALC does not contain enough forested land to require a specific Forest Management Plan. ALC contains a primarily mature oak dominate forest with an understory of American holly (*Ilex opaca*), American beech (*Fagus grandifolia*), and Sassafras (*Sassafras albidnum*). Red maple (*Acer rubrum*), tulip polar (*Liriodendron tulipifera*), and green ash (*Fraxinus pensylvanic*) are dominant in the forested stream valleys.

BPRF

BPRF covers approximately 1,600 acres of which roughly 1,000 acres are forested. Approximately 808 of the 1,000 forested acres of BPRF are divided into seven forest management compartments. These compartments are further divided into forest stands (Figure 2). Generally, the most common forest cover type at BPRF is oak dominated with some smaller stands of Virginia pine (*Pinus virginiana*) and loblolly pine (*Pinus taeda*). American Holly (*Ilex opaca*) is common in the understory, and dense in many areas. Other understory species include black gum (*Nyssa sylvatica*), sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*) and tulip poplar (*Liriodendron tulipifera*).

The opportunities within all compartments for wildlife management are high. The white-tailed deer (*Odocoileus virginianus*) population remains above optimum carrying capacity for the site based on a lack of observed climax tree species regeneration. Increased white-tailed deer harvest/culling should be implemented in order to insure the regeneration of the oak dominant forest. Currently, little to no regeneration of oaks is evident in all the compartments due to excessive white-tailed deer browse and the dense understory of American holly. Birds are the principal consumers of American holly fruit, although deer, squirrels, and other small animals eat them. At least 18 species birds, including songbirds, mourning doves, wild turkeys, and northern bobwhite, are known to eat the fruit. Deer generally consume American holly only when more preferred browse is unavailable. The dense understory of American holly at BPRF is partially a result of it being undesirable to the deer.

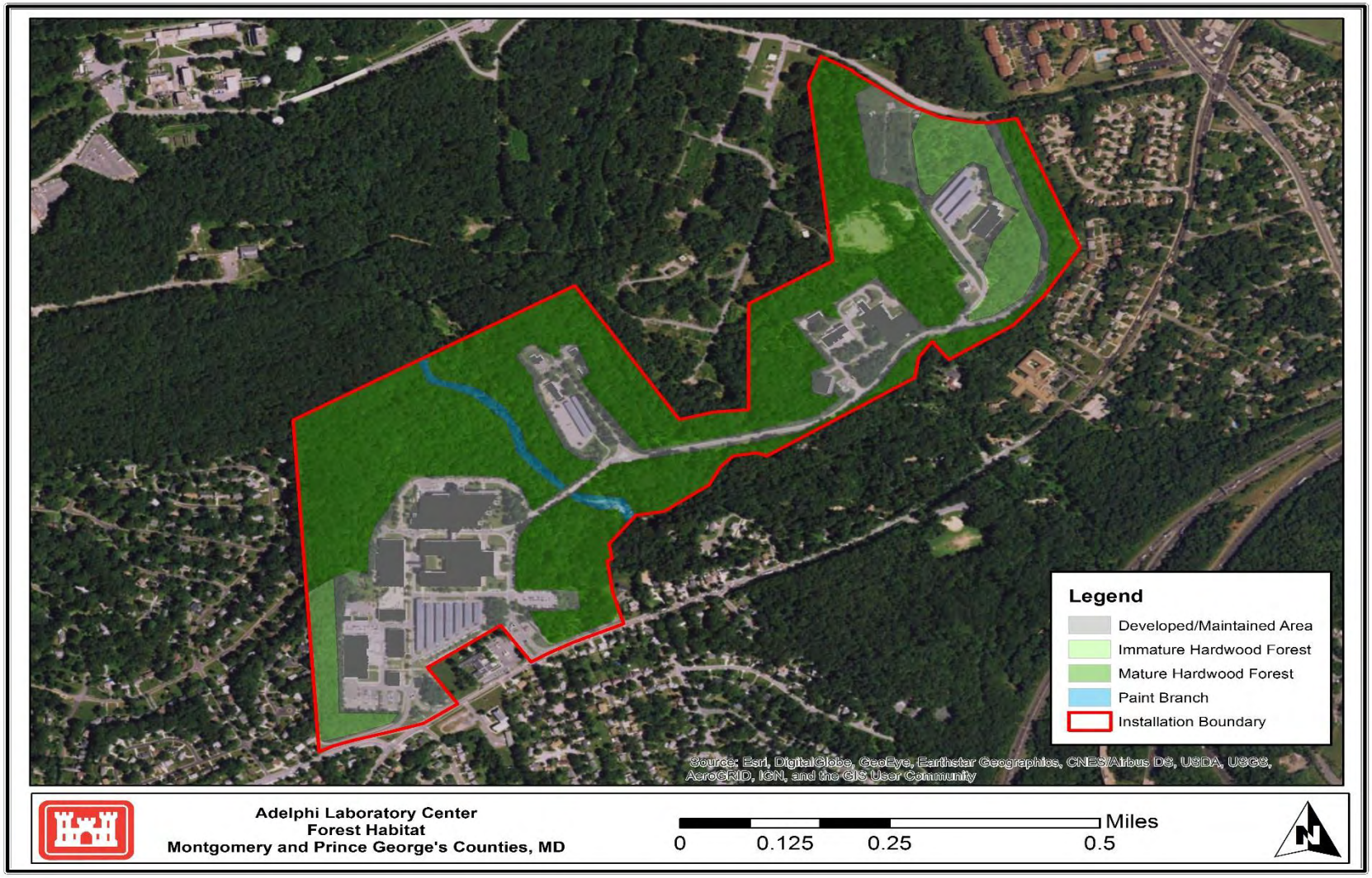

Figure 1 – ALC Forested Habitat

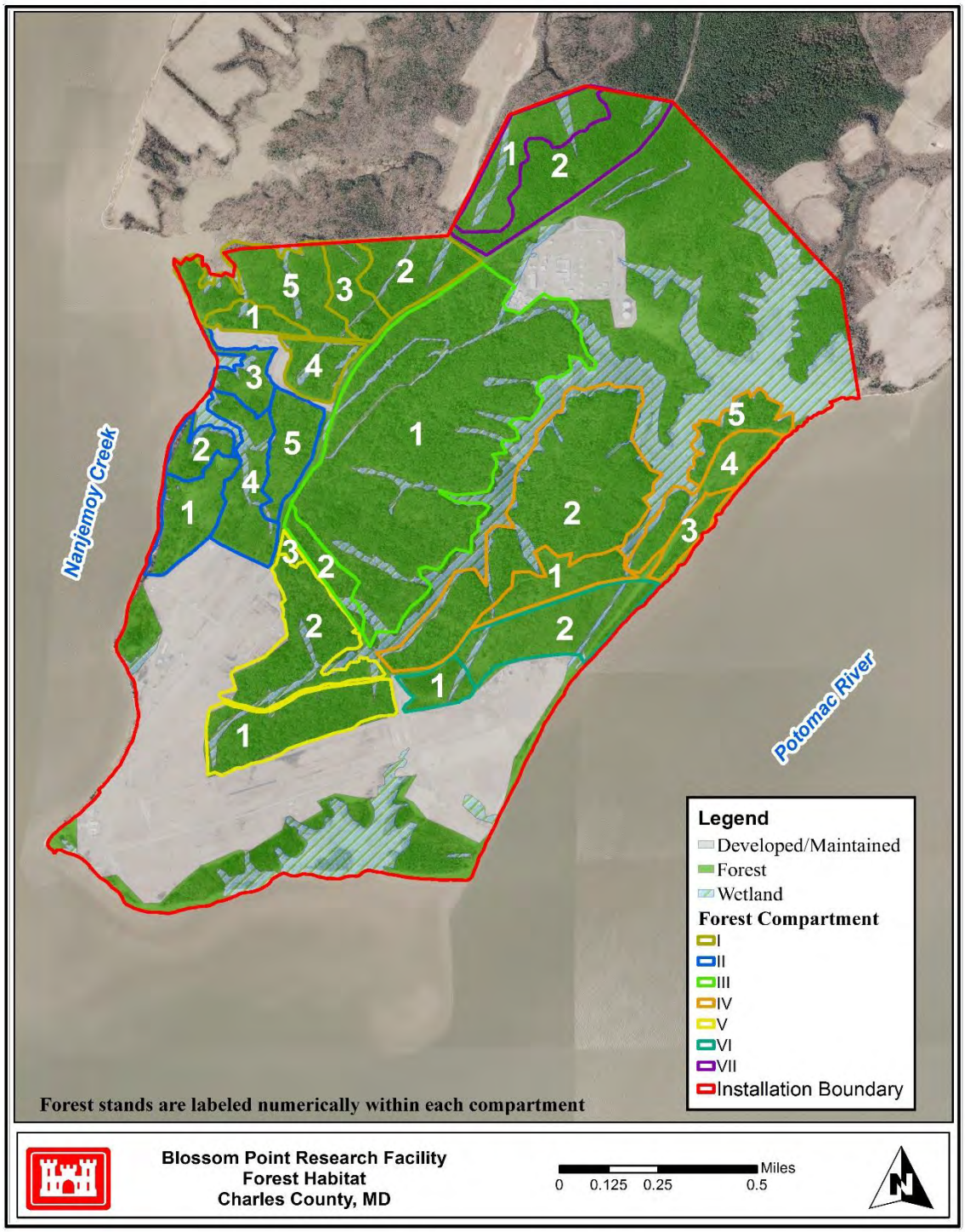

Figure 2 – BPRF Forested Habitat

3.1 Goals, Objectives and Actions for Forest Management

The BPRF Forest Management Plan provides comprehensive information on management strategies and goals for the forest resources. While the primary goal of this plan was to preserve the diversity of forested habitats at BPRF, it is recognized that some areas could benefit from the institution of a timber management program. On these selected sites, even-aged management was recommended for pine forest types and for conversion of hardwood/pine type into loblolly pine production. The forested habitat at ALC will be managed in accordance with the INRMP. Although the forests are managed through different plans, many of the same goals, objectives, and management actions still apply.

Goals

- Conserve and manage forest resources in a sustainable fashion that maintains biodiversity, ecological functions and values, as well as the military mission.

Objectives

- Protect forest resources from unacceptable losses to damage agents and degradation resulting from insects and disease, invasive species, and wildfire.
- The objective of forest resources management for BPRF is for an optimum combination of uses (multiple-use management) including:
- Wildlife habitat preservation and enhancement
- Wetland, watershed, and groundwater protection
- Timber production
- Protection of the shoreline and natural resources in support of the Chesapeake Bay Action Plan
- Preservation of existing historical and cultural resources.

Management Actions

Conservation Measures

- BPRF contains sensitive habitat to include wetlands, streams, shorelines, forested areas and is entirely within the Federal Coastal Zone Management Act (CZMA) area of influence and consists of Maryland Chesapeake Bay Critical Area as outlined in the Chesapeake and Atlantic Coastal Bays Critical Area Act. Compliance with these two acts will be necessary when planning forest management activities.
- Continue to comply with the Maryland Forest Conservation Act (FCA) regulations for any construction or disturbances to forest resources. For land-disturbing activities of 40,000

square feet or greater (~.91 acres), USAG ALC will submit to Maryland either a negative determination with a finding of no effect to coastal uses or resources, or a consistency determination. If USAG ALC proposes an action that will have reasonably foreseeable effects on uses or resources of Maryland's Coastal Zone, then USAG ALC must be consistent to the maximum extent practicable with the substantive provisions of the Forest Conservation Act related to the reasonably foreseeable effects.

- The Chesapeake Bay Critical Area is defined as "all land within 1,000 feet of the mean high water line of tidal waters, or the landward edge of tidal wetlands and all waters of and lands under the Chesapeake Bay and Atlantic Coastal Bays and tributaries." Additionally, there is a 100 foot buffer, within the 1000 foot Critical Area, which is a minimum width of 100 feet and is the area immediately adjacent to these waters and wetlands. Forest management practices within the 100 foot buffer will require approval in the form of a Buffer Management Plan submitted to the Maryland Critical Area Commission. Further, timber harvests conducted in Critical Areas classified as Resource Conservation Areas (RCA) must be done pursuant to a Timber Harvest Plan approved by the Maryland Department of Natural Resources (MDNR).
- Implement provisions of the Endangered Species Management Plan (ESMP) for the bald eagle when undertaking forest management activities. Forest management will be done in a manner consistent with minimizing impacts to bald eagles.
- Monitor forest resources for signs of disease, insect outbreaks, excessive damage from wildlife browsing, and wildfire fuel loads.
- Maintain and enhance wildlife habitat by retaining snags, den trees, and coarse woody debris within forest stands consistent with other natural resources objectives and the military mission.
- Prevent the occurrences of wildfires at ALC by educating personnel on fire prevention techniques, reducing unnaturally high fuel loads, and restricting the types of activities that can be undertaken based on the level of fire danger in an area.
- Facilitate rapid suppression of wildfires by maintaining existing firebreaks and responding rapidly to contain the spread of wildfires when they do occur, thereby preventing further losses to natural resources and other Army property.
- Evaluate the feasibility of implementing a prescribed burn forest management program at BPRF. If found feasible, prepare a prescribed burn plan and obtain any necessary approvals or permits. Include the prescribed burn plan in the Wildland Fore Management Plan.

Conservation Projects

- Implement the Forest Management Plan as needed, to include the timber harvest and stand improvement to manage for a diversity of species and uneven-aged management.

- Coordinate with the U.S. Fish and Wildlife Service, Chesapeake Bay Field Office to conduct maternity tree surveys for the Northern Long Eared Bat (*Myotis septentrionalis*). Maternity tree surveys for northern long-eared bats is accomplished through the use of telemetry. The initial step includes acoustic surveys to determine where bats are on the landscape. Mist nets are then deployed in the proper landscape setting, based on finding from acoustic survey, in order to capture a bat so that it can be fitted with a transmitter. By tracking the bat with the transmitter, the roost can be located. After location of the roost, additional bats can be captured and fitted with transmitters to locate other potential roost/maternity sites. (NEW)
- Coordinate with local youth groups (4H, Boy Scouts, Girl Scouts, etc.) to construct bat boxes. Plans for these can be found on the Maryland DNR Bat Boxes website. All bat houses should be mounted at least 12 feet above ground, and 15 to 20 feet is better. Generally, bat houses should be mounted on buildings or poles. Bat boxes can be pre-mounted on poles for ease of installation. (NEW)
- Employ the ALC BPRF Area Development Plan (ADP) required Plant Palette for all planting and restoration projects at ALC and BPRF. (NEW)
- Manage spread of American holly within forest stands. American holly is considered an undesirable shrub that competes with pines and desirable hardwoods for light, moisture, and nutrients. However, American holly is useful for rehabilitating areas that have been damaged by salt spray. It is more resistant to damage from salt spray than any associated woody species in the region. Management methods may be include controlled burns, mechanical removal, or herbicide treatments. Streamline basal application of the herbicide Garlon 4 has shown to be an effective means of controlling American holly.

4.0 RIPARIAN HABITAT MANAGEMENT

Riparian buffers provide important wildlife habitat corridors, reduce the amount of silt entering streams from surface runoff, prevent soil losses from erosion, reduce flood water velocities, and provide natural beauty for users of the installation.

4.1 Goals, Objectives and Actions for Riparian Management

ALC and BPRF's primary goal of riparian management is to maintain existing riparian functions and restore or expand others, where appropriate. The land management practices carried out at ALC and BPRF will endeavor to maintain the natural patterns and dynamics of the riparian communities that in turn will reduce long-term degradation of its riparian resources.

Goals, objectives, and management actions that maintain and protect existing riparian functions are listed below.

Goals

- Protect, restore, and expand existing riparian areas to enhance wildlife habitat while allowing sustainment of the installation's missions.
- Protect and maintain viable populations of sensitive species dependent on riparian zones.
- Protect and maintain riparian communities for migration corridors, thermal cover, water, and nesting and feeding opportunities for wildlife.
- Maintain watershed functional integrity through appropriate riparian corridor management, impervious surface management and fire management.
- Prevent the spread and introduction of invasive plant and animal species to riparian ecosystems.

Objectives

- Determine quality and quantity of existing riparian habitat.
- Prepare a plan to plant riparian vegetation in areas that are lacking it.

Management Actions

Conservation Measures

- Maintain a minimum of 9 m (32ft) riparian buffer area on either side of streams to exclude testing activities (i.e., activities involving vehicles) to the greatest extent feasible.
- Employ erosion control BMPs for road maintenance and construction activities to reduce direct and indirect impacts on riparian areas and streams.

- Riparian zones and streams will only be crossed at designated locations.
- Riparian vegetation that is damaged or removed as a result of testing, construction, or maintenance projects will be replaced with native species. All soil disturbances within riparian habitats will be restored as soon as practicable using appropriate native vegetation.
- Maintain vegetated riparian buffer zones to prevent or minimize stream degradation associated with sediment and other pollutants in runoff. The riparian buffers on ALC should be 200-feet on Paint Branch and 150- feet on tributaries of Paint Branch to protect brown trout habitat. A buffer of 100-feet on tidal waters should be maintained on BPRF for tidal waters.
- Evaluate the feasibility of stream bank stabilization both economically and physically at ALC. Implement low impact development practices and BMPs such as check dams, bank stabilization, drop structures, and water diversions to reduce erosion and sedimentation in upland areas prone to gully erosion or wash out. Acquire appropriate permits (e.g., Sections 401/404, 1600) when necessary.

Conservation Projects

- Establish and maintain vegetated buffers using native species around water bodies to maintain streambank and shoreline vegetation, reduce adverse impacts on water quality, and protect aquatic habitat.
    - Maintain a continuous tree canopy over streams in forested habitats to regulate mean summer stream temperatures and to provide a source of organic matter for aquatic biota.
    - Maintain buffers of continuous vegetation cover to stabilize stream banks and intercept nonpoint source runoff containing suspended sediments, nutrients, and pollutants. Wider buffers should be established in areas of steep slopes to protect water quality and aquatic habitat.
    - Retain a diverse composition of native plant species in the riparian areas, particularly with respect to canopy tree species. Use native vegetation to restore non-vegetated areas, stabilize banks, and control erosion. No bare soil areas should occur within the buffer.
    - Retain standing snags, den trees, potential den trees, and coarse woody debris (CWD) on the forest floor to maintain structurally diverse wildlife habitat and functional nutrient cycles. These provisions should apply both with designated riparian buffers and the broader floodplain communities. Allow naturally occurring CWD to remain in stream channels to provide structural diversity and aquatic habitat.

- Avoid activities that would further fragment or reduce the size of existing riparian areas at ALC.

- Examine all current riparian buffers and determine if they can be enhanced, both in size and species composition.
- Monitor species dependent on riparian ecosystems and conduct research to determine effects of management on species and their habitats.
- Use aerial photography to map and monitor vegetation trends in riparian zones.
    - Monitor the performance of BMPs in protecting aquatic habitats. Adjust workplans, project designs, and activities as necessary using principles of adaptive management to meet changing conditions or provide additional protective measures.
    - Limit timber harvesting and other silviculture activities within riparian buffer zones for streams and other water bodies. Whenever possible, avoid stream crossings during logging operations and limit activities within buffer zones to those that would cause little or no impact on water quality and aquatic habitats.
    - Conduct a follow up stream assessment to capture changes in water quality and biological data not currently being captured by United States Geological Survey (USGS).
    - Conduct habitat assessments of water resources at ALC to evaluate the quality of these resources. Habitat assessments evaluate the structure of a water body's surrounding physical habitat that influences water resources quality and the condition of the resident aquatic community. Such studies may include, as appropriate, surveys of riparian and in-stream characteristics such as vegetation, sinuosity, substrate, water velocity, and pool variability.
    - Mitigate to avoid or minimize increase in stormwater runoff using low impact development practices or BMPs. All projects that increase impervious surface must be conducted in consistence with the Energy Independence and Security Act Section 438 and Maryland legislation. Implementing low impact development practices and BMPs to capture and treat runoff prior to discharge will help maintain and improve water quality and stormwater runoff volume.
- Limit pesticide and fertilizer use in riparian buffer zones. All pesticide use will follow prescriptions contained in the IPMP.
- Regularly review water resources management strategies defined above and mission-related activities to evaluate the condition of these resources and determine the need to adapt the management strategy to further enhance water quality and aquatic and riparian habitat.

5.0 WETLANDS AND AQUATIC HABITAT MANAGEMENT

Wetland and aquatic habitats are all managed under section 401 and 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 (33 CFR Parts 220–320).

5.1 Wetlands Habitat Management

Wetlands are a unique ecosystem that provides numerous ecosystem services. Among these services are flood mitigation, nutrient filtering, erosion control, carbon storage, aesthetic appeal, wildlife habitat, and recreation. A total of 266.52 acres of wetlands are delineated at ALC and BPRF.

Compensatory mitigation for losses of aquatic resources is an important tool for helping the federal government meet the longstanding goal of "no net loss" of wetland acreage and function. For impacts authorized under Section 404, compensatory mitigation is not considered until after all appropriate and practicable steps have been taken to first avoid and then minimize adverse impacts on the aquatic ecosystem pursuant to 40 CFR Part 230 (i.e., the Clean Water Act 404(b)(1) Guidelines) (73 FR 70 19594, April 10, 2008).

Wetlands management is an essential component of ecosystem management. Appropriate management will protect, enhance, and create habitat for a diversity of wildlife species. Particularly important is the relationship of wetlands to threatened and endangered species.

ALC

There are eleven wetlands on the ALC, amounting to approximately 2.52 acres (Figure 3). The majority of the wetlands are located within the floodplains of Paint Branch and Hillandale Run. There is also a large wetland area in the center of the site that is associated with an unnamed tributary to Paint Branch that runs along the border of the ALC and through the ALC under Floral Drive near the center of the facility. There are scattered smaller wetlands in the forested areas on the eastern portion of the facility that drain to drainage ditches that eventually flow to Paint Branch.

Powder Mill Bog, located south of Floral Drive, potentially supports habitat for two state-endangered species, Long's rush *(Juncus longii*) and capitate beakrush (*Rhynchospora cephalantha*), and any impacts to hydrology or plant species within this bog must be avoided per Maryland Department of the Environment (MDE). MDE enforces a 25-foot buffer on all nontidal wetlands where any disturbance should be avoided or mitigated.

BPRF

Wetlands are extensive at the BPRF. The 25 wetlands identified on BPRF total approximately 264 acres (Figure 4). Most of these wetlands are estuarine emergent wetlands, palustrine forested, estuarine scrub-shrub and palustrine scrub-shrub wetlands. Dominant wetland vegetation includes common cattail (*Typha latifolia*), sedges (*Carex* spp. and *Cyperus* spp.), and common reed (*Phragmites australis*) (a nonnative and invasive species) in marshes, while high bush blueberry (*Vaccinium corymbosum*), red maple (*Acer rubrum*), American holly (*Ilex opaca*) and sweet gum (*Liquidambar styraciflua*) are dominant in forested wetlands.

The estuarine emergent wetlands represent important feeding, resting, and cover areas for migratory and resident birds and waterfowl. The BPRF has several ponds in its tidal marsh areas with water depths less than two feet.

Activities on the BPRF must also be determined as consistent with the Maryland Tidal Wetland Act, Non-tidal Wetlands Protection Act, and Chesapeake Bay Critical Areas Act. Activities within 25 feet of non-tidal wetlands must be coordinated with the Maryland, Non-tidal Wetlands, and Waterways Division.

ALC and BPRF currently protects wetland habitats through a variety of measures, as listed below.

- Review testing, maintenance, and construction activities to evaluate the effects that proposed projects will have on wetlands.
- When impacts on wetlands from construction or maintenance activities are unavoidable, regulatory consultation will occur and mitigation measures will be implemented as necessary.

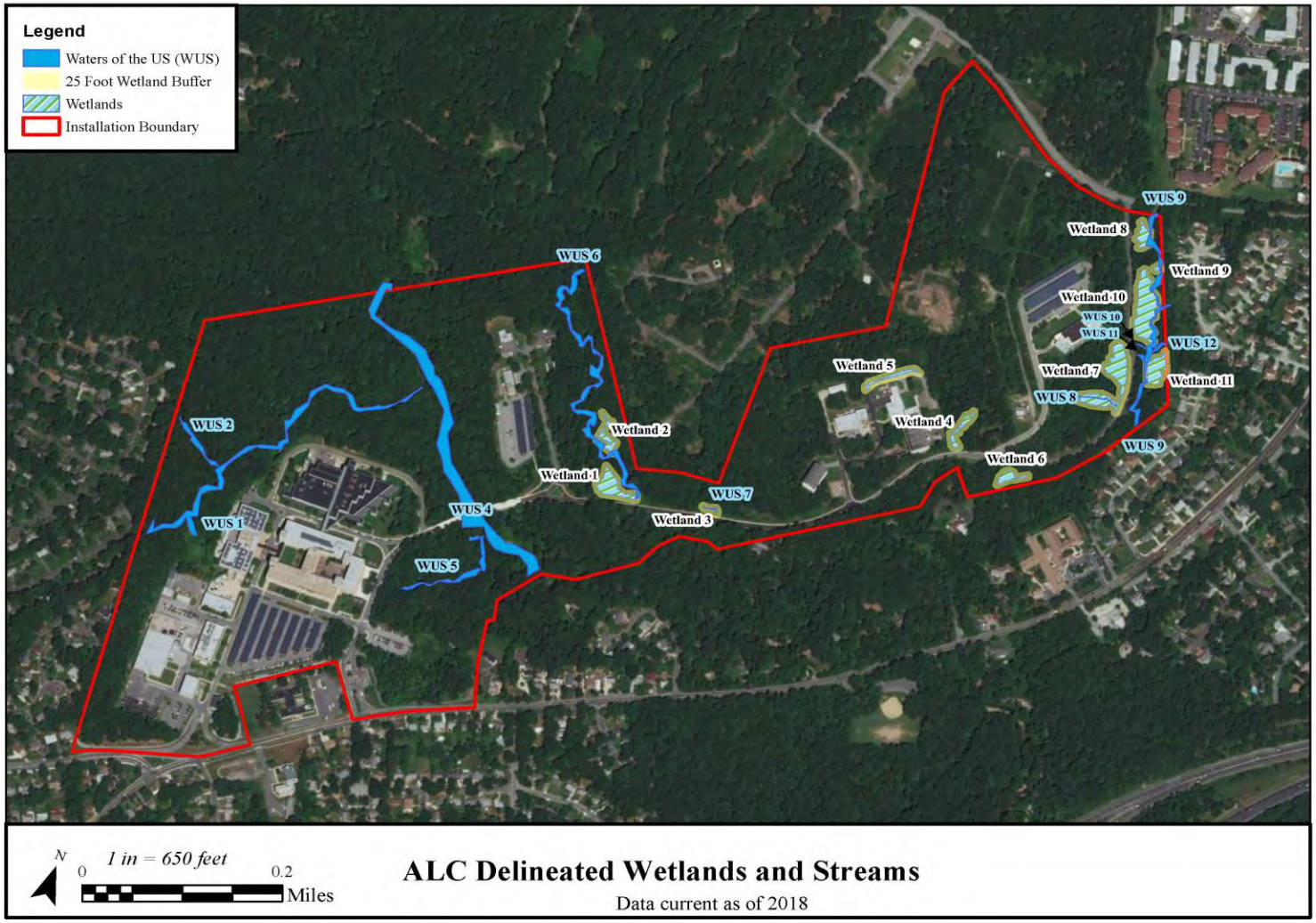

Figure 3 – ALC Wetlands and Aquatic Habitat

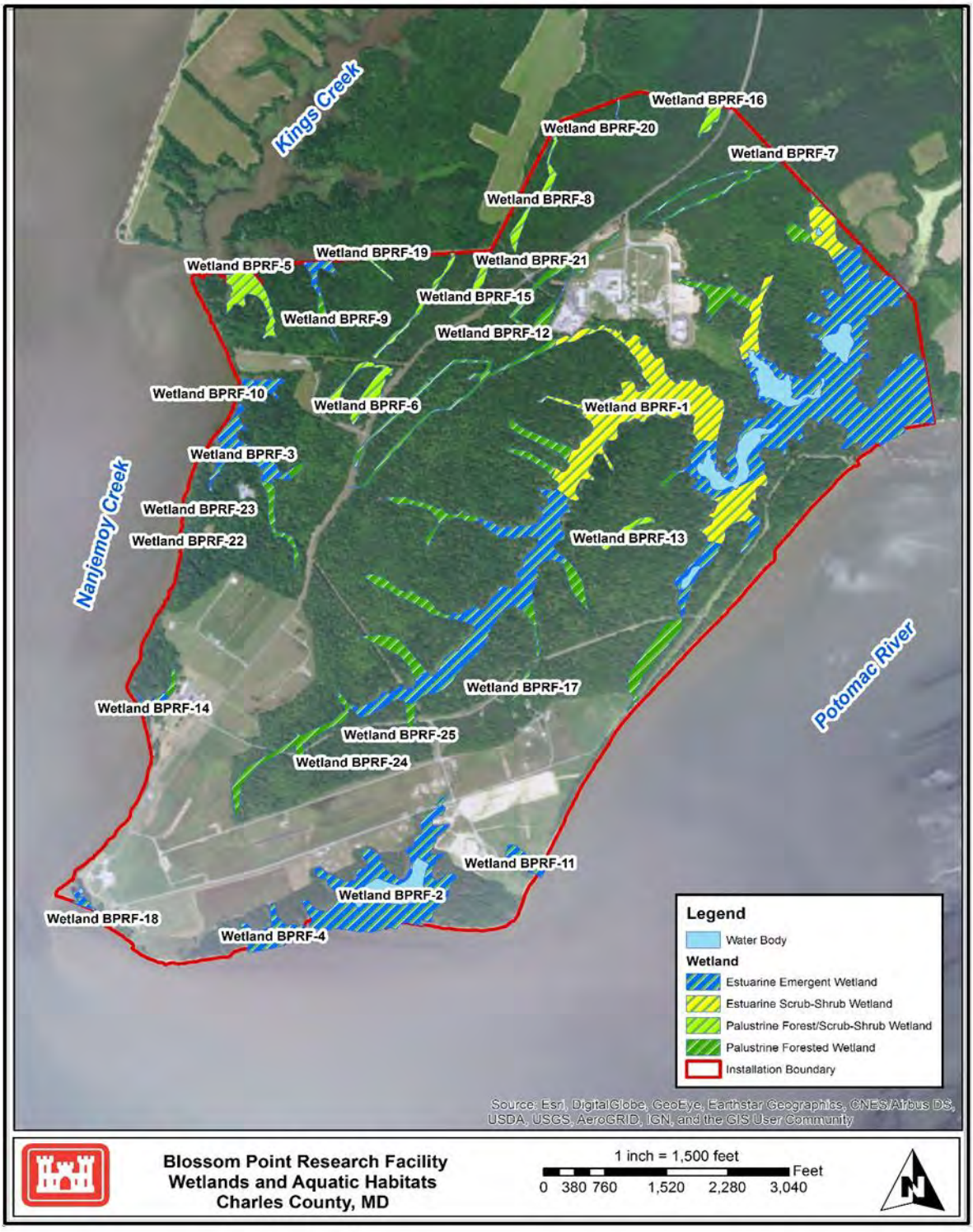

Figure 4 – BPRF Wetlands and Aquatic Habitat

5.1.1 Goals, Objectives and Actions for Wetlands Management

Goal

- Protect and maintain wetlands in accordance with state and federal laws and regulations and adhere to the principles of ecosystem management for the purposes of Rare, Threatened, and Endangered (RTE) and sensitive species protection, water quality enhancement, and wildlife food and habitat.

Objectives

- Monitor state or federally listed threatened and endangered species located within wetlands.
- Manage invasive species found within wetlands to encourage a natural, native ecosystem.

Management Actions

Conservation Measures

- IPM methods and proposed pesticide application activities will be reviewed by the environmental staff for potential impacts on sensitive resources before they are implemented. No pesticides will be applied directly to wetlands or aquatic habitats (streams, reservoirs, or ponds) unless their use is specifically approved on the label. Chemicals to control pests will only be applied by trained personnel.
- Install erosion controls in areas where exposed soils could potentially lead to sedimentation of wetlands.
- Conduct environmental review of all ground-disturbing activities that may impact wetlands and perform pre-activity surveys as needed.

Conservation Projects

- Monitor species dependent on wetland ecosystems (e.g.,) and conduct research to determine effects of management on species and their habitats.
- Implement controlled burning at BPRF per the Integrated Wildland Fire Management Plan to prevent overgrowth of invasive vegetation.
- Maintain information and mapping of the wetlands located on ALC and BPRF for planning and testing purposes. This information should be made available to all personnel involved in activities that could impact wetland resources.

- Monitor all wetland areas for possible adverse impacts resulting from mission activities, invasive species, or functional changes in wetland values or hydrology that may require remedial actions.
- Maintain a 25-foot management buffer around all nontidal wetlands and a 100-foot buffer around tidal wetlands. The buffer zone will be increased as necessary based on topography or where monitoring determines that current activities adjacent to a wetland are causing noticeable adverse impacts on the habitat. Activities within buffer zones should be limited to that which would cause little or no impact on or disturbance to the wetland. In cases where established activities already occur within buffer areas, and the activities cannot be reasonably changed, wetland conditions should be monitored to ensure that any impact is minimized.
- Continue current water quality management practices to protect wetlands from non-point source runoff.
- Periodically review installation programs that may potentially affect wetlands and develop appropriate planning procedures and guidelines to avoid the loss of wetland functions or habitat. The Natural Resources Manager will coordinate with other ALC Environmental Division and BPRF staff to disseminate information on the location of wetlands and wetland conservation requirements.
- Mechanically remove invasive plant species from Powder Mill Bog to encourage growth of native species. Chemical treatments are not suggested as a control method in this location.
- Monitor for potential RTE species such as the rainbow snake. The rainbow snake (endangered in Maryland) is a highly aquatic species, preferring swamps, marshes, and slow-moving streams and can tolerate brackish water. The rainbow snake can also be found on dry land, burrowing in moist soil, muck or a sandy substrate adjacent to waterbodies. A herptofaunal survey on BPRF in 2011 targeted the State-endangered rainbow snake (*Farancia e.erytrogramma*) (Benedict, 2011) and a rare, threatened and endangered species survey was performed in 2015, yet none have been observed during the field surveys, despite the prime habitat which exists on BPRF for this species. A herptofaunal survey is currently being conducted (Spring 2018) which will include surveys for the rainbow snake.

5.2 Coastal Zone Management

ALC and BPRF both are within the Maryland Coastal Management Zone, which is designated by county.

ALC

ALC is located partly within Prince George's County, which is a coastal zone county. Paint Branch is a major water resource on ALC that contributes to the Chesapeake Bay (Figure 5). Activities that impact the water quality of Paint Branch can also impact the health of the Chesapeake Bay. BPRF is located within Charles County and is bordered by the Potomac River, a main tributary to the Chesapeake Bay.

BPRF

BPRF is also within the Chesapeake Bay Critical Area (Figure 6). The Critical Area includes all land within 1,000 feet of Maryland's tidal waters and tidal wetlands, as well as the waters of the Chesapeake Bay, the Atlantic Coastal Bays, their tidal tributaries and the lands underneath these tidal areas. The Critical Area Buffer is the land area immediately adjacent to tidal waters, tidal wetlands, and tributary streams.

The minimum Buffer width is 100-feet; however, on some properties it may be wider because of steep slopes, wetlands, or sensitive soils. The Buffer serves as an important protective area for aquatic resources and shoreline habitat. The Buffer is subject to much stricter requirements than the rest of the Critical Area because it is essential to water quality improvement and fish, wildlife, and plant habitat enhancement. A fully forested Buffer is the best environment for filtering pollutants and removing sediment, nutrients, and toxic substances that run off the land and pollute.

A naturally vegetated Buffer also provides the most functional habitat for wildlife, providing food, cover, and nesting areas. Vegetation along the shoreline is also crabs, and birds. The Buffer also functions as an important physical barrier between human activity and development-related disturbance and Maryland's streams, creeks, rivers, and bays.

5.3 Aquatic Habitat Management

Aquatic habitats generally consist of open or flowing water that support a wide range of plant and animal life. Aquatic areas are key components of the ecosystem and important habitats for various wildlife species, including the Atlantic sturgeon. Aquatic habitat on ALC and BPRF is an extremely valuable resource and is protected by multiple laws and regulations.

ALC

The dominant hydrologic feature on the ALC is Paint Branch (Figure 5). The stream originates approximately 6 miles north of the installation, cuts in a southeasterly direction through the interior of the ALC, and then flows another 4 miles south to its confluence with the Northeast Branch of the Anacostia River. Ultimately, the Anacostia River empties into the Potomac River, which discharges into the Chesapeake Bay.

Hillandale Run flows east to west across the ALC, empties into Paint Branch in the north central portion of the installation. Both streams have predominantly cobble substrates, moderately rapid currents, and well-shaded, undeveloped stream banks. Another unnamed tributary of Paint Branch is located primarily outside of the eastern boundary of the installation, more or less parallel to Kuester Road.

Throughout much of the installation steep side slopes restrict the 100-year floodplain for both tributaries and Paint Branch to their narrow stream valleys. Below their confluence, the floodplain broadens and reaches its widest point, approximately 250 feet, between Floral Drive and the installation's southeastern boarder.

A stream protective buffer must be maintained adjacent to Paint Branch and its tributaries. The State of Maryland designates these waterways as Class III – Natural Trout Waters. Montgomery County, Maryland guidelines for environmental management of development recommend a minimum buffer width of 200-feet from the stream bank when slope ranges are 25 percent or greater. This 200-foot buffer is applicable to Paint Branch (Figure 6). A 150-foot buffer is to be maintained on the Paint Branch tributaries within the boundaries of the ALC.

BPRF

BPRF is located on the north side of the Potomac River at its junction with the Nanjemoy Creek. The Nanjemoy Creek bounds the facility on the west while the Potomac River bounds the facility on the south and east. Several perennial streams and drainage ways dissect the research facility, draining the wetlands and runoff off-site to either the Potomac River or the Nanjemoy Creek. There are truncated ravine heads around the marshland and large shoal areas with weakly developed channels along the shoreline.

Freshwater streams generally drain the upstream agricultural lands and become tidally influenced near the Potomac, where the streams are then classified as estuarine. Much of the boundaries of the BPRF are shoreline. Figure 6 illustrates the many streams and channels across the BPRF. Submerged aquatic vegetation (SAV) in and around the Chesapeake Bay are surveyed each year by the Virginia Institute of Marine Science (VIMS). In 2016, isolated areas of SAV were found

along Kings Creek. Updated maps of SAV can be found on the VIMS website: http://web.vims.edu/bio/sav/.

The area of the Potomac River near BPRF provides spawning habitat for the protected Chesapeake Bay Population of the Atlantic Sturgeon. The Chesapeake Bay Distinct Population Segment of the Atlantic sturgeon is listed as Endangered under the ESA. On 16 August 2017, National Oceanic and Atmospheric Administration (NOAA) Fisheries designated the Potomac River critical habitat for Atlantic sturgeon (*Acipenser oxyrinchus*).

5.3.1 Goals, Objectives and Actions for Aquatic Habitat Management

Goals

- Protect and maintain the aquatic ecosystem in accordance with state and federal laws and regulations, adhering to the principles of ecosystem management for the purposes of the mission, and maintaining the beneficial uses of ALC and BPRF water resources.
- Protect water quality on ALC and BPRF.
- Incorporation of the information gathered from the USGS sampling coupled with data gathered through regular river and stream water sampling elements for suspended sediment loads, pathogens, and pollutants could be included in future revisions of the INRMP.

Objectives

- Protect and maintain viable populations of and habitat for species dependent on streams, reservoirs, and ponds with special emphasis on RTE and sensitive species.
- Prevent the spread and further introduction of invasive exotic plant and animal species to aquatic ecosystems.
- Maintain high water quality and instream habitat and protect the diversity and abundance of aquatic life on the installation.
- Reduce sediments (suspended sediments, turbidity, siltation of creek gravels, bed load) and streambank erosion in waters that drain ALC and BPRF through sound vegetative and land management practices.

Management Actions

Conservation Measures

- Plan maintenance activities to avoid impacts on waters of the United States, including wetlands, and waters of the State.
- Conserve all water resources.
- Monitor SAV beds and potential habitat areas around BPRF using VIMS mapping and visual observations.

Conservation Projects

- Monitor species dependent on aquatic ecosystems and conduct research to determine effects of management on species and their habitats.
- Monitor water quality in aquatic habitats at ALC and BPRF.
- Control nonnative and invasive plant species.
- Work with NMFS and CDFW to address issues regarding non-native predatory fish species within ALC's and BPRF's borders.
- Develop an Environmental Assessment for the implementation of the Shoreline Study and Management Plan for BPRF.
- Per the Shoreline Study and Management Plan, install and maintain shoreline erosion minimization structures along the Potomac River and Nanjemoy Creek at BPRF. These structures could include offshore breakwaters, revetments, and drainage systems. Non structures can include the planting of native vegetation to create a living shoreline. Following construction establish a monitoring system for assessing the impact of the structures on the aquatic resources, to include submerged aquatic vegetation, fish communities, and water quality.
- Stabilize and seed eroded roadsides and road cuts using native grasses and legumes, when feasible, in a timely manner to minimize impacts to adjacent habitats resulting from the transport and deposition of eroded sediment. During establishment of new vegetation, use geotextile fabrics and mulch to stabilize soil surfaces and prevent further erosion. Where re-establishment of vegetation is not possible, harden slopes and grades with rip- rap, stone, gravel, or other environmentally compatible materials to stabilize slopes.
- SAV decline is correlated with increasing sediment and nutrient inputs from development of the surrounding watershed. Excessive amounts of sediment cloud the water and block out sunlight vital for the survival of underwater grasses. Likewise, excessive nutrients cause large algal blooms, which block out the sunlight (Virginia Institute of Marine Science (VIMS), 2008). Implementing BMPs and reducing erosion can assist in SAV restoration.
- Conduct SAV restoration projects at BPRF or partner with various educational and conservancy groups that are working toward successful SAV restoration such as the Nature Conservancy (TNC), as well as other bay state management groups (MD Dept. of Natural Resources) to gain lessons learned and/or assist and enhance baywide SAV restoration efforts.

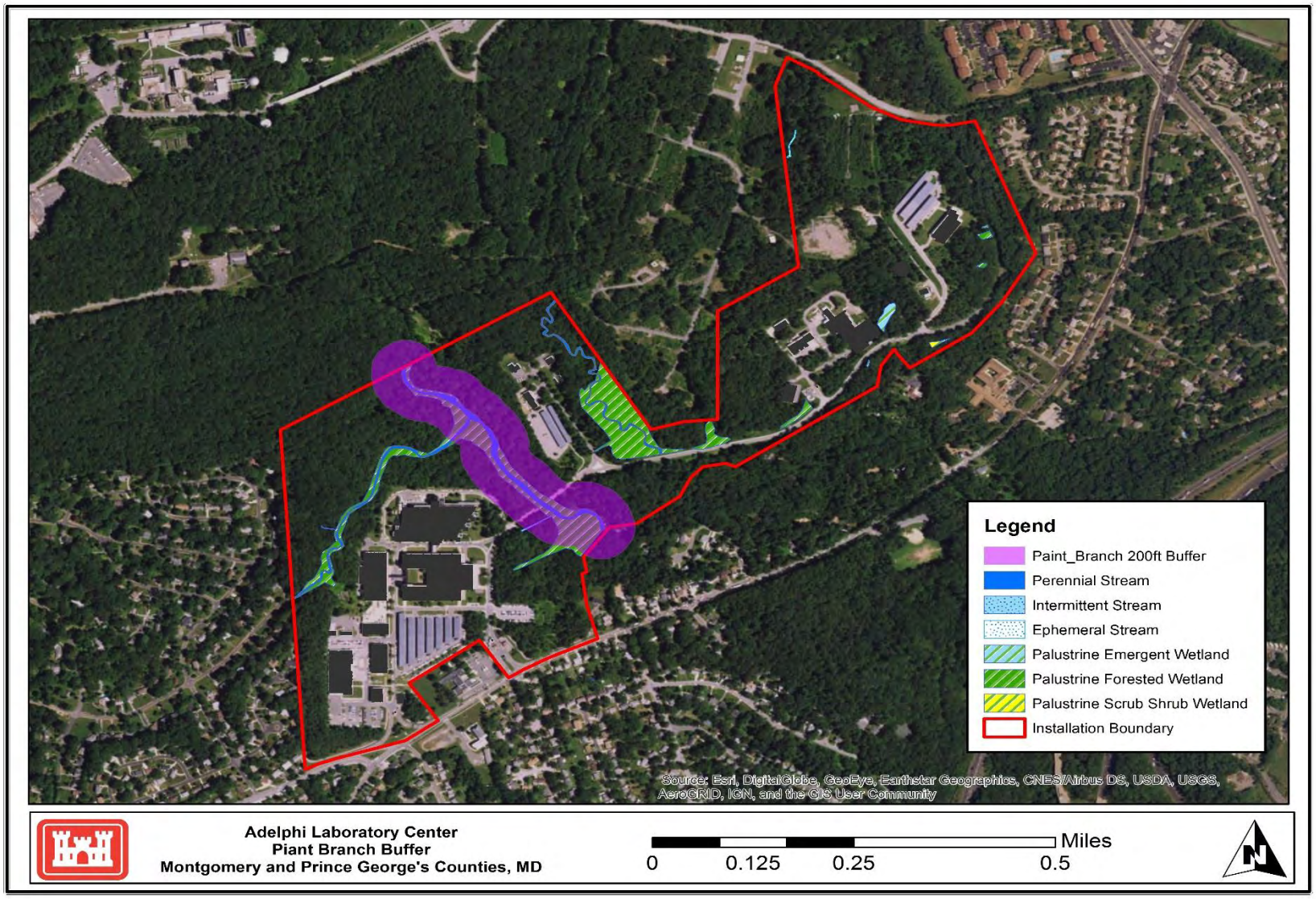

Figure 5 – ALC Buffer Zones

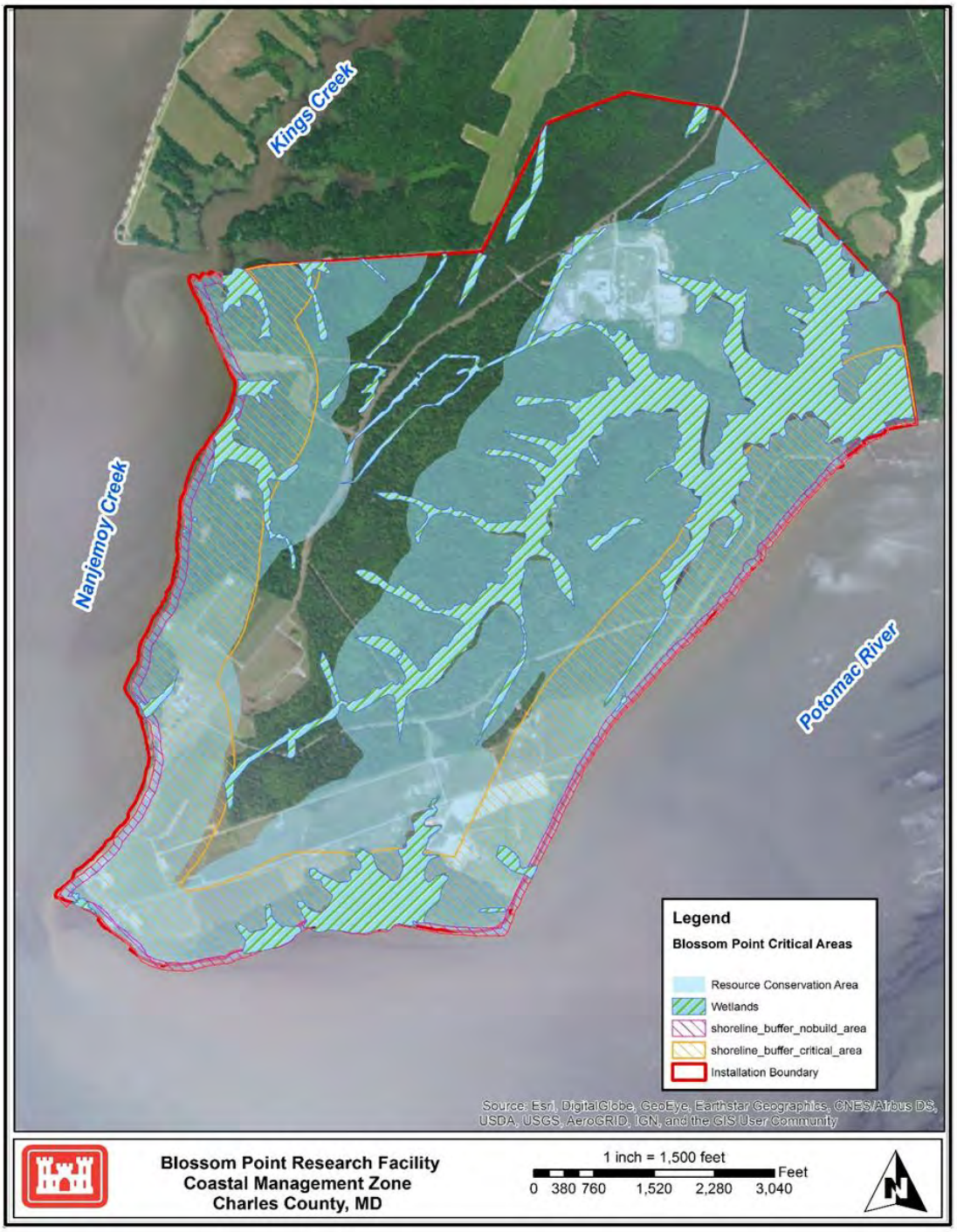

Figure 6 – BPRF Coastal Zones

5.3.2 Erosion Control

Erosion control and soil conservation are important water resource conservation issues. Accelerated erosion, continued compaction, or the removal of topsoil can drastically alter soils. Sediment accumulation resulting from erosion affects surface water quality and aquatic organisms. The erodibility of ALC and BPRF' soils is largely determined by slope.

The approximately 7 mile shoreline around BPRF has an average bluff height of about 20 feet above MSL. The shoreline has historically experienced erosions rates of no change to over -3.0 feet/year in some areas. For example, per the 2016 BPRF Shoreline Management Plan, Upper Cedar Point of BPRF is eroding at -2 to -5 ft/yr. Tidal fluctuations are undercutting bluffs causing erosion and slumping which poses a threat to several landfill sites and other structures. There are beaches along the bluff line where sandspits have formed across drowned valleys.

5.3.3 Water Quality

Water temperature, pH, turbidity and conductivity are currently monitored at Paint Branch on ALC by the USGS. Surface water quality monitoring at ALC will serve as a proactive effort to maintain compliance with the Clean Water Act. Water Quality is not currently monitored near BPRF.

6.0 WILDLAND FIRE MANAGEMENT

If done incorrectly or at the wrong time of year, prescribed burning can adversely affect natural resources. Such fires can increase or reduce nutrient availability, adversely affect migratory birds and other wildlife, increase erosion, and/or alter the ecosystem's vegetation community. In addition, the construction and maintenance of firebreaks can also increase soil compaction and cause erosion and vegetation destruction. Construction and maintenance of firebreaks is addressed below under "Management Activities."

The Army's wildland fire policy guidance requires installations with unimproved grounds that present a wildfire hazard and/or installations that utilize prescribed burns as a land management tool to develop and implement an Integrated Wildland Fire Management Plan (IWFMP). The 2018 ALC and BPRF IWFMP lays out specific guidance, procedures, and protocols for the prevention and suppression of wildfires on ALC and BPRF. The plan describes fire pre-suppression and suppression actions to be taken and defines the responsibilities of all offices, departments, and agencies involved.

6.1 Goals, Objectives and Actions for Aquatic Habitat Management

Goal

- Conduct prescribed burns in a manner that protects RTE and sensitive species and their habitats, improves wildlife habitat, enhances natural ecological processes and functions, reduces wildfire hazards, and sustains the military mission.

Objectives

- Protect staff as well as the public from the effects of uncontrolled wildfires.
- Manage and conserve natural resources, including natural communities and RTE and sensitive species.
- Create and maintain fire breaks in an ecologically sound manner using water bars, limited disking, grading, and bulldozing.

Management Actions

Conservation Measures

- Prescribed fire operations shall comply with MDNR regulations COMAR 08.07.04 Forest Fire Protection and MDE regulations COMAR 26.11.07 Open Fires Authority.
- Burning of adjacent units in consecutive years will be minimized.

- Within burn units, allow unburned areas to remain unburned (i.e., allow patchiness). This provides refuge, a source for recolonization, and more habitat diversity for animal species.
- Riparian areas will not be burned.
- Incorporate the use of "cool fire" burns (fires executed on cooler days with higher levels of humidity) into the burn plan.
- When possible, prohibit prescribed burns in sensitive habitat types or on cultural resources sites. If burns must occur in these areas for reasons of safety, additional environmental conditions, including timing or resource protection measures, will be identified during the environmental review process.
- If cultural resources are inadvertently discovered during controlled burning activities, stop all work to the extent possible and contact the ALC Environmental Division immediately.
- Conduct a pilot study to determine if prescribed fire can be used effectively at BPRF for American holly management. Per the USDA Forest Service Fire Effects Information System, research in similar forest habitats has shown that initial growth of American holly after a fire is slow, averaging about 6 feet (1.8 m) in 16 years under medium shade. Further, three annual fires in a southern pine forest reduced the number of fruit-producing holly trees by 95 percent. It was also found that seedlings and sprouts can usually be eliminated as a result of normal under-burning regimes in most commercial pine stands.
- Mechanical removal of heavy fuel loads is recommended prior to any prescribed burns.

Conservation Projects

- Monitor burn areas after successfully implemented prescribed burns for invasive plant seedlings and control as necessary.
- Reestablish native vegetation after successfully implemented prescribed burn to minimize erosion and prevent establishment of invasive plant species.

7.0 MISCELLANEOUS/OTHER MANAGEMENT ACTIONS

7.1 Enforcement

Many aspects of natural resources management require effective enforcement if they are to be successful. Protection of wetlands, water pollution prevention, sensitive species protection, hunting/ harvest controls, and other protective measures are dependent on law enforcement.

All hunting activities on USAG ALC BPRF are authorized and controlled by the Garrison Manager in accordance with applicable federal, state, Charles County Laws and the Department of the Army Regulations.

The Safety Office at BPRF can notify the proper law enforcement personnel when law enforcement is needed during scheduled hunts. The USAG ALC Wildlife Conservation Officer (WCO), Safety Office and/or Site Manager can conduct patrols that emphasize security and may ask a person who has violated regulations or who is without an ALC BPRF hunting permit to leave BPRF or may detain the person until the game warden arrives.

The main activities at ALC and BPRF that can adversely affect natural resources are a lack of enforcement of post regulations, using ALC and BPRF to trespass onto private lands or trespassing on ALC and BPRF, illegal dumping, speeding, and removal of cultural resources from the installations.

7.1.1 Goals, Objectives and Actions for Enforcement

Goal

- Comply with laws and regulations that pertain to the management of ALC and BPRF natural resources.

Objectives

- Maintain effective working relationship with federal and state agencies to resolve non-compliance issues efficiently.
- Enforce laws and regulations pertaining to implementation of the natural resources program at ALC and BPRF.
- Eliminate trespassing.

Management Action

Conservation Measures

- Hold an annual meeting with federal and state agencies to discuss noncompliance issues.

- Regularly patrol boundaries to ensure fences are in good repair and gates are closed.

Conservation Projects

- Make improvements to boundary gates and fencelines.
- Install and maintain "No Trespassing" signs along post boundaries in accordance with state regulations.
- Increase "No Hunting" signs around areas where hunting is prohibited.

Taking a proactive approach toward reducing violations (whether willful or negligent) by authorized users minimizes the amount of official law enforcement needed at ALC and BPRF. Patrolling boundaries and posting signs are ways of informing users of post regulations before a violation occurs. When an infraction does occur, the ALC and BPRF safety and/or security office, or local county sheriffs are available to deal with the situation and alert the proper authorities in the case of a natural resource issue.

7.2 Outdoor Recreation

As discussed in Chapter 3, DoD Directive 4700.4, Natural Resources Management Program (January 24, 1989) states the following regarding public use of DoD lands.

DoD lands shall be available to the public and DoD employees for enjoyment and use of natural resources, except when a specific determination has been made that a military mission prevents such access for safety or security reasons or that the natural resources will not support such usage. For example, outdoor recreation and hunting are not employed at ALC due to security issues. BPRF has a limited hunting program as discussed below.

BPRF

Outdoor recreational opportunities are limited to hunting at BPRF. Limitations on public access have been set in certain areas, such as the impact area, due to the presence of hazards related to testing activities. Some possible threats to public safety related to testing activities include live firing, testing residue (e.g., duds, unexploded ordnance, concertina wire), and testing mechanisms. For these reasons, public access to the Range Areas and Impact Area is strictly prohibited, without exception.

Goals, objectives, and management actions related to all outdoor recreation activities are included at the end of this section.

All state hunting regulations apply to hunting and activities at BPRF. In addition, BPRF established controls on hunting and publishes notices on procedures used to implement the hunting program.

7.2.1 Goals, Objectives and Actions for Hunting

Goals

- Manage outdoor recreation in a manner consistent with the missions of the facility while protecting natural resources.

Objectives

- Develop site-specific guidelines for recreational activities to reduce or eliminate impacts on sensitive species where these activities pose an ongoing threat to habitat quality.
- Prevent public intrusion into sensitive areas.
- Plan recreational opportunities in response to identified needs of the community when consistent with the military mission and sound ecosystem management principles.
- Improve communication between various user groups.

Management Actions

Conservation Measures

- Install “No Trespassing” signs
- Repair and install boundary fences to prevent unauthorized access to sensitive natural resource areas.

Conservation Project

- Develop and install environmental signs along the ALC Fitness Trail.
- Continue the deer hunting program at BPRF.
- Update signage for visitors at BPRF.

8.0 CONCLUSION

Adaptive habitat management conducted on ALC and BPRF enhances the mission and complies with environmental laws to conserve and protect ALC and BPRF's natural resources. This HMP provides ALC and BPRF with a decision making process; guidance for the management of ALC and BPRF habitat; and long-term vision, continuity, and consistency for habitat management on ALC and BPRF. Recommended conservation measures and projects in this plan can assist ALC and BPRF in better management of improving both installations for the betterment of their diverse habitats.

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Appendix A
Current INRMP Goals and Prescriptions

Goal	Prescription
Goal 1: Natural Resource Management Implement a natural resources management program that reflects the principles of ecosystem management and ensures the sustainability of the military mission.	Manage natural resources consistent with environmental laws, regulations and legislation, for Federal, State, DoD or Army rules.
	Use adaptive management strategies to protect, conserve and enhance native fauna and flora with an emphasis on priority species and native biodiversity enhancement.
Goal 2: Rare, Threatened and Endangered Species Ensure protection of federally listed threatened and endangered species and species of special concern and undertake management measures that support conservation and recovery of these species.	Identify and preserve these species in accordance with the Endangered Species Act (ESA), Endangered Species Recovery Plans, US Army regulations and guidance, approved site-specific management plans, including Endangered Species Management Plans (ESMP).
	Protect unique plant species and habitat identified as rare statewide or locally, but without legal protection status, to the extent practical without restricting key mission operations.
Goal 3: Habitat Management Protect and enhance all habitats on ALC and BPRF, particularly sensitive and ecologically significant habitats, in a manner that promotes healthy, sustainable ecological communities.	Monitor all missions/activities for possible adverse impacts to soil resources, water quality and the ecological integrity of aquatic and terrestrial habitats. Adapt management as necessary.
Goal 4: Water Resources Protect the integrity of surface and groundwater resources and aquatic habitat to maintain and enhance biodiversity and protect water quality.	Protect aquatic and riparian resources by establishing and maintaining riparian management zones that limit activities within buffers zones around streams and wetlands to those activities that would cause little to no impact on water quality and aquatic habitats. Identify and restore degraded habitats when practical.
	Prevent the degradation of water quality from point and non-point sources of pollution to include sediments, nutrients, and chemical pollution.
	Achieve no net loss of wetlands.
Goal 5: Fish and Wildlife Maintain the diversity of species and habitats currently found at ALC and BPRF, restore and enhance degraded habitats where possible, and promote sustainable management of resources in a	Maintain fish and wildlife biodiversity, especially native species, through protecting present wildlife habitats from degradation. Reduce habitat fragmentation and restore native grassland, forest and wetland communities.

Goal	Prescription
manner consistent with ecosystem management principles and the military mission.	Provide for migratory bird and bald eagle protection.
	Sustain healthy populations of game and nongame species at levels compatible with land use objectives and the military mission.
Goal 6: Forest Resources Conserve and manage forest resources in a sustainable fashion that maintains biodiversity, ecological functions and values, as well as the military mission.	Protect forest resources from unacceptable losses to damage agents and degradation resulting from insects and disease, invasive species, and wildfire.
	Carry on the objective of forest resources management at BPRF for an optimum combination of uses (multiple-use management) including: - Wildlife habitat preservation and enhancement; - Wetland, watershed, and groundwater protection; - Possible timber production; - Protection of the shoreline and natural resources in support of the Chesapeake Bay Action Plan - Preservation of existing historical and cultural resources.
Goal 7: Pest and Invasive Species Manage and prevent the spread of pests and invasive species that threaten habitat and native species.	Employ judicious use of both non-chemical and chemical control techniques to achieve effective pest management with minimal environmental consequence.
	Identify, monitor and control invasive and pest species and habitat.
	Carry on pest management priorities at ALC to include control of disease vectors, protection of real estate, control of nuisance pests, control of undesirable vegetation, protection of beneficial plants, and control of miscellaneous animal pests (such as birds, rodents, and other mammals).
Goal 8: Soil Resources Manage soil resources in a sustainable manner and protect soils from erosion and destabilization through preventative and restoration efforts and prevent potential soil erosion impacts on water quality, habitat quality, and mission objectives.	Monitor soils regularly for erosion and address problem areas as appropriate.
	Protect soil resources from disturbances from earth-moving activities, construction and natural erosive forces through use of best management practices (BMPs).
	Use native species for erosion control.

Goal	Prescription
Goal 9: Community Outreach Encourage relationship with the local community on ALC and BPRF, as appropriate, without interruption to the military mission.	Continue to provide outdoor recreational opportunities to the extent that they do not conflict with the military mission or compromise environmental values;
	Make a positive contribution to local conservation efforts and the community by participating in educational opportunities and providing information on issues affecting ALC and the region.
Goal 10: Fire Management The primary goal for fire management at ALC is to prevent unacceptable losses to military property from wildfire.	Implement appropriate wildfire prevention and suppression measures.

Appendix B
Species Observed on ALC and BPRF

Common Name	Scientific name	Found at:
Reptiles and Amphibians		
Spotted turtle	*Clemmys guttata*	BPRF
Painted turtle	*Chrysemys picta*	BPRF
Bull frog	*Rana catesbeiana*	ALC, BPRF
Green frog	*Rana clamitans*	ALC, BPRF
Gray tree frog	*Hyla versicolor*	BPRF
Spring peeper	*Pseudoacris crucifer*	ALC, BPRF
Five-lined skink	*Plestiodon fasciatus*	BPRF
Eastern box turtle	*Terrapene carolina carolina*	ALC, BPRF
Pickerel frog	*Lithobates palustris*	ALC, BPRF
American toad	*Anaxyrus americanus*	ALC, BPRF
Garter snake	*Thamnophis sirtalis*	BPRF
Black rat snake	*Pantherophis alleghaniensis*	ALC, BPRF
Eastern hog-nosed snake	*Heterodon platirhinos*	BPRF
Northern water snake	*Nerodia sipedon sipedon*	BPRF
Black racer	*Coluber constrictor constrictor*	BPRF
Red backed salamander	*Plethodon cinereus*	ALC
Eastern mud turtle	*Kinosternon subrubrum*	BPRF
Fowlers toad	*Anaxyrus fowleri*	BPRF
Four toed salamander	*Hemidactylium scutatum*	BPRF
Marbled salamander	*Ambystoma opacum*	BPRF
Spotted salamander	*Ambystoma maculatum*	BPRF
Red spotted newt	*Notophthalmus viridescens*	BPRF
Eastern worm snake	*Carphophis amoenus amoenus*	ALC
Birds		
American woodcock	*Scolopax minor*	BPRF
Bald eagle	*Haliaeetus leucocephalus*	BPRF
Red-tailed hawk	*Buteo jamaicensis*	ALC, BPRF
Red-shouldered hawk	*Buteo lineatus*	ALC, BPRF
Golden crown kinglet	*Regulus satrapa*	ALC, BPRF
Red belied woodpecker	*Melanerpes carolinus*	BPRF
Pileated woodpecker	*Hylatomus pileatus*	BPRF
Tufted titmouse	*Baeolophus bicolor*	ALC, BPRF
Carolina chickadee	*Poecile carolinensis*	ALC, BPRF

Common Name	Scientific name	Found at:
White Breasted nuthatch	*Sitta carolinensis*	ALC, BPRF
Osprey	*Pandion haliaetus*	BPRF
Goldfinch	*Spinus tristis*	BPRF
Great crested flycatcher	*Myiarchus crinitus*	BPRF
Wood thrush	*Hylocichla mustelina*	ALC, BPRF
Canada goose	*Branta canadensis*	ALC
Acadian flycatcher	*Empidonax virescens*	BPRF
Eastern wood pewee	*Contopus virens*	ALC, BPRF
Blue-gray gnatcatcher	*Polioptila caerulea*	BPRF
Fish crow	*Corvus ossifragus*	BPRF
Ring billed gull	*Laurus delawarensis*	BPRF
Northern cardinal	*Cardinalis cardinalis*	ALC, BPRF
Blue jay	*Cyanocitta cristata*	ALC, BPRF
Wild turkey	*Meleagris gallopavo*	ALC, BPRF
Turkey vulture	*Cathartes aura*	ALC, BPRF
Eastern bluebird	*Sialia sialis*	ALC, BPRF
American robin	*Turdus migratorius*	ALC, BPRF
American kestrel	*Falco sparverius*	ALC, BPRF
Mourning dove	*Zenaida macroura*	ALC, BPRF
Mammals		
White-tailed deer	*Odocoileus virginianus*	ALC, BPRF
Red fox	*Vulpes vulpes*	ALC, BPRF
Eastern mole	*Scalopus aquaticus*	BPRF
Eastern cottontail	*Sylvilagus floridanus*	ALC, BPRF
Gray squirrel	*Sciurus carolinensis*	ALC, BPRF
Eastern red bat	*Lasiurus borealis*	ALC, BPRF
Tricolored bat	*Perimyotis subflavus*	ALC, BPRF
Big brown bat	*Eptesicus fuscus*	ALC, BPRF
Northern long-eared bat	*Myotis septentrionalis*	ALC, BPRF

Appendix C
Maryland Planting List

Wildflower Plant Characteristics for Pollinator and Conservation Plantings in the Northeast

scientific name	Common name	pollinator ranking*	USDA hardiness zones	Bloom Time	bloom color	ht (ft)	Wetland Indicator	ph	light needs	Veg-etative spread	seeds/#	Cost (lb) ($) 2012**	other
Agastache scrophulariifolia	purple giant hyssop	very high	4-6	july-sept	purple	2-4	FACW	6.5-7.0	full	n/a	1,488,000	$80	attractive to bees and butterflies,birds, RARE
Apocynum cannabinum	indian hemp	very high	4-8	june-aug	white	2-4	FACU	4.5-7	full	some	500,000	$280	extensive root system, fairly aggressive
Asclepias syriaca	common milkweed	very high	3-9	june-aug	pink purple	1-4	FACU	5.6-7.5	full to partial	high	64,000	$160	attracts monarchs; cuttings will bloom in first year, seeds may not
Asclepias incarnata	swamp milkweed	very high	3-7	july-aug	pink	2-4	OBL	5-8	full to partial	slow	75,000	$280	good for wetlands; great for monarch; high deer resistant
Asclepias tuberosa	butterfly milkweed	very high	4-9	late june-aug	orange	1-2	FAC	4.8-6.8	full to partial	none	70,000	$300	attractive to monarchs
Baptisia australis	blue false indigo	medium	3-8	late may-june	purple-blue	3-5	FACU	5.8-7.2	full	none	63,140	$140	native legume, great for mixes, bushy habit, good ground cover
Baptisia tinctoria	wild indigo	medium	3-9	june-aug	yellow	1-3	FAC-	5.8-7	full	none	300,000	$400	very low maintenance
Chelone glabra	white turtlehead	medium	3-8	july-aug	White	2-4	FACW	5.1-6.5	full-shade	slow	1,560,000	$600	good for shady woods
Chamaecrista fasciculata	partridge pea	high	3-8	june-aug	yellow	2-5	FACU	5.5-7.5	full to partial	none	65,000	$10	good for wildlife and erosion control; legume, very prolific re-seeder (can become weedy)
Cichorium intybus	blue chicory	very low	4-8	july-sept	purple	1-4	FACU	6.0-7.5	full to partial	none	426,400	$16	roadsides, open fields
Coreopsis lanceolata	lanced-leaved coreopsis	medium	3-8	june-july	yellow	2-4	FACU	6.0-7.0	full	none	210,000	$14	can tolerate regular mowing
Coreopsis tinctoria	plains coreopsis	low	4-6	june-aug	yellow	2-4	FAC-	5.2-7.8	full	none	3,222,222	$12	flowers in short period of time, may become invasive
Desmodium canadense	showy tick trefoil	medium-low	3-6	july-sept	pink-purple	2-5	FAC	5.6-6.5	full to partial	n/a	88,000	$140	legume, can become invasive
Doellingeria umbellata	flat top white aster	medium-low	3-8	july-sept	white	2-4	FACW	5.6-7.5	full	n/a	859,000	$180	host to pearl crescent, and silvery checkerspot
Echinacea purpurea	purple coneflower	high	3-8	july-oct	purple	2-4	FAC	6.5-7.2	full to partial	mod	115,000	$28	easy to grow

Wildflower Plant Characteristics for Pollinator and Conservation Plantings in the Northeast

scientific name	Common name	pollinator ranking*	USDA hardiness zones	Bloom Time	bloom color	ht (ft)	Wetland Indicator	ph	light needs	Veg-etative spread	seeds/#	Cost (lb) ($) 2012**	other
Eupatoriadelphus maculatus	spotted joe pye weed	high	5-9	july-aug	pink-purple	2-5	FACW	5.5-7	full to partial	slow	2,880,000	$220	attracts butterflies
Eupatorium perfoliatum	boneset	high	4-7	july-sept	white	2-5	FACW+	6.1-7.8	full to partial	n/a	1,520,000	$200	from seed, flowers in 2nd to 3rd year. may attract pests
Eurybia macrophylla	bigleaf aster	medium	3-8	july-oct	purple	2-4	FACU	4.9-6.9	full	mod	800,000	$240	provides wildlife habitat, can tolerate some shade
Euthamia graminifolia	grass-leaved goldenrod	medium-low	2-8	aug-sep	yellow	3-5	FAC	n/a	full	fast	5,600,000	$360	food and cover for wildlife
Helenium autumnale	common sneezeweed	high	3-8	aug-sept	yellow	2-5	FACW+	4.0-7.5	full	none	2,000,000	$80	attracts butterflies, flowers late
Helianthus giganteus	giant sunflower	medium	5-11	july-sept	yellow	6-9	FAC	6.1-7.8	full	none	160000	$280	large plant, small flowers
Helianthus mollis	ashy sunflower	medium	4-10	aug-sept	yellow	2-6	UPL	5.7-8.0	full	high	125,000	$180	covered with hairs
Heliopsis helianthoides	ox eye (false) sunflower	low	3-9	july-aug	yellow	2-5	FAC	6.1-7.8	full to partial	n/a	103,900	$48	deer and birds love this plant
Hypericum perforatum	St Johnswort	medium	4-8	july-oct	yellow	1-3	FAC	5.1-7.5	partial	slow	1,800,000	$80	
Lespedeza capitata	round-headed lespedeza	low	4-6	aug-sept	white	2-4	FACU-	5.7-8.2	full	none	159,000	$180	provides food for birds and small wildlife
Liatris aspera	tall (rough) blazing star	high	3-8	july-aug	purple	2-4	FACU	6.6-7.5	full	slow	256,000	$400	scarify seed helps, shortest and last to bloom of liatris
Liatris spicata	marsh blazing star	high	3-9	july-aug	purple	2-4	FAC+	5.6-7.5	full to partial	slow	100,000	$148	good for rain gardens
Linum perenne	perennial blue flax	low	4-9	june-july	blue	2-3	FAC	6.1-7.8	full to partial	slow	320,000	$20	not native and short lived
Lobelia cardinalis	cardinal flower	high	4-8	june-aug	red	1-4	FACW+	5.8-7.8	full to partial	none	7,320,000	$560	provides nectar for bees and hummingbirds, butterflies
Lobelia siphilitica	great blue lobelia	very high	3-8	july-sept	purple	2-5	FACW+	6.0-7.5	full to partial	n/a	6,400,000	$260	takes a few years to establish

Wildflower Plant Characteristics for Pollinator and Conservation Plantings in the Northeast

scientific name	Common name	pollinator ranking*	USDA hardiness zones	Bloom Time	bloom color	ht (ft)	Wetland Indicator	ph	light needs	Veg-etative spread	seeds/#	Cost (lb) ($) 2012**	other
Lupinus perennis	wild lupine	high	3-9	late may-june	blue	1-2	FACU	4.6-7.2	full to partial	none	18,800	$200	provides food and habitat for butterflies, not for restoration
Mimulus ringens	Alleghany monkey flower	medium	3-9	july-aug	light purple	1-3	OBL	5.6-7.5	full to partial	n/a	36,800,000	$160	provides cover for wildlife
Monarda fistulosa	wild bergamot	very high	3-7	june-july	purple/ dark pink	2-5	UPL	6-8	full to partial	mod	1,200,000	$220	provides nectar for bees and hummingbirds, butterflies
Monarda media	purple bergamot	very high	4-9	june-aug	purple	2-4	FACW	6.0-7.8	full to partial	mod	1,120,000	$196	attracts bees and butterflies
Monarda punctata	spotted beebalm	very high	5-10	july-aug	pink/ white	1-3	UPL	6.8-7.2	full	mod	1,440,000	$180	sensitive to overwatering
Oenothera biennis	evening primrose	medium	4-8	june-aug	yellow	4-5	FACU	6.1-7.8	full	none	1,376,000	$32	may become weedy or invasive
Oligoneuron riddellii	Riddell's Goldenrod	high	3-7	sept-oct	yellow	2-4	OBL	7.0-8.0	full	some	1,424,000	$200	listed as species at risk, Not Native to NY
Penstemon digitalis	tall white beard tongue	high	4-8	may-july	white	2-5	FAC	5.5-7	full to partial	mod	2,000,000	$108	a durable early plant
Penstemon hirsutus	hairy beardtongue	high	4-9	july-aug	Pale violet	2-3	FACU	6.0-7.5	full-shade	none	4,000,000	$240	shorter stature than P. digitalis
Pycnanthemum virginianum	Virginia mountain mint	very high	4-8	july-aug	white	1-3	FAC	5.0-7.5	full to partial	slow	3,840,000	$480	very fragrant
Ratibida pinnata	gray-headed coneflower	medium	3-7	july-aug	yellow	3-5	FAC	5.6-6.8	full to partial	none	625,000	$48	
Rudbeckia hirta	black-eyed susan	medium-low	5-9	june-sept	yellow/ orange	2-3	FACU	6-7	full to partial	none	1,500,000	$24	food and cover for birds
Senna hebecarpa	wild senna	medium	4-9	july-aug	yellow	4-6	FAC	6.5-7.5	full to partial	n/a	22,680	$20	short flowering legumes
Solidago caesia	bluestem goldenrod	high	3-9	aug-oct	yellow	1-4	FACU	5.5-7	full to partial	slow	4,640,000	$450	wood edges
Solidago juncea	early goldenrod	high	4-8	july-sept	yellow	2-5	UPL	5.0-7.0	full to partial	n/a	700,000	$200	first goldenrod of the season to bloom

Wildflower Plant Characteristics for Pollinator and Conservation Plantings in the Northeast

scientific name	Common name	pollinator ranking*	USDA hardiness zones	Bloom Time	bloom color	ht (ft)	Wetland Indicator	ph	light needs	Veg-etative spread	seeds/#	Cost (lb) ($) 2012**	other
Solidago nemoralis	gray goldenrod	high	4-8	aug-oct	yellow	1-3	UPL	6.5-7.5	full	rapid	1,008,000	$240	survives in low fertility soil, provides nectar for butterflies
Solidago patula	rough goldenrod	high	3-8	sept-oct	yellow	4-5	OBL	4.5-7	full-partial	rapid	700000	$320	
Solidago speciosa	showy goldenrod	high	5-9	aug-sept	yellow	2-5	UPL	5.1-7.5	full to partial	n/a	1,600,000	$160	very attractive to butterflies, bees, ants, beetles
Symphyotrichum laeve	smooth blue aster	high	4-6	aug-oct	blue-purple	2-5	FACU	5.8-7.8	full	mod	880,000	$200	fibrous root system
Symphyotrichum lateriflorum	calico aster	high	3-6	aug-sept	white/ changing	2-5	FACW-	6.1-6.5	full-shade	some	4,000,000	$260	found in forested areas, horizontal branches
Symphyotrichum novae-angliae	new england aster	high	4-8	aug-oct	purple	2-6	FACW	5.6-7.5	full to partial	n/a	700,000	$248	provides food and cover for wildlife and butterflies
Symphyotrichum novi-belgii	NY aster	high	4-8	aug-oct	purple	3-5	FACW	5.5-7	full	mod	700000	$220	prone to mildew
Symphyotrichum prenanthoides	zigzag (crooked stem) aster	high	4-8	july-sept	pink/ purple	2-4	FAC	5.5-7.2	partial to shade	mod	700,000	$180	provides nectar for butterflies
Tradescantia ohiensis	Ohio spiderwort	high	4-9	late may-july	purple	2-3	FAC	6.6-7.5	full to partial	n/a	128,000	$160	self seeds, can become invasive
Tradescantia subaspera	zigzag spiderwort	high	5-9	late may-aug	purple	2-3	FACW	5-6-7.8	partial	n/a	130,000	$54	bloom period fairly long. Pollinated by bees, sytphid flies
Trifolium hybridum	alsike clover	medium-high	2-10	early may-june	pink-white	1-3	FAC	5.6-7.5	full	none	680,400	$2	introduced
Verbena hastata	blue vervain	medium	3-8	june-aug	purple	2-5	FACW+	5.6-7.5	full to partial	n/a	1,544,000	$54	easily seeded
Verbena stricta	hoary vervain	medium	3-9	july-aug	purple	4-6	FACU	5.6-7.5	full	slow	480,000	$80	does not compete with vigorous grasses
Verbena urticifolia	white vervain	medium	4-9	june-aug	white	3-5	FACU	6.6-7.5	full to partial	n/a	1,000,000	$120	will flower in the first year
Verbesina alternifolia	wingstem	high	4-6	july-sept	yellow	3-7	FAC	n/a	full to partial	n/a	239,000	$140	threatened in NYS

Wildflower Plant Characteristics for Pollinator and Conservation Plantings in the Northeast

scientific name	Common name	pollinator ranking*	USDA hardiness zones	Bloom Time	bloom color	ht (ft)	Wetland Indicator	ph	light needs	Veg-etative spread	seeds/#	Cost (lb) ($) 2012**	other
Vernonia noveboracensis	NY ironweed	high	5-9	aug-sept	purple	4-6	FACW+	5.1-7.5	full to partial	none	300,000	$210	deer and rabbit resistance
Veronicastrum virginicum	culver's root	high	4-8	july-aug	white	2-5	FAC	6.6-7.8	full to partial	n/a	12,400,000	$640	attracts butterflies and bees
Zizia aurea	golden alexanders	medium-low	3-8	late april-june	yellow	1-2	FAC	6.1-7.8	full to partial	n/a	176,000	$160	one of the earliest blooming natives

*Pollinator rankings are from Xerces Society and current and past research (values updated May 2012)

**All prices from Ernst Conservation Seed

INFORMATION:

Xerces Society
NRCS PLANTS database
www.wildflower.org
Michigan State University
pollinator.org
CT Botanical Society
Native Plant Network
USDA Forest Service
NYS Natural Heritage Program
NYS Flora Atlas
New England Wildflower Society
Flora Of North America Association

~Note that all native perennial wildflowers benefit from a period of cold stratification to improve germination and vigor

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

APPENDIX Q:
Invasive Species Management Plans

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US Army Corps
of Engineers
Baltimore District

INVASIVE SPECIES MANAGEMENT PLAN

U.S. Army Garrison Adelphi Laboratory Center
Prince George's and Montgomery Counties, Maryland

Prepared for: **U.S. Army Garrison Adelphi Laboratory Center**
Environmental Division
2800 Powder Mill Road
Adelphi, Maryland 20783

Prepared by: **U.S. Army Corps of Engineers, Baltimore District**
10 South Howard Street
Baltimore, Maryland 21201

APRIL 2017

INVASIVE SPECIES MANAGEMENT PLAN

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April 2017

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CHAPTER 1 - INTRODUCTION

1.1 ABOUT THE U.S. ARMY GARRISON ADELPHI LABORATORY CENTER

The U.S. Army Garrison Adelphi Laboratory Center (ALC) is located in Adelphi, Maryland. The site straddles the border between two Maryland jurisdictions, Prince George's and Montgomery Counties. Of the total 202 acre area, 84 acres are within Montgomery County and 118 acres are within Prince George's County. ALC is approximately 6 miles from the District of Columbia. The installation is located within one mile of the Capital Beltway (Interstate 495) and Interstate 95 (I-95). ALC lies in the Anacostia River drainage basin which is a tributary of the Potomac River. It is bordered by residential areas on the east and south and by the General Service Administration's Federal Center on the north and west. ALC consists of four main building areas with parking lots, forested lands and two stream corridors, Paint Branch and Hillandale Tributary.

1.2 ABOUT THE INVASIVE SPECIES MANAGEMENT PLAN

ALC requested the services of the U.S. Army Corps of Engineers, Baltimore District, Planning Division (USACE) to prepare an Invasive Species Management Plan (ISMP) to be implemented at ALC. ALC requested that the ISMP be prepared to identify the locations of invasive plant species that occur on ALC, provide documentation about the species and recommendations for managing each specific species. To develop this ISMP USACE utilized fieldwork conducted at ALC in support of the Integrated Natural Resources Management Plan (INRMP) update, field surveys for invasive species and interviews with ALC personnel.

Invasive terrestrial and aquatic plant species targeted during the 2015 surveys were chosen based on the Maryland Invasive Species Council (MISC) as threats/invasive in the state of Maryland. Invasive species means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Alien species means with respect to a particular ecosystem, any species, including its seeds, eggs, spores or other biological material capable of propagating that species, that is not native to that ecosystem.

1.3 INVASIVE SPECIES LAWS AND GUIDANCE

Like all Army landholders, ALC is required to comply with Federal, Department of Defense (DoD) and Army laws, regulations and guidance regarding invasive species control and non-proliferation. Relevant requirements include Executive Order 13112, *Invasive Species*; Army Policy Guidance for Management and Control of Invasive Species; DoD Pest Management Program (DoD Instruction 4150.07); and the Armed Forces Pest Management Board (AFPMB). A copy of each of these is available in Appendix A.

1.3.1 Executive Order 13112, Invasive Species, 3 February 1999

EO 13112 established an Invasive Species Council, and specified duties for each Federal agency as follows:

(a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

(1) identify such actions;

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to:

(i) prevent the introduction of invasive species;
(ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner;
(iii) monitor invasive species populations accurately and reliably;
(iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded;
(v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and
(vi) promote public education on invasive species and the means to address them; and

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

In response to EO 13112, DoD analyzed its activities, and identified those activities that may affect the status of invasive species. As a result of this analysis, the Army assigned the Assistant Chief of Staff for Installation Management (ACSIM), through the Office of the Director of Environmental Programs (ODEP), as the proponent and Army program manager for all environmental aspects of invasive species management. The Deputy Chief of Staff for Operations and Plans ensures that all aspects of the Integrated Training Area Management Program (ITAM) are consistent with this policy.

1.3.2 Army Policy Guidance for Management and Control of Invasive Species, 26 June 2001

The Army Policy Guidance for Management and Control of Invasive Species, issued by the Department of the Army Assistant Chief of Staff for Installation Management on 26 June 2001, is designed to provide policy guidance for the environmental management and control of invasive species on U.S. Army installations. Major points of this guidance, as it applies to ALC are:

- Invasive species shall be managed within the context of the goals and objectives of an installation's INRMP and will be integrated into other installation plans as appropriate.

- Installations, subject to legal authorities and limitations, will monitor invasive species populations and track the presence and status of invasive species over time, determine when control measures are necessary, and evaluate the effectiveness of prevention, control/eradication, and restoration measures.

- Installations will give priority to invasive species management actions, including actions to restore native species habitat conditions in ecosystems that have been invaded, that support the installation's primary military mission, and that contribute to the protection of federally listed threatened and endangered species and critical habitat. Installations should ensure that invasive species do not detract from the usefulness of military training and testing lands and will ensure that invasive species management and control practices do not result in non-permitted take or jeopardize the existence of threatened and endangered species.

- Installations are encouraged to enter into partnerships with other federal agencies, state agencies, and local agencies, tribes, and non-government organizations.

- Installations are encouraged to cooperate with state programs for controlling invasive species and will allow access to the installations for this purpose. Such access must be consistent with installation safety and security considerations. Control measures must be fully coordinated with installation stakeholders and acceptable for use on the installation.

1.3.3 DoD Pest Management Program (DoD Instruction 4150.07)

The DoD Pest Management Program (DoD Instruction 4150.07) applies to all Military departments and lands. Threatened and endangered species, or their corresponding habitat, cannot be jeopardized. Communication with the U.S. Fish and Wildlife Service is required to identify habitat areas within the target application area, and to comply with protection efforts. All personnel are required to know the impacts of pesticides on threatened and endangered species. DoD regulation also requires discussion of surface and groundwater contamination in the Integrated Pest Management Plan (IPMP). Application of pesticides to wetlands is permissible

only if the chemical label allows for use in wetlands. All herbicides must be registered through the Environmental Protection Agency, under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

1.3.3.1 Certification of Pesticide Applicators

According to Army Regulation 200-1 (AR 200-1), military and civilian personnel who perform, or supervise pesticide application on Army facilities must be trained and certified according to U.S. DoD standards. The DoD Plan for the Certification of Pesticide Applicators (DoD Plan 4150.07-P) outlines the specific components of certification. The DoD program offers certification in various EPA categories designed to meet specific pesticide needs such as, but not limited to, forest pest control, aquatic pest control and ornamental and turf pest control. The training program focuses on areas of pest recognition, chemical components and application methods (labels, storage, disposal, equipment), safety (poison symptoms, emergency procedures) and environmental factors (groundwater and endangered species protection). Those who become certified must repeat certification training every 3 years following initial qualification.

Non-DoD personnel must be trained and certified according to the EPA-approved regulations of the State in which the facility, or property, is located. According to FIFRA, states are required to provide certification training.

1.3.4 Armed Forces Pest Management Board (AFPMB)

The AFPMB coordinates all issues related to pest management within the DoD, acting as a source of guidance, policy, and scientific/technical information. The AFPMB provides and maintains technical information, scientific literature, and internal publications concerning the adverse effects of pests and disease vectors. The training and certification of pesticide applicators is also one of their key responsibilities. The AFPMB is an essential part of any invasive species plan within the DoD; a group whose resources of policy, regulation, and pest management information could prove to be invaluable.

Additional information or support from the AFPMB can be obtained at:

Armed Forces Pest Management Board
U.S. Army Garrison - Forest Glen
2460 Linden Lane, Building 172
Silver Spring, Maryland 20910
301-295-7476
Email through website: http://www.afpmb.org/contact

CHAPTER 2 - METHODS

2.1 SPECIES DATA REVIEW AND COLLECTION

USACE created a master list of invasive species based on species observed during the 2 to 3 August 2011 Planning Level Surveys (PLSs) and lists maintained by the MISC. Federal and state regulated species were included along with other species that were not listed, but are known threats to ALC and surrounding areas. The master list of invasive species is presented in Appendix B.

The MISC provides leadership concerning invasive species and encourages efforts that prevent the introduction of, and manage the impact of, invasive species on Maryland ecosystems. MISC created a list of species of great concern, which includes species that are currently regulated by a state and/or federal law, are widely recognized by biologists and resource managers to degrade natural ecosystems or negatively affect native species, are known to have significant economic impacts on agricultural ecosystems, public infrastructure or natural resources, including impact on recreational activities, or have, or can have, deleterious effects on human health.

The MISC ranking system is as follows:

1 = Currently regulated by state and/or federal law
2 = Widely recognized by biologists and natural resource managers to degrade natural resources and/or negatively impact native species
3 = Known to have a negative economic impact on agricultural or natural resources
4 = Known or potential negative impacts on human (or animal) health

2.2 FIELD SURVEY

USACE conducted a field survey on ALC from 30 June to 2 July 2015. USACE assessed the existence of invasive plant species and verified information previously documented for ALC. All 202 acres of ALC was investigated during the survey. Areas which receive routine mowing were given the least attention whereas, disturbed/edge habitats were given the most attention, due to the greater likelihood of encountering invasive species.

The surveys were conducted using visual search along transects. A team of two people followed rough transects, spaced approximately 20-30 feet apart, throughout the site. 6 survey days (3 days per surveyor), 8 hours each, were spent in the survey for a total of 48 hours of survey. Site visits were timed to capture most plants when they were flowering or otherwise easily identified.

Invasive species encountered during the survey were recorded with a Trimble handheld Global Positioning System (GPS) and on a hardcopy data sheets. Data sheets included species observed, relative density of each species per site and management recommendations for each species (Appendix C). From this information, a matrix was created to illustrate overall species observed, species densities, total occurrences and site descriptions (Appendix B).

Areas where invasive species were observed but not documented or located with GPS included the edges of unimproved roads and cleared areas along the perimeter fence. These locations generally had higher densities of invasive species then undisturbed forest and are more easily located and accessed for management. Due to disturbance and the edge effect, invasive plant species tend to be more prevalent along wood lines and along roads.

2.3 MAP DEVELOPMENT

The field survey which identified established populations of invasive species was completed using GPS technology. The survey utilized handheld Trimble GeoXH GPS systems for Geographical Information System (GIS) data collection yielding sub-meter horizontal accuracy. Collected GPS points of confirmed invasive species were integrated into ArcGIS 10 where aerial imagery was added and site investigation notes were placed within the attribute table for the invasive species point shapefile. This data was then used to depict areas where invasive species were present within the installation boundaries.

Attribute tables within GIS include a description of the invasive species captured and recommended management methods. The data is in the Maryland State Plane (NAD83) Coordinate System and maintained in the SDSFIE (Spatial Data Standards for Facilities, Infrastructure and Environment) format. A GIS map is presented in Appendix D.

2.4 FIELD DATA ANALYSIS AND DEVELOPMENT OF RECOMMENDATIONS

Using all of the above information, USACE developed management recommendations for each of the observed species. In developing the recommendations, USACE considered species locations compared to natural resources and sensitive areas, densities within those locations and across all of ALC and number of occurrences.

CHAPTER 3 - FINDINGS

USACE conducted field surveys on ALC from 30 June to 2 July 2015. The team surveyed approximately 157 acres of the approximate 202 acres of ALC. The 45 acres not surveyed consisted mainly of buildings, parking facilities and mowed and maintained areas. Twenty three invasive species were identified within these areas during the surveys. The most prevalent invasive species recorded at ALC included Japanese barberry (*Berberis thunbergii*), Chinese bushclover (*Lespedeza cuneata*) and Japanese stiltgrass (*Microstegium vimineum*). Table 3-1 provides the invasive species that were identified during the survey and their overall density on ALC. The locations of these species are shown on a map provided in Appendix D.

Table 3-1: Invasive Species Identified on ALC

Scientific Name	**Common Name**	**MISC Ranking***	**Overall Density on ALC**
Alliaria officinalis	Garlic mustard	2	Low
Ampelopsis brevipedunculata	Porcelain berry	2, 3	Low
Berberis thunbergii	Japanese barberry	2	High
Cirsium arvense	Canada thistle	1, 2, 3	Low
Cirsium vulgare	Bull thistle	1, 2, 3	Low
Euonymus atropurpureus	Burning bush	N/A	Low
Euonymus fortunei	Winter creeper	2	Low
Glechoma hederacea	Ground ivy	N/A	Moderate
Lespedeza cuneata	Chinese bushclover	N/A	High
Ligustrum sinense	Chinese privet	N/A	Low
Lonicera japonica	Japanese honeysuckle	2	Low
Lonicera tatarica	Bush honeysuckle	2	Low
Microstegium vimineum	Japanese stiltgrass	2	High
Miscanthus sinensis	Chinese silvergrass	2	Low
Persicaria perfoliata	Mile-a-minute	2	Moderate
Phragmites australis	Common reed	1, 2, 3	Moderate
Phyllostachys aurea	Golden bamboo	2	Low
Pyrus calleryana	Bradford pear	2, 3	Low
Rosa multiflora	Multiflora rose	2, 3	Low
Rubus phoenicolasius	Wineberry	N/A	Low
Securigera varia	Crownvetch	N/A	Low
Vinca minor	Periwinkle	N/A	Low
Wisteria sinensis	Chinese wisteria	2	Low

* MISC Ranking –
1 = Currently regulated by state and/or federal law
2 = Widely recognized by biologists and natural resource managers to degrade natural resources and/or negatively impact native species
3 = Known to have a negative economic impact on agricultural or natural resources
4 = Known or potential negative impacts on human (or animal) health
N/A = No MISC ranking

Species commonly occurred along road edges, forest edges, previously disturbed areas, such as along the perimeter fence and recently installed storm water management facilities, and on the floodplain of Paint Branch, downstream of the Floral Drive bridge.

At ALC, undisturbed mature forests with closed canopy generally do not provide habitat suitable for invasive species. These areas prevent the germination of seeds of invasive species, which generally require direct sunlight and disturbed soils to thrive and outcompete native species.

Species and habitat photos are located in Appendix E.

CHAPTER 4 - MANAGEMENT RECOMMENDATIONS

4.1 PREVENTION, CONTROL AND MONITORING

The first and best method for managing invasive species is to be situationally aware and avoid introducing them to the installation. Preventive programs are implemented to keep the management area free of species that are not yet established there, but are known to be invasive in adjacent areas. Invasive species prevention is the most economical technique available for ALC. Prevention treatments can include outreach to neighbors, tenants and command; minimizing human-induced disturbance; and maintaining an unbroken, vertically diverse plant community canopy (Paciulli, Simmons and Associates, 2006).

Most native species do not compete well with invasive species. Continual monitoring and treating invasive species is the best method. Due to the rare status of the Powder Mill Bog it is recommended to not plant any species within this habitat. Manually remove invasive species and let the bog naturally do its own thing are also recommended for this habitat.

If the species is so widespread or well established that prevention is not possible, then control or eradication is required; however, for two species eradication may not be practical. Japanese honeysuckle and Japanese stiltgrass are both widely disseminated on site. Japanese honeysuckle was introduced in the United States in the 1800s (USDA, 2012) and since has become widespread. "The species (Japanese honeysuckle) has naturalized in much of the United States except Alaska and a few states in the Northwest, northern Midwest, and Vermont" (Redman, D.E., 1995). Japanese stiltgrass, although less widespread than Japanese honeysuckle, is also common in the eastern United States. "This species (Japanese stiltgrass), an annual grass native to Asia, has become naturalized widely and abundantly in the eastern and southeastern United States since it was introduced into Tennessee in 1919" (Fairbrothers and Gray, 1972). ALC may wish to consider the widespread nature of these species before allocating resources to manage them. It is recommended that the limited invasive species management resources be focused on detection and eradication of new or incipient species or on other species that have the potential to become widespread. If ALC does feel management of Japanese honeysuckle and Japanese stiltgrass is critical, it is recommended that the areas with the highest density of these species be prioritized in order to get the best results.

Methods of control or eradication for invasive species vary from species to species. Generally, however, there are four methods of management: biological, chemical, manual and mechanical. Each management technique can be initiated as a standalone treatment. In some instances they can be used in conjunction with other management techniques for greater success. Additionally, the appropriate treatment may vary on a case by case basis, i.e., hand pulling Japanese honeysuckle may be practical for a small area, and impractical for a larger area. The Nature Conservancy developed the Weed Control Methods Handbook that includes descriptions of certain herbicides used for chemical control. These descriptions are provided in Appendix F. Species specific management recommendations are provided below.

Lastly, installation-wide monitoring should be conducted at least every five years, to coincide with the update and revision of this management plan. This should consist of assessing the success of ongoing treatment efforts as well as monitoring the installation for new invasive

species and new areas of previously documented invasive species. ALC may wish to focus monitoring efforts on areas where invasive species are likely to originate on the installation. Ground disturbing activity which removes existing vegetation provides an opening in the biological niche which invasive species are adept at exploiting. Construction sites, which often require grading and may require the transport of fill material from offsite are a common source of new invasive species or provide excellent habitat for invasive species that are already onsite.

Table 4-1 discusses species specific management recommendations broken down by biological, chemical, manual and mechanical control methods.

Table 4-1: Species Specific Management Recommendations

Scientific Name	**Common Name**	**Biological**	**Chemical**	**Manual**	**Mechanical**
Alliaria officinalis	Garlic mustard		Glyphosate	Hand pulling (seedbank can last up to five years so it is important to revisit the site multiple times per year over several years)	
Ampelopsis brevipedunculata	Porcelain berry		Glyphosate Triclopyr	Hand pull vines in fall or spring	Repeat cutting of large vines near ground and apply herbicide (Glyphosate or Tricolpyr) to stems
Berberis thunbergii	Japanese barberry		Glyphosate Triclopyr		Weed wrench
Cirsium arvense	Canada thistle	Specific rust fungus (presently being tested at Fort Detrick)	2,4-dichlorophenoxy Clopyralid Imazapyr	Application of several feet of hay mulch over plants	Prescribed burn, where feasible

Scientific Name	Common Name	Biological	Chemical	Manual	Mechanical
Cirsium vulgare	Bull thistle		2,4-dichlorophenoxy Clopyralid Dicamba + Glyphosate		Use a shovel to remove the top couple inches of the root, this will kill the plant. Weed eat consistently throughout the growing season to exhaust starches in root system
Euonymus atropurpureus	Burning bush		Apply Glyphosate or Triclopyr to the stump	Hand pull entire plant is effective if small in stature	Cut shrub at ground level and apply herbicide (Glyphosate or Triclopyr) to the stump or use a stump grinder to prevent regrowth
Euonymus fortunei	Winter creeper		2,4-dichlorophenoxy Clopyralid Dicamba Imazapic Imazapyr Metsulfuron-methyl Picloram Triclopyr	Hand pull small infestations	Cut stems and apply herbicide
Glechoma hederacea	Ground ivy		2,4-dichlorophenoxy Dicamba Triclopyr		
Lespedeza cuneata	Chinese bushclover		Clopyralid Glyphosate Triclopyr		Mowing Prescribed burn
Ligustrum sinense	Chinese privet		Glyphosate		Cut stump and apply herbicide (Glyphosate)
Lonicera japonica	Japanese honeysuckle		Glyphosate Triclopyr	Hand pull	Prescribed burning in the wintertime, where feasible

Scientific Name	Common Name	Biological	Chemical	Manual	Mechanical
Lonicera tatarica	Bush honeysuckle		Glyphosate		Cut and apply pesticide to stumps in order to kill roots or use a stump grinder to prevent regrowth. Weed wrench or chainsaw
Microstegium vimineum	Japanese stiltgrass		Glyphosate Imazapic	Hand pull	"Scalping" with a weed eater in late summer (August) prior to reseeding and repeat as necessary
Miscanthus sinensis	Chinese silvergrass		Glyphosate Imazapyr	Hand pull entire plant is effective if small in stature	
Persicaria perfoliata	Mile-a-minute	Rhinonco mimus latipes (weevil)	Glyphosate Triclopyr	Hand pull (protective gloves, long sleeve shirts and pants are required due to barbs on stem of vine)	
Phragmites australis	Common reed		Glyphosate (Rodeo® is preferable for use in wetlands)		Prescribed burn, where feasible
Phyllostachys aurea	Golden bamboo		Glyphosate		Repeated cutting/mowing Apply herbicide to stump

Scientific Name	Common Name	Biological	Chemical	Manual	Mechanical
Pyrus calleryana	Bradford pear		Glyphosate	Hand pull entire plant is effective if small in stature	Cut shrub at ground level and apply herbicide (Glyphosate or Triclopyr) to the stump to prevent resprout or use a stump grinder to prevent regrowth
Rosa multiflora	Multiflora rose		Dicamba Glyphosate Triclopyr		Weed wrench Repeated cutting over several seasons
Rubus phoenicolasius	Wineberry		Glyphosate Metsulfuron-methyl Triclopyr	Hand pull (protective gloves are required)	Pitch fork or spade can be used to remove entire plant
Securigera varia	Crownvetch		2,4-dichlorophenoxy Glyphosate Triclopyr		
Vinca minor	Periwinkle		Glyphosate		Repeated digging, raking and mowing to remove entire plant
Wisteria sinensis	Chinese wisteria		Clopyralid Glyphosate	Hand pull or cut	

4.2 REQUEST ASSISTANCE IF NECESSARY

Several options are available to assist ALC in identifying and managing invasive species. The most useful and readily available resource is the local U.S. Department of Agriculture (USDA) Extension Service office. Each county in each state has an Extension Service office, which offers assistance in managing a wide variety of agricultural pests. These agricultural pests include a large number of terrestrial plants and animals that are invasive in that area. The Extension Service office may provide on-the-ground expertise in identifying plants and insects on the facility, and can assist in developing a practical management plan for those species. The Prince George's and Montgomery County Cooperative Extension System offices information is provided below.

University of Maryland Extension
Prince George's County
6707 Groveton Drive
Clinton, Maryland 20735
301-868-9366
http://extension.umd.edu/prince-georges-county

University of Maryland Extension
Montgomery County
18410 Muncaster Road
Derwood, Maryland 20855
301-590-9638
http://extension.umd.edu/montgomery-county

Another good source of assistance is the Maryland Natural Heritage Program (MD NHP). While this program is generally set up to track the occurrence of listed endangered or threatened species, it also is concerned with invasive species, because invasive species are often a factor in native species decline. The MD NHP may also be willing to provide experts to visit the facility and identify potential areas of concern, specific locations of invasive species (if present), and up-to-date information on management methods used statewide. These professionals may also provide information on potential endangered species at the facility, thereby allowing ALC to avoid chemical and mechanical methods in those areas. The MD NHP information is listed below.

Maryland Wildlife and Heritage Service
580 Taylor Avenue
Annapolis, Maryland 21401
877-620-8367
http://dnr2.maryland.gov/wildlife/Pages/default.aspx

Other sources of assistance include universities, citizens groups and other local organizations. Some of these organizations are listed below.

Maryland Native Plant Society
P.O. Box 4877
Silver Spring, Maryland 20914
410-286-2928
www.mdflora.org

Maryland Sea Grant
University System of Maryland
4321 Hartwick Road, Suite 300
College Park, Maryland 20740
301-405-7500
http://www.mdsg.umd.edu

4.3 SPECIES IDENTIFICATION WEBSITES

Below are websites where pictures are able to be submitted and will then be identified by an expert or the general public.

University of Maryland Home and Garden Information Center (HGIC)
This program was started by a grant from the Northeast Regional Integrated Pest Management Grants Program, which is funded by the USDA. Users submit questions to HGIC's staff of

experts by completing a question submission form. They then receive a personal answer to their question. If the user is trying to identify a plant or insect, a digital photo may be attached. https://extension.umd.edu/hgic

Doug Greens Garden

This gardening website's objective is to give users the information they need to have a great garden. This website will assist in plant identification. They have helpful gardeners that take the time to help users figure out what they are growing. http://douggreensgarden.com/

Dave's Garden Invasive Plants Discussion Forum

This is a forum for thoughtful and respectful discussion of invasive plants (whether native or exotic/alien species); their effect on your garden and the environment, and a place to seek help with identifying and eradicating or controlling such plants. Only registered members are able to post messages to this forum. Registration is free.
http://davesgarden.com/community/forums/f/invasives/all/

GardenWeb/Houzz

GardenWeb is the largest gardening site on the Web, with garden forums, articles on gardening, directories of nurseries, gardens and gardening organizations and much more. This gallery forum allows users to upload images of plants that they are trying to identify so that others may be able to help them come up with a name. Only registered members are able to post messages to this forum. Registration is free. http://forums2.gardenweb.com/forums/namegal/#image

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CHAPTER 5 - REFERENCES

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APPENDIX A: LAWS AND GUIDANCE

DEPARTMENT OF THE ARMY
ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON DC 20310-0600

REPLY TO
ATTENTION OF

26 JUN 2001

DAIM-ED-N (200-3)

MEMORANDUM

SUBJECT: Army Policy Guidance for Management and Control of Invasive Species

1. References:

a. AR 200-3, 28 Feb 95, Natural Resources – Land, Forest, and Wildlife Management.

b. Presidential Executive Order 13112, subject: Invasive Species, 3 Feb 99 (enclosure 2).

c. DoD 4500.9-R, Part V, January 2001, Defense Transportation Regulation - DoD Customs and Border Clearance Policies and Procedures.

2. Invasive species can be a threat to natural resources, impact local economies, and present problems for the military mission. The Army Policy Guidance for Management and Control of Invasive Species (enclosure 1) will assist installations to comply with Executive Order 13112 and to manage invasive species within the framework of existing Army natural resources and conservation programs.

3. The Army Staff point of contact for invasive species can be reached at 703-693-0673.

FOR THE ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT:

2 Encls

RICHARD A. HOEFERT
Colonel, GS
Director, Environmental Programs

Army Policy Guidance
Management and Control of Invasive Species
June 2001

1. Purpose: To provide policy guidance for the environmental management and control of invasive species on US Army installations.

2. Applicability: Applicability of this policy guidance is consistent with AR 200-3 for installations in US states and territories. This policy guidance does not apply to installations in foreign nations. Invasive species are not currently addressed in the Overseas Environmental Baseline Guidance Document. Invasive species management and control at installations in foreign nations will be in accordance with the Final Governing Standards negotiated with the host nation.

3. References:

a. Endangered Species Act (ESA), 16 U.S.C. 1531, Chapter 35.

b. National Environmental Policy Act (NEPA), 42 U.S.C. 4321.1.

c. Sikes Act, as amended by the Sikes Act Improvement Act (SAIA) of 1997, 16 U.S.C. § 670a *et seq*.

d. Presidential Executive Order 13112, subject: Invasive Species, 3 Feb 99.

e. Presidential Executive Order 13148, subject: Greening the Government through Leadership in Environmental Management, 21 April 2000 (http://ceq.eh.doe.gov/nepa/regs/eos/eo13148.html).

f. DoD 4500.9-R, Part V, January 2001, Defense Transportation Regulation - DoD Customs and Border Clearance Policies and Procedures (http://public.transcom.mil/J4/j4lt/partVTOC.pdf).

g. AR 200-3, 28 Feb 95, Natural Resources - Land, Forest and Wildlife Management.

h. AR 200-5, 29 Oct 1999, Pest Management.

i. AR 40-12, Quarantine Requirements, Section 1 and 5, 24 Jan 92.

j. Policy And Guidance For Identifying U.S. Army Environmental Program Requirements Environmental Program Requirements Report, Aug 00.

k. Guidance for Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federal Landscaped Grounds (60 FR 154, 40837-40841), 10 Aug 95.

l. Memorandum, DAIM-ED-N, 21 Mar 97, Subject: Army Goals and Implementing Guidance for Natural Resources Planning Level Surveys (PLS) and the Integrated Natural Resources Management Plan (INRMP).

4. Background: Executive Order (EO) 13112 on Invasive Species outlines Federal agency duties and provides definitions that provide the foundation for this policy.

a. Federal Agency Duties: EO 13112, Section 2, Paragraph a.2, establishes duties of federal agencies to prevent the introduction of invasive species, to provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species may cause.

b. Definitions: EO 13112, Section 1 provides the following definitions pertinent to this policy:

(1) Invasive species means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

(2) Alien species means with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

(3) Native species means with respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

(4) Introduction means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.

(5) Ecosystem means the complex of a community of organisms and its environment.

5. Responsibilities:

a. The Assistant Chief of Staff for Installation Management (ACSIM), through the Office of the Director of Environmental Programs (ODEP), is the proponent and Army program manager for all environmental aspects of invasive species management.

b. Deputy Chief of Staff for Operations and Plans will ensure that all aspects of the Integrated Training Area Management Program (ITAM) are consistent with this policy.

c. Deputy Chief of Staff for Logistics is the Army liaison with the U.S. Transportation Command, who is the DOD Executive Agent for Customs and Border Clearance and proponent for the Defense Transportation Regulation (DTR) (reference 3f). The DTR provides policy in support of the movement of personnel and cargo and the relationship of DOD to the statutory requirements of the border clearance agencies to include actions to prevent the introduction of invasive species.

d. Commanders of Major Commands (MACOMs) and Director of the Army National Guard shall:

(1) provide command and technical supervision of invasives species management at installations under their command or jurisdiction.

(2) assist installations to develop and implement programs to include planning, surveys, monitoring, management (control/eradication), and restoration.

(3) review technical adequacy of the installation invasive species management efforts.

(4) assure that installations request funds, identify requirements, and allocate funds provided by the program proponent.

(5) assure integration of environmental, operations, and logistics missions.

e. Installation Commanders and The Adjutants General shall:

(1) budget, identify requirements in the Environmental Program Requirements (EPR)(reference 3j), and expend allocated funds to effectively plan and execute invasive species management on their installations in accordance with their missions, command priorities, and current environmental must fund guidance.

(2) implement this policy to minimize adverse impacts to the environment and sustain accomplishment of the installation's military mission.

(3) develop internal partnerships that will ensure that all land users and other installation organizations that may influence the introduction and spread of invasive species are aware of and comply with this policy and incorporate it into their procedures.

6. Policy Guidance:

a. The Department of Army will comply with Executive Order 13112 (EO) as it applies to U.S. Army activities.

b. Invasive species shall be managed within the context of the goals and objectives of an installation's Integrated Natural Resources Management Plan (INRMP) (references 3c, 3g, and 3l) and will be integrated into other installation plans as appropriate. Implementation of projects for the control/eradication or response to new introductions of invasive species shall meet the goals and objectives of an approved and current INRMP.

(1) Specific inclusion of invasive species in an INRMP shall not impede progress to complete the INRMP by 18 November 2001 as legally mandated in the SAIA (reference 3c). Invasive species do not need to be addressed specifically or immediately in an installation's INRMP to qualify as an environmental requirement (see paragraph 6b(3) below).

(2) At installations where an INRMP is not required, the Installation Pest Management Plan (reference 3h) or another existing installation plan, as most appropriate, shall address the goals and objectives for invasive species management.

(3) The Management Decision Package (MDEP) for conservation projects involving invasive species management is VENN. Invasive species projects do not need to be specifically identified in the INRMP, or other installation management plans per paragraph 5.b (1) and (2) of this policy, to qualify as an environmental requirement. They only need to be projects that are required to meet the goals and objectives of the plan. If more specific descriptions of installation invasive species programs are desired, they should be addressed during a future review cycle of the INRMP. Requirements for implementing invasive species management shall be identified in the U.S. Army Environmental Program Requirements (reference 3j) under the law/regulation SIKE, ESA, or CWA. Projects to support the management objectives in an approved INRMP or, where an INRMP is not required, to support natural resources stewardship requirements, should be addressed under SIKE. Projects for protecting and managing listed species and critical habitat that involve invasive species should be addressed under the law/regulation ESA. Invasive species projects that involve erosion control and wetlands should be addressed under the law/regulation CWA.

c. Installations, subject to legal authorities and limitations, will monitor invasive species populations, and track the presence and status of invasive species over time to determine when control measures are necessary and to evaluate the effectiveness of prevention, control/eradication, and restoration measures.

d. Installations will give priority to invasive species management actions, including actions to restore native species habitat conditions in ecosystems that have been invaded, that support the installation's primary military mission and contribute to the protection of Federally listed threatened and endangered species and critical

habitat. Installations should ensure that invasive species do not detract from the usefulness of military training and testing lands and will ensure that invasive species management and control practices do not result in non-permitted take or jeopardize the existence of threatened and endangered species (reference 3a).

e. Where applicable, invasive species management practices shall be synchronized with objectives of the installations ITAM program. The ITAM program integrates training and mission requirements with sound land management practices.

(1) Land Condition Trend Analysis (LCTA) data can provide valuable information for, and shall be shared with, installation natural resources managers.

(2) Land Rehabilitation and Maintenance projects will not include the use of invasive species unless that use is consistent with this policy.

(3) Where appropriate, ITAM Environmental Awareness materials can be used effectively to present invasive species issues.

f. Where available, installations should use Flora and Fauna Planning Level Surveys (PLS) and LCTA to detect and identify invasive species. As existing PLSs are updated they should include invasive species information if it is not currently included.

g. Planned actions to address invasive species should be consistent with management objectives in updated INRMPs and undertaken only after appropriate review under NEPA as implemented by AR 200-2. Actions should also be reviewed under the provisions of the ESA where federally listed species or their habitats are present.

o. Actions that are likely to cause or promote the introduction or spread of invasive species will not be funded.

p. Consistent with references 3e and 3k, invasive species will not be used in installation landscaping. In addition, landscaping practices should incorporate management practices that control invasive species wherever necessary.

j. Installations are encouraged to enter into partnerships with other federal agencies, state agencies, and local agencies, tribes, and non-government organizations:

(1) to share information and address invasive species issues impacting critical missions on installations.

(2) to provide public education on invasive species management.

(3) to achieve local goals for controlling invasive species both on and off the installation.

k. Installations are encouraged to cooperate with state programs for controlling invasive species and will allow access to the installations for this purpose. Such access must be consistent with installation safety and security considerations. Control measures must be fully coordinated with installation stakeholders and acceptable for use on the installation.

l. ITAM funding will be used for invasive species management only when identified as validated projects in an approved ITAM annual work plan and is consistent with the goals and objectives of the installation's approved INRMP. These projects must have a direct tie to military training and testing activities.

m. Installation and Unit Commanders are required to follow federal laws enforced by the U.S. Department of Agriculture Animal Plant and Health Inspection Service. The Department of Defense accomplishes this through DoD 4500.9-R, Part V (reference 3f). This regulation provides direction for the routine maintenance and washing of vehicles and equipment after field operations to remove mud/particulate matter, which prevents introduction of invasive or exotic species. The regulation requires conformance to customs requirements for international transport. Environmental funds will not be used to comply with DoD 4500.9-R, Part V, January 2001, Defense Transportation Regulation - DoD Customs and Border Clearance Policies and Procedures.

n. Installations shall comply with AR 200-5 when using pesticides to control invasive species.

o. Reduction of pesticides use must be considered in invasives species control strategies. However, pesticide reduction should not be the sole consideration in choosing a method to control invasive species. Informed decisions should be made based on the most effective and environmentally sound approach for controlling invasive species to include the use of pesticides.

p. Alternatives for control of invasive species will be reviewed in accordance with NEPA (reference 3b) as implemented by AR 200-2. If the alternative includes biological control of invasive species, the species used for biological control will not be introduced into any natural ecosystem, unless there is prior consultation with local, state and federal agencies to determine that such introduction will not have an adverse effect on those ecosystems or protected species. The requirements of AR 200-3, paragraph 11-2c(1) shall be followed when species listed or proposed for listing under the ESA are present in the area where biological control is being considered.

Department of Defense

INSTRUCTION

NUMBER 4150.07
May 29, 2008

USD(AT&L)

SUBJECT: DoD Pest Management Program

References: (a) DoD Instruction 4150.7, "DoD Pest Management Program," April 22, 1996 (hereby canceled)
(b) DoD Directive 4715.1E, "Environment, Safety, and Occupational Health (ESOH)," March 19, 2005
(c) DoD Directive 5134.01, "Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L))," December 9, 2005
(d) Sections 10 and 136 of title 7, United States Code
(e) through (ar), see Enclosure 1

1. PURPOSE

This Instruction:

1.1. Reissues Reference (a) according to the guidance in Reference (b) and the authority in Reference (c).

1.2. Implements policy, assigns responsibilities, and prescribes procedures for the DoD Integrated Pest Management (IPM) Program pursuant to Reference (b); section 136 of title 7, United States Code (U.S.C.) (Reference (d)); section 125 of title 10, U.S.C. (Reference (e)); and Army Regulation (AR) 10-64/Chief of Naval Operations Instruction 6700.2/Air Force Regulation (AFR) 160-29/Marine Corps Order 5420.18A (Reference (f)).

1.3. Continues to authorize the publication of DoD 4150.7-P (Reference (g)) and DoD 4150.7-M (Reference (h)), pursuant to DoD Instruction 5025.01 (Reference (i)).

1.4. Designates the Secretary of the Army as the Support Agent for the Armed Forces Pest Management Board (AFPMB) pursuant to Reference (b).

2. APPLICABILITY AND SCOPE

This Instruction:

2.1. Applies to the Office of the Secretary of Defense, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, and the DoD Field Activities (hereafter referred to collectively as the "DoD Components"). The term "Military Services," as used herein, refers to the Army, the Navy, the Air Force, and the Marine Corps.

2.2. Applies to all DoD operations, activities, and installations worldwide, including appropriated fund activities, non-appropriated fund activities, contracted activities, and Government-owned, contractor-operated facilities and housing.

2.3. Applies to all DoD buildings, structures, property (under DoD control by ownership, permit, lease, license, or other land or facility-use agreement), public works, equipment, aircraft, vessels, and vehicles.

2.4. Applies to all DoD vector control and pest management operations performed worldwide during peacetime, wartime, and military deployments, including those performed under formal or informal contract and those procured using the Government Purchase Card (GPC).

2.5. Applies to all Army National Guard and Air National Guard units on property supported with Federally appropriated funds under a cooperative agreement and who are performing training subject to Federal approval under section 113, chapter 1 of title 32, U.S.C. (Reference (j)).

2.6. Outside the continental United States (OCONUS), applies where consistent with applicable international agreements, status of forces agreements, final governing standards (FGS) issued for the host nations, or, where no such FGS have been issued, the criteria in the Overseas Environmental Baseline Guidance document (Reference (k)).

2.7. Does not apply to:

2.7.1. Civil works activities of the U.S. Army Corps of Engineers.

2.7.2. Facilities used by the Army National Guard or Air National Guard that are both State-owned and State-funded (armories).

2.7.3. Facilities occupied by Military Services and the Defense Logistics Agency (DLA) when real property control is not under the Department of Defense.

2.7.4. Privatized housing, which must comply only with State and local laws and regulations.

3. DEFINITIONS

Terms used in this Instruction are defined in Enclosure 2.

4. POLICY

It is DoD policy, pursuant to References (b) and (d), to:

4.1. Use IPM techniques in carrying out pest management activities and promote IPM through procurement and regulatory policies, and other activities.

4.2. Use IPM to prevent or control pests and disease vectors that may adversely impact readiness or military operations by affecting the health of personnel, or by damaging structures, materiel, or property.

4.3. Comply with all Executive orders and Federal, State, and local statutory and regulatory requirements that apply to IPM. Although Federal agencies maintain sovereignty under section 136 of Reference (d), the Department of Defense voluntarily complies with the substantive portions of State pesticide and pest management laws and regulations when such compliance does not adversely impact DoD missions.

4.4. Incorporate sustainable IPM philosophy, strategies, and techniques in all aspects of DoD vector control and pest management planning, training, and operations, including in installation pest management plans and other written guidance, to reduce pesticide risk and prevent pollution.

5. RESPONSIBILITIES

5.1. The Assistant Deputy Under Secretary of Defense (Environment, Safety, and Occupational Health) (ADUSD(ESOH)), under the authority, direction, and control of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), shall:

5.1.1. Oversee the implementation of this Instruction and represent the Secretary of Defense for both internal and interagency matters regarding the DoD Pest Management Program.

5.1.2. Provide operational direction and supervision to the AFPMB.

5.1.3. Coordinate pest management actions that affect human health with the Assistant Secretary of Defense for Health Affairs (ASD(HA)).

5.2. The Director for Defense Research and Engineering, under the authority, direction, and control of the USD(AT&L), shall, in coordination with ADUSD(ESOH), promote and support research, development, and technology transfer for the DoD IPM program.

5.3. The Director of the AFPMB shall:

5.3.1. Monitor compliance with this Instruction, including Military Service use of the DoD Environmental Security Measures of Merit for Pest Management. (See Enclosure 3.)

5.3.2. Maintain and enforce References (g) and (h).

5.3.3. Recommend policy, provide scientific advice, and enhance coordination among the Military Services on all matters related to disease vector and pest management.

5.3.4. Serve as the coordinating office for the DoD Undesirable Plant Management Program required by section 10 of Reference (d).

5.3.5. Review and update DoD Installations and Environmental Measures of Merit for Pest Management, as outlined in Enclosure 3.

5.3.6. Periodically review and update AFPMB Technical Guides 11, 14, 15 through 18, 20 and 21, 24, 26 and 27, 29, 36, and 39 (References (l) through (y), respectively).

5.3.7. Review and approve DoD Components' recommendations for pest management consultants.

5.4. The Secretaries of the Military Departments and the Director, DLA, shall:

5.4.1. Designate senior pest management consultants as the primary points of contact for the Military Services' and DLA's pest management program and for membership on the AFPMB in support of the Defense Environmental Security Council. Inform the Director of AFPMB, in writing, of these designated consultants for review and approval.

5.4.1.1. Each Military Service's senior pest management consultants shall nominate, in writing, pest management consultants to serve as certifying officials to certify competency of the Military Service's pesticide applicators.

5.4.1.2. Each Military Service nominee's qualifications shall be formally reviewed and, if qualified, approved and acknowledged by the Director of the AFPMB.

5.4.2. Establish and maintain programs that conform to the policy, procedures, and requirements in this Instruction.

5.4.3. Resource and fund IPM programs in ways that protect the health of military personnel, civilians, and dependents; protect real property and natural resources from damage from insects, weeds, and other pests; and promote training and mission readiness with minimum risk to the environment.

5.4.4. Oversee and review IPM programs at the major command and headquarters levels.

5.4.5. Record and permanently archive records of pest management operations and pesticide use on DoD permanent installations using the DoD Integrated Pest Management Information System (IPMIS) or other computer-generated equivalent approved by the designated pest management consultant.

5.4.6. Record and permanently archive all pesticide applications, except skin and clothing arthropod repellents, performed during military deployments using the DoD IPMIS or other computer-generated equivalent approved by the designated pest management consultant. The U.S. Army Center for Health Promotion and Preventive Medicine shall provide program administration and data support services, including permanent archiving for all Military Services, in accordance with DoD Instruction 6490.03 (Reference (z)).

5.4.7. Ensure that actions taken under the policy in section 4 of this Instruction are consistent with Reference (b).

5.4.8. Comply with applicable Federal, State, and local statutory and regulatory requirements for pest management when conducting environmental compliance audits and staff assistance visits.

5.4.9. Incorporate IPM practices and techniques in all disease vector and pest management programs, plans, operations, regulations, publications, pest control contracts, and training programs for installation pest control coordinators, pesticide applicators, pest control contract inspectors, and military personnel who apply pesticides.

5.4.10. Coordinate pest management actions affecting human health with appropriate agencies and officials, including the ASD(HA) and State, local, and host-nation governments.

5.4.11. Ensure a pest management consultant currently certified in the appropriate DoD categories (References (g) or (h)) reviews installation IPM programs on-site every 3 years, and annually reviews and technically approves installation IPM plans, including installation pesticide use proposals for the upcoming year. Environmental compliance on-site external reviews may be substituted for on-site reviews to meet DoD program requirements.

5.4.12. Ensure a pest management consultant currently certified in DoD category 11 (Reference (g)) reviews and approves any aerial application of pesticides on DoD installations.

5.4.13. Implement pest management Measures of Merit (see Enclosure 3) and answer data calls for the Measures of Merit from the ADUSD(ESOH). Answer data calls for information required by the Environmental Protection Agency (EPA) pertaining to DoD pesticide applicators.

5.4.14. Monitor pesticides proposed for sale in Defense commissaries and Armed Service Exchanges to ensure they are compatible with the DoD IPM Program and comply with applicable Federal, State, local, and host-nation laws.

5.4.15. Cooperate with State and local government agencies on issues involving pest management and pesticide regulation.

5.4.16. Provide management support, resources, and a professionally qualified pest management staff sufficient to ensure effective implementation of IPM programs at all organizational levels.

5.4.17. Survey potential adverse environmental or public health effects from pesticide use; monitor the health and safety of persons who apply pesticides; ensure workplaces are evaluated to determine personal protective equipment (PPE) requirements by qualified safety and health personnel; and ensure that PPE used conforms to Occupational Safety and Health standards (e.g., DoD, the National Institute for Occupational Safety and Health, or national consensus standards, including any certification and specification requirements) and that personnel required to wear PPE are properly trained. (See DoD Instruction 6055.1 (Reference (aa)).

5.4.18. Ensure commanders of deployed forces use all appropriate personal protection measures, including arthropod skin and clothing repellents, and bed nets, to protect Service members from vector-borne diseases and other arthropod-related health threats. Specific guidance on personal protection measures is found in Reference (x).

5.4.19. Ensure excess pesticides are disposed of in accordance with EPA and Service requirements.

5.4.20. Ensure that installations:

5.4.20.1. Annually update and coordinate the review and approval of their IPM plans; plan the funding for initial and 5-year revisions of IPM plans as necessary, consistent with the program elements in Enclosure 5 and Reference (q).

5.4.20.2. Implement IPM plans approved by designated pest management consultants using trained personnel and certified pesticide applicators, in accordance with the IPM plan written for each installation.

5.4.20.3. Designate in writing an IPM coordinator to oversee all aspects of the installation IPM plan, including in-house, formally contracted, and GPC-contracted operations; housing, engineer, and medical department operations; and pesticide applications for grounds operations, out-leasing, golf course operations, wood preservation, natural resources, forestry operations, self-help, and pesticide sales. Enclosure 4 contains details on the qualifications, training, and responsibilities of IPM coordinators.

5.4.20.4. Establish pest management self-help programs for non-privatized military housing when cost effective and when IPM monitoring justifies a requirement.

5.4.20.5. Require that all pesticide applications on DoD installations be made only by personnel trained and certified in accordance with References (g) or (h) or by State-certified

applicators with equivalent DoD categories for work being performed. State-equivalent certification categories for personnel who require certification as pesticide applicators can be found at http://aec.army.mil/usaec/pest/pest05.html.

5.4.20.6. Procure pesticides from the Federal Supply System or commercial sources that are: approved by a pest management consultant who is currently certified in the appropriate DoD categories (see References (g) or (h)); documented in the pest management plan; and comply with applicable Federal, State, local, and host-nation requirements.

5.4.20.7. Record and permanently archive pesticide application records as required by section 136 of Reference (d) and host-nation agreements.

5.4.20.8. Use DD Form 1532-1, "Pest Management Maintenance Record," or a computer-generated equivalent such as IPMIS, to produce daily records of all in-house, formally contracted and government GPC-procured pest control activities conducted anywhere on the installation, to include such sites as out-leased land, golf courses, and natural resources. Installation commanders shall ensure these records are archived after 2 years for permanent retention. DD Form 1532-1s may be downloaded at http://www.dtic.mil/whs/directives/infomgt/forms/forminfo/forminfopage2129.html

5.4.20.9. Use pest management contracts when more cost effective than in-house services. All pest management contractors must use IPM and comply with the certification, licensing, and registration requirements of the State or country where the work is performed. Ensure that the technical portions of contracts involving pest management reflect IPM methodology and that, prior to solicitation, these documents are reviewed and approved by a pest management consultant currently certified in the appropriate DoD categories (References (g) or (h)). Follow guidance from the Military Department Heads when GPCs are used to procure limited pest control services in lieu of formal proposals.

5.4.20.10. Inspect contract pest management operations and pesticide applications using DoD Pest Management Quality Assurance Evaluators (PMQAEs) or Pest Management Performance Assessment Representatives (PMPARs) trained in pest management at DoD-sponsored courses.

5.4.20.11. Institute procedures to prevent terrorists from acquiring DoD pesticide dispersal equipment or pesticides. Upon any suspicious theft of pest control equipment, notify the Federal Bureau of Investigation. Ensure that the identity of personnel and pesticide formulations provided by contractors is known and approved by trained PMQAEs and PMPARs or DoD certified pesticide applicators.

5.4.20.12. Implement appropriate portions of the IPM plan in accordance with goals and objectives of the Integrated Natural Resources Management Plan (INRMP) or Integrated Cultural Resources Management Plan (ICRMP) (see DoD Instruction 4715.3 (Reference (ab))), master plan, training and test range management plan, and other support plans, programs, and projects.

5.5. The Secretary of the Air Force, in addition to the responsibilities in paragraph 5.4., shall maintain a large-area, fixed-wing, aerial pesticide application capability, including specially trained air and ground crews, to control disease vectors, pest organisms, and vegetation, and to treat oil spills in combat areas, on DoD installations, or in response to declared emergencies.

5.6. The Secretary of the Army, in addition to the responsibilities in paragraph 5.4 and as Support Agent for the AFPMB, shall provide administrative and logistic support, through the Surgeon General of the Army, for operation of the AFPMB.

5.7. The Surgeon General of the Army, under the Secretary of the Army, shall provide three field grade military entomologists to the AFPMB staff.

5.8. The Surgeon General of the Navy shall:

5.8.1. Provide two field grade military entomologists to the AFPMB staff.

5.8.2. Evaluate the efficacy and military applicability of commercially available equipment.

5.9. The Surgeon General of the Air Force shall provide two field grade military entomologists to the AFPMB staff.

6. PROCEDURES

6.1. The Military Services' and DLA IPM programs shall include the elements in Enclosures 3, 4, 5, and 7.

6.2. The AFPMB, established by Reference (b) and consisting of a council and committee structure, directorate, and Defense Pest Management Information Analysis Center (DPMIAC), shall operate as described in Enclosure 6.

7. INFORMATION REQUIREMENTS

Report Control Symbol DD-A&T(A&AR)1080 prescribes record-keeping and reporting requirements. Existing data elements shall be used in reporting requirements whenever possible.

8. RELEASABILITY

UNLIMITED. This Instruction is approved for public release. Copies may be obtained through the Internet from the DoD Issuances Web Site at http://www.dtic.mil/whs/directives.

9. EFFECTIVE DATE

This Instruction is effective immediately.

John J. Young, Jr.
Under Secretary of Defense
for Acquisition, Technology and Logistics

Enclosures - 7

E1. References, continued
E2. Definitions
E3. DoD Environmental Security Measures of Merit for Pest Management
E4. DoD IPM Program Elements
E5. Content of IPM Plans, Suggested Format
E6. AFPMB Functions, Organizations, and Management
E7. Procedures for the Acquisition of Pest Management Materiel (Equipment and Pesticides)

E1. ENCLOSURE 1

REFERENCES, continued

(e) Section 125 of title 10, United States Code
(f) Army Regulation 10-64/Chief of Naval Operations Instruction 6700.2/Air Force Regulation 160-29/Marine Corps Order 5420.18A, "Joint Field Operating Agencies of the Office of The Surgeon General of the Army," August 16, 1988
(g) DoD 4150.7-P, "DoD Plan for the Certification of Pesticide Applicators," September 30, 1996
(h) DoD 4150.7-M, "DoD Pest Management Training and Certification," April 24, 1997
(i) DoD Instruction 5025.01, "DoD Directives System," October 28, 2007
(j) Section 113, Chapter 1, of title 32, United States Code
(k) DoD 4715.5G, Overseas Environmental Baseline Guidance Document, 1 May 2007
(l) AFPMB Technical Guide 11, "Hydrogen Phosphide Fumigation with Aluminum Phosphide," current edition[1]
(m) AFPMB Technical Guide 14, "Personal Protective Equipment for Pest Management Personnel," current edition
(n) AFPMB Technical Guide 15, "Pesticide Spill Prevention and Management," current edition
(o) AFPMB Technical Guide 16, "Pesticide Fires -- Prevention, Control, and Cleanup," current edition
(p) AFPMB Technical Guide 17, "Military Handbook, Design of Pest Management Facilities," November 1, 1991
(q) AFPMB Technical Guide 18, "Installation Pest Management Program Guide," March 11, 2003
(r) AFPMB Technical Guide 20, "Pest Management Operations in Medical Treatment Facilities," current edition
(s) AFPMB Technical Guide 21, "Pesticide Disposal Guide for Pest Control Shops," current edition
(t) AFPMB Technical Guide 24, "Contingency Pest Management Guide," current edition
(u) AFPMB Technical Guide 26, "Tick-borne Diseases: Vector Surveillance and Control," current edition
(v) AFPMB Technical Guide 27, "Stored-Product Pest Monitoring Methods," current edition
(w) AFPMB Technical Guide 29, "Integrated Pest Management (IPM) in and Around Buildings," current edition
(x) AFPMB Technical Guide 36, "Personal Protective Measures Against Insects and Other Arthropods of Military Significance," current edition
(y) AFPMB Technical Guide 39, "Guidelines for Preparing DoD Pest Control Contracts Using Integrated Pest Management," current edition
(z) DoD Instruction 6490.03, "Deployment Health," August 11, 2006
(aa) DoD Instruction 6055.1, "DoD Safety and Occupational Health (SOH) Program," August 19, 1998
(ab) DoD Instruction 4715.3, "Environmental Conservation Program," May 3, 1996

[1] All AFPMB Technical Guides are available at www.afpmb.org/pubs/tims/tims.htm

(ac) Parts 1500-1508 of title 40, Code of Federal Regulations
(ad) Sections 4321 through 4370a of title 42, United States Code
(ae) Army Regulation 40-12/Secretary of the Navy Instruction 6210.2A/Air Force Regulation 161-4, "Quarantine Regulations of the Armed Forces," January 24, 1992
(af) DoD Foreign Clearance Guide, current edition
(ag) Memorandum of Agreement between the United States Department of Agriculture and the Department of Defense for Conduct of Forest Insect and Disease Suppression on Lands Administered by the U.S. Department of Defense, December 1990[2]
(ah) Executive Order 13112, "Invasive Species," February 3, 1999
(ai) DoD 4500.9-R, "Defense Transportation Regulation (DTR)," Part V, "Department of Defense Customs and Border Clearance Policies and Procedures," September 2007
(aj) DLA Regulation 4145.31, "Integrated Stored Products Pest Management," June 20, 2002[3]
(ak) Department of Defense-Legacy Resource Management Program, "The Green Book - Environmental Guidebook for Military Golf Courses," current edition[4]
(al) Department of Defense-United States Department of Agriculture/Animal and Plant Health Inspection Service/Animal Damage Control Memorandum of Agreement on Animal Damage Control, April 1990[5]
(am) Army Regulation 40-905/Secretary of the Navy Instruction 6401.1A/Air Force Instruction 48-131, "Veterinary Health Services," 29 August 2006
(an) Section 1001 et seq. and section 1531 et seq. of title 16, United States Code
(ao) Executive Order 11850, "Renunciation of Certain Uses in War of Chemical Herbicides and Riot Control Agents," April 8, 1975
(ap) Unified Facilities Guide Specifications 31 31 16, "Soil Treatment for Subterranean Termite Control," April 2006[6]
(aq) DoD Directive 5105.18, "DoD Committee Management Program," February 8, 1999
(ar) Defense Federal Acquisition Regulation Supplement, Subpart 208.7003-1, "Assignments under integrated materiel management (IMM)," current edition

[2] Available at http://www.afpmb.org/pubs/dir_inst/Forest%20Pest%20Suppression%20Pkg.pdf
[3] Available at https://www.dscp.dla.mil/subs/support/qapubs/instructions/4145-31.pdf
[4] Available at https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/PlanningToolsHandbooksGuidelines/TheGreenBook
[5] Available at http://www.afpmb.org/pubs/dir_inst/Animal%20Damage%20Assessment%20and%20Control%20Memo.pdf
[6] Available at http://www.wbdg.org/ccb/DOD/UFGS/UFGS%2031%2031%2016.pdf

E2. ENCLOSURE 2

DEFINITIONS

Unless otherwise noted, the following terms and their definitions are for the purposes of this Instruction only.

E2.1. Certified DoD Pesticide Dispersal Equipment Trainer. A certified DoD pesticide applicator authorized by a Military Service training center to provide hands-on pesticide dispersal equipment training in partial fulfillment of DoD pesticide applicator recertification competency requirements.

E2.2. Certifying Officials. Pest management consultants who certify the competency of DoD pesticide applicators per References (g) or (h). The senior pest management consultants nominate certifying officials in writing to the AFPMB Director for review and approval.

E2.3. Direct Supervision. Supervision that includes being at the specific location where pesticide application is conducted; providing instruction and control; and maintaining a line-of-sight view of the work performed. Certain circumstances may temporarily remove the line-of-sight view. Under these temporary circumstances, the supervisor shall be responsible for the actions of the pesticide applicators. (See paragraph E2.16.4.) Direct supervision is only permitted for DoD applicators who are in training; it is not permitted for contractor applicators.

E2.4. Disease Vector. Any animal capable of transmitting the causative agent of a human disease; serving as an intermediate or reservoir host of a pathogenic organism; or producing human discomfort or injury, including (but not limited to) mosquitoes, flies, ticks, mites, snails, and rodents.

E2.5. Disinsection. The procedure of killing or removing insects from ships or aircraft to prevent their importation into another port or country.

E2.6. DoD Employee. Federal employees of the Department of Defense, to include title 5, U.S.C. civilians, Active Duty military members, Active Guard Reserve (AGR) military members, National Guard and Reserve military members while on unit training assemblies, and Federal technicians. This term does not include employees involved in civil work functions of the Army Corps of Engineers, National Guard military members who are not on AGR (i.e., do not perform 180 days of continuous active service), or state civilians for whom the Federal government pays salaries through cooperative agreements.

E2.7. DoD Integrated Pest Management Program. A single, comprehensive program that encompasses all pest management activities of the Department of Defense.

E2.8. DoD Property. A DoD installation, site, or activity on property that is under control of the Department of Defense by ownership, permit, lease, license, or other land or facility-use agreement.

E2.9. IPM. Pursuant to section 136 of Reference (d), a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks.

E2.10. IPM Plan. A long-range, well-defined planning and operational document that describes the IPM program. Written pest management plans are required as a means of establishing and implementing IPM.

E2.11. Installation IPM Coordinator. A DoD employee or contractor officially designated by the installation commander to coordinate and oversee the installation IPM program.

E2.12. Invasive Species. A non-native species whose introduction does or is likely to cause economic harm or harm to human health.

E2.13. Monitoring. Thorough inspections or surveys conducted on a regular basis to determine the presence and abundance of pests or disease vectors.

E2.14. Nuisance Pests. Insects, other arthropods, and other organisms that do not cause economic damage or adversely affect human health but that cause annoyance.

E2.15. Personal Relief. Pest control efforts made by DoD personnel or their family members at their own expense for control of pests consistent with DoD and Military Service pest management policy.

E2.16. Pesticide. Any substance or mixture of substances, including biological control agents, that may prevent, destroy, repel, or mitigate pests and is specifically labeled for use by the EPA. Also, any substance or mixture of substances used as a plant regulator, defoliant, desiccant, disinfectant, or biocide. The AFPMB does not review or approve disinfectants or biocides.

E2.16.1. Certified Pesticide Applicator. Any individual who applies pesticides or, in the case of DoD employees, supervises the use of pesticides during apprenticeship training. A certified applicator has successfully completed an EPA-approved training program that includes written examinations in core and specific application categories. Certification may be by the Department of Defense, a State, or for OCONUS by the provisions of paragraph 2.5. of this Instruction.

E2.16.2. DoD-Certified Applicator. A DoD military or DoD civilian employee, certified in accordance with References (g) or (h), who applies pesticides on DoD installations and property.

E2.16.3. Contractor Applicator. A contract employee, certified by a State or host nation, who applies pesticides on DoD installations and property. The contractor shall be required to provide evidence of certification of applicators in all appropriate pest management categories for which the work is to be done at the time the contract is let.

E2.16.4. Uncertified DoD Applicator. A DoD employee who is not certified and can only apply pesticides under the direct supervision of a DoD-certified applicator during an apprenticeship period not exceeding 2 years.

E2.17. Pest Management. The prevention and control of disease vectors and pests that may adversely affect the DoD mission or military operations; the health and well-being of people; or structures, materiel, or property.

E2.18. Pest Management Consultant. A DoD employee pest management professional who provides technical and management guidance on using IPM to prevent and control pests and disease vectors. The AFPMB Director approves some pest management consultants as certifying officials of pesticide applicators.

E2.19. Pest Management Materiel. Equipment or pesticides used to monitor, prevent, or control pests and disease vectors. Equipment items include, but are not limited to, all pesticide dispersal equipment, traps, nets, and pest-attracting or pest-repelling devices.

E2.20. Pest Management Professional (PMP). A DoD military officer commissioned in the Medical Service or Biomedical Sciences Corps or DoD civilian employee with a college degree in biological, physical, or agricultural sciences whose current job includes pest management responsibilities. A DoD civilian employee must also meet Office of Personnel Management qualification standards. Based on assignment, some pest management professionals are pest management consultants.

E2.21. Pest Management Quality Assurance Evaluator (PMQAE) or Pest Management Performance Assessment Representative (PMPAR). A DoD employee trained in pest management at DoD sponsored courses, who protects the Government's interest through on-site performance evaluation of commercial pest management contracts or other contracts that involve the use of pesticides.

E2.22. Pests. Arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds, and other organisms (except for human or animal disease-causing organisms) that adversely affect readiness, military operations, or the well-being of personnel and animals; attack or damage real property, supplies, equipment, or vegetation; or are otherwise undesirable.

E2.23. Senior Pest Management Consultants. Pest management consultants who are the primary points of contact for their respective IPM programs, providing technical guidance, management oversight, and information requirements. The Military Services designate a senior pest management consultant in writing to the AFPMB Director for review and approval.

E2.24. State. Any one of the 50 United States of America; the District of Columbia; the Commonwealths of Puerto Rico, the Northern Marianas, the Virgin Islands; and the Territories of Guam and American Samoa.

E2.25. Surveillance. Thorough inspections or surveys made before or after pest management treatments to determine the presence and abundance of pests or disease vectors.

E2.26. Technical Guides. Guides (formerly called Technical Information Memoranda) prepared by the AFPMB on specific pest management and disease vector control topics. Technical Guides are available on the AFPMB web site, http://www.afpmb.org.

E2.27. Training. Formal or informal instruction in one or more subject areas of IPM and disease vector control to increase the expertise and measurable competence of pest management personnel in performance of specific IPM and disease vector control skills. Training methods include workshops, seminars, conferences, symposia, training courses, apprenticeships, interactive models, distance learning including satellite and video tele-training, correspondence courses, training support packages including video-based products, and other distributive learning products or materials.

E3. ENCLOSURE 3

DoD MEASURES OF MERIT FOR PEST MANAGEMENT

E3.1. MEASURE OF MERIT 1: IPM PLANNING

Through the end of Fiscal Year (FY) 2010, 100 percent of DoD installations will maintain IPM plans that are reviewed and approved by a DoD-certified pest management consultant and annually updated by the installation pest management coordinator.

E3.2. MEASURE OF MERIT 2: PESTICIDE USE REDUCTION

Through the end of FY 2010, the Department of Defense will maintain the reduction goal in annual pesticide use by both government and contractor pesticide applicators on DoD installations. This reduction goal is set at an average of the FY 2002 and 2003 usage, which is 389,000 pounds of active ingredient (45 percent of the original 1993 baseline – a 55 percent reduction).

E3.3. MEASURE OF MERIT 3: PESTICIDE APPLICATOR CERTIFICATION

Through the end of FY 2010, 100 percent of DoD pesticide applicators will be certified. Direct hire employees, certified in accordance with References (g) or (h), have a maximum of 2 years to become certified after initial employment. Contracted employees shall have appropriate State or host-nation certification in the appropriate categories at the time the contract is let.

E4. ENCLOSURE 4

DoD IPM PROGRAM ELEMENTS

E4.1. DoD IPM PROGRAMS. These programs shall include the following elements described in this enclosure:

E4.1.1. Integrated Pest Management Plans

E4.1.2. Installation Consultative Support, IPM Program Reviews, and Audits

E4.1.3. Training and Certification of Pest Management Personnel

E4.1.4. Pesticide Storage, Handling, and Disposal

E4.1.5. Contracting for Commercial Pest Management Services

E4.1.6. Specific Pest Management Operations

E4.1.7. Pest Management in Sensitive Areas

E4.1.8. Pest Management and Disease Vector Control in Military Contingency Operations

E4.1.9. Prohibited Pest Management Practices

E4.1.10. Reports and Records

E4.2. IPM PLANS. Each installation shall have an IPM plan as described in Enclosure 5. The plan shall list all program objectives according to potential or actual impact on mission and readiness. Upon approval by a DoD-certified pest management consultant, an installation's plan may be included within the scope of another installation or a larger command IPM plan. A pest management consultant shall review and technically approve these plans. IPM coordinators shall ensure compliance with plans.

E4.2.1. Military Departments' and DLA's Role. Major commands and headquarters shall ensure that installations have IPM plans and programs maintained by the appropriate pest management consultants through technical assistance, program review, and program oversight. Installation commanders or other appropriate government authorities shall:

E4.2.1.1. Plan and budget for the development and maintenance of the IPM plan.

E4.2.1.2. Direct qualified personnel to develop and update the IPM plan annually.

E4.2.1.3. Designate in writing an IPM coordinator to oversee the plan.

E4.2.1.4. Direct the IPM coordinator to formally coordinate, as appropriate, portions of the IPM plan as listed in Enclosure 5 and to sign the cover sheet of the IPM plan.

E4.2.1.5. Direct the natural resource program manager to review and cross-reference appropriate portions of the IPM plan for consistency with the goals and objectives of current and planned installation programs, plans, and projects (e.g., INRMP or ICRMP, Reference (ab)); training and test range management, master, endangered species recovery, bird airstrike hazard, golf course management, and grounds maintenance plans; facilities construction site approvals; and other plans, programs, and projects.

E4.2.1.6. Direct the IPM coordinator to forward the IPM plan to the designated pest management consultant for review and technical approval.

E4.2.1.7. Approve, sign, and implement the IPM plan.

E4.2.1.8. Ensure that all pest management operations performed on the installation, except those for personal relief, are recorded, and that all records are properly maintained and reported as defined by the designated pest management consultant.

E4.2.1.9 Ensure that the IPM plan is in compliance with the National Environmental Policy Act (NEPA) as verified by the installation site approval process or special NEPA review pursuant to parts 1500-1508 of title 40, Code of Federal Regulations (Reference (ac)).

E4.2.2. Content. IPM plans shall be well-defined, long-range, narrative documents, as outlined in Enclosure 5, and shall:

E4.2.2.1. As part of the annual IPM plan update, list pesticides for approval. Include EPA registration numbers, target pests, and sites that were approved by a certified pest management consultant for use in the IPM program.

E4.2.2.2. Prior to conducting operations, describe all health and safety measures, including posting and notification, that will be taken to protect both pest management personnel and others from pesticide exposure.

E4.2.2.3. Describe any pest management operation with special environmental considerations, such as those that may adversely affect water, endangered or other protected species or their habitats, or involve the aerial application of pesticides.

E4.2.2.4. Identify vector-borne disease threats and describe medical department collaboration with local and State agencies or host nations for vector surveillance and control.

E4.2.2.5. Include golf course pest management operations where applicable.

E4.3. INSTALLATION CONSULTATIVE SUPPORT, IPM PROGRAM REVIEWS, AND AUDITS

E4.3.1. Pest management professionals are available on request to provide technical assistance for the pesticide portion of environmental audits, to provide follow-up assistance to audits, or to further evaluate audit findings.

E4.3.2. Installations shall notify the appropriate pest management consultant whenever Federal, State, or local regulators ask to observe pest management operations. Pest management consultants shall ensure that such visits are consistent with Chapter 2, section E of Reference (g).

E4.4. TRAINING AND CERTIFICATION OF PEST MANAGEMENT PERSONNEL

E4.4.1. Personnel Qualifications. The IPM coordinator shall have the educational background, technical knowledge, and management skills to implement and oversee the pest management program. IPM coordinators shall be trained in accordance with Military Services implementing instructions.

E4.4.2. Training and Certification. All DoD personnel who apply or supervise the application of pesticides shall be trained and certified within 2 years of employment in accordance with References (g) or (h). DoD personnel who are undergoing apprenticeship training but are not yet certified shall apply pesticides only under the direct supervision of a DoD-certified pesticide applicator. Initial certification is valid for up to 3 years. This does not apply to applicators, who must all be certified at the time the contract is let.

E4.4.2.1. In accordance with References (g) or (h), DoD-certified pesticide applicators shall be recertified every 3 years. The recertification interval for State-certified contractor applicators varies from 1 to 5 years, depending on the State. References (g) and (h) permit DoD certifying officials to administratively extend the certifications of DoD civilian applicators for up to 6 months for cause. For military personnel, certification may be extended on a one-time basis only for a period of not more than 12 months.

E4.4.2.2. Contractor employees performing pest management work on a DoD installation shall be certified prior to the beginning of the contract under a State plan accepted in the State in which the work is performed. Additionally, the contractor shall provide evidence of training and experience equivalent to that determined by the Military Services as necessary to satisfy the performance requirements for the particular pest management function to be contracted. Successful bidders for contracts shall be afforded the opportunity to receive initial DoD pest management training on a space-available basis at the contractor's expense.

E4.4.2.3. PMQAEs or PMPARs shall monitor and evaluate contractor performance of pest management services. DoD employees certified in accordance with References (g) or (h) may be available to assist the PMQAE or PMPAR. Small installations requiring minor pest control contracts shall notify the designated pest management consultant prior to award. If an

installation's pest management contract efforts are less than 0.25 work-years, the presence of a trained PMQAE at the installation is recommended, but is not mandatory.

E4.4.2.4. The Military Services shall encourage all pest management professionals to obtain appropriate certification in accordance with References (g) or (h) . Pest management professionals shall be currently certified in the appropriate applicator categories if they:

E4.4.2.4.1. Work as pest management consultants and make recommendations for the use of pesticides or approve annual pesticide use proposals.

E4.4.2.4.2. Approve the aerial application of pesticides on DoD installations.

E4.4.2.4.3. Apply pesticides or directly supervise the application of pesticides.

E4.4.2.4.4. Conduct demonstrations on the proper use and techniques of pesticide application or supervise such demonstrations.

E4.4.2.4.5. Conduct field research that includes using or supervising the use of pesticides.

E4.4.2.5. DoD personnel and family members who apply pesticides under DoD installation self-help programs or for their own relief are exempted from the certification requirement. Requirements for operational and deployable military personnel are described in section E4.7 of this enclosure. DoD certification training requirements are exempted (waived) under the following circumstances:

E4.4.2.5.1. For use of pest control products distributed under installation self-help programs.

E4.4.2.5.2. For pesticides procured and used by residents at government quarters assigned to them.

E4.5. PESTICIDE STORAGE, HANDLING, AND DISPOSAL

E4.5.1. Pesticide Storage Facilities. The design of pesticide storage facilities shall comply with standards described in Reference (p). Existing facilities shall comply with all applicable regulatory standards and shall, where feasible, be modified to meet the minimum standards for new pesticide storage facilities.

E4.5.2. Pesticide Disposal. The IPM coordinator ensures that excess EPA-registered pesticides are either returned to the DLA Materials Return Program or transferred to the servicing Defense Reutilization and Marketing Office. The designated pest management consultants provide assistance in identifying installations where serviceable excess pesticides can be used. When the EPA publishes a proposed pesticide regulatory action involving pesticide label suspension or cancellation that affects the Department of Defense, the Military Services

and installations comply with administrative procedures developed between the DLA and AFPMB. The Military Services can use Reference (s) for guidance on pesticide disposal.

E4.5.3. Pesticide Safety. To ensure the safe use of pesticides, DoD personnel shall handle and apply pesticides in accordance with the product's label directions and the guidance in References (m), (n), (o), and (s), respectively. To prevent accidental contamination of ducts with termiticides, DoD policy prohibits new construction of buildings with heating, ventilation, and air conditioning (HVAC) ducts located in and below the floor. Similarly, DoD policy prohibits post-construction treatment of existing structures with in-slab HVAC ducts without a waiver from the appropriate pest management consultant.

E4.6. CONTRACTING FOR COMMERCIAL PEST MANAGEMENT SERVICES

E4.6.1. Background. The Department of Defense shall use pest management contracts when cost-effective or when advantageous for non-routine, large-scale, or emergency services, especially when specialized equipment or expertise is needed. Contractors shall comply with State regulatory requirements in the State where the work is performed. All contractor personnel who apply pesticides on DoD property shall be certified in that State. This requirement applies even if the State in which the DoD property is located permits uncertified personnel to work under the supervision of a certified person on non-DoD property in that State. Outside the United States, contractors shall comply with paragraph 2.6. of this Instruction.

E4.6.2. Review and Approval. Pest management consultants shall review and technically approve contract documents for pest management operations, including augmentation contracts, to ensure that appropriate pest management standards and IPM are specified. The Military Services shall encourage installations that lack expertise in pest management to request the services of a DoD pest management consultant to develop the technical portions of pest management contracts in accordance with Reference (y). Pest management consultants can act as technical consultants during the performance of contracted work.

E4.6.3. Credit Card Use. GPC and all other forms of procurement for contracts, pesticides, and pesticide equipment must first be reviewed and approved by the Military Services and DLA pest management consultants. Pesticide applications made as the result of GPC procurement shall be reported to the IPM coordinator for inclusion in the monthly pest control report and for documentation, if recurring, in the IPM plan.

E4.6.4. Quality Assurance for Pest Management Contracts

E4.6.4.1. The Military Services shall ensure that PMQAEs who inspect the performance of contractor-provided pest management services are DoD PMQAE-trained or hold DoD certification.

E4.6.4.2. Installation commanders shall base PMQAE staffing decisions on the following criteria:

E4.6.4.2.1. The number of pest management operations requiring 100 percent inspection.

E4.6.4.2.2. The number of different functions being performed simultaneously.

E4.6.4.2.3. The scope of the contract, including required productive work-years.

E4.6.4.2.4. The level of monitoring or surveillance required for each operation.

E4.7. SPECIFIC PEST MANAGEMENT OPERATIONS

E4.7.1. Aerial Application of Pesticides. Documentation for aerial application projects shall be in accordance with DoD and Military Service environmental requirements, including compliance with sections 4321 through 4370a of title 42, U.S.C. (Reference (ad)). The DoD Military Service shall ensure that a pest management consultant who is certified in the aerial application category validates and approves all proposed aerial applications. Approval shall be obtained before aerial application operations commence. Pest management consultants shall collaborate with the 910th Airlift Wing (910AW) during the review and approval process for aerial spray projects involving the 910AW. IPM coordinators should update project documentation, particularly the associated environmental assessment, if subsequent aerial application operations are planned.

E4.7.2. Disinsection of Military Aircraft. DoD personnel shall disinsect military aircraft for disease vectors and agricultural pests only when:

E4.7.2.1. Required by a foreign nation as a prerequisite to entry as specified in AR 40-12/Secretary of the Navy Instruction (SECNAVINST) 6210.2A/AFR 161-4 (Reference (ae)).

E4.7.2.2. Mandated by the U.S. Department of Health and Human Services or the U.S. Department of Agriculture.

E4.7.2.3. Directed by a command-level or higher authority who, consistent with Reference (ae), has determined that the point of embarkation has active vector-borne disease.

E4.7.2.4. No passengers are on board except when mandated by the DoD Foreign Clearance Guide (Reference (af)).

E4.7.3. Forest Pests. In accordance with the U.S. Department of Agriculture (USDA)/DoD Memorandum of Agreement (MOA) (Reference (ag)), the Military Services shall cooperate with the USDA Forest Service on applicable pest management programs. These include annual USDA funding for forest insect and disease suppression projects on DoD-controlled land.

E4.7.4. Medically Important Pests. The DoD Military Services shall ensure that responsibilities for surveillance and control of medically important pests, including insects and other arthropods, are clearly delineated in installation pest management plans and operational

plans. Specific guidance on the surveillance and control of tick disease vectors is found in Reference (u).

E4.7.5. Nuisance Pests. Installation pest management personnel shall not apply pesticides or perform other control procedures for nuisance pests unless such measures have been approved by the appropriate pest management consultant.

E4.7.6. Invasive Species Management. The Military Services shall comply with regulations, including Executive Order 13112 (Reference (ah)), requiring Federal agencies subject to the availability of appropriations to use relevant programs and authorities to:

E4.7.6.1. Prevent the introduction of invasive species.

E4.7.6.2. Detect and respond rapidly to and control populations of such species using IPM techniques.

E4.7.6.3. Monitor invasive species populations accurately and reliably.

E4.7.6.4. Restore native species and habitat conditions in ecosystems that have been invaded.

E4.7.6.5. Conduct research on invasive species, develop technologies to prevent introduction, and provide the latest IPM techniques for their control.

E4.7.6.6. Promote public education on invasive species.

E4.7.7. Pest Management in Military Quarters and Housing

E4.7.7.1. Background. Installation commanders shall ensure that residents of military quarters and housing practice good sanitation and correct minor nuisance pest problems. Quarters and housing occupants are responsible for controlling pests, such as cockroaches, household infesting ants, and mice not originating in other quarters. Housing occupants shall not be responsible for controlling medically important pests, including venomous arthropods, and structural pests that could damage property. All pest control measures used in housing privatization projects must comply only with State and local laws and regulations.

E4.7.7.2. Installation Role. Installation Commanders shall ensure that installation pest management services are provided in military housing only when the pest threatens Government property or the occupants' health, and the occupants have been unable to control the pests through self-help efforts. Exceptions shall only be made with the concurrence of the appropriate pest management consultant. All pest control measures used in housing privatization projects must comply only with State and local laws and regulations.

E4.7.7.3. Self-Help Program

E4.7.7.3.1. The Military Services shall establish installation self-help pest management for military housing when cost-effective, when IPM monitoring indicates the need for control, and when these facilities are not part of the housing privatization program. The senior pest management consultant may recommend that self-help pest management materials be issued to occupants, including cockroach and ant baits and/or traps, mouse traps, glue boards, and ready-to-use aerosol pesticides. The office designated to manage the installation's self-help program should coordinate procurement and storage of pest management materials with the installation pest management shop, hazardous material manager, and the DLA Supply Center.

E4.7.7.3.2. Installation commanders shall ensure that self-help personnel provide written instructions and appropriate precautions, beyond those on pesticide labels, to qualified military quarters, housing occupants, and building managers to ensure proper pesticide application and safety.

E4.7.7.3.3. If pesticides are issued to occupants, records must be maintained as described in subparagraph 5.4.20.7 of this Instruction. These records should enable installation self-help personnel to validate the occupants' attempts to control target pests before providing installation pest management services. Pest management consultants should review these records during annual reviews to evaluate the efficiency of the installation's self-help program.

E4.7.7.3.4. Pest management consultants may develop non-housing self-help programs by implementing Military Service instructions as documented in IPM plans. For example, programs may be developed for small, detached facilities or for shop personnel at large facilities where frequent wasp problems interfere with operations. Such programs must be documented in pest management plans and must feature ready-to-use, low toxicity pesticides selected by the pest management consultant, as well as training, proper storage, accountability for materials, and reporting.

E4.7.8. Pest Management at Closing Installations. Because pests may cause serious damage to unused facilities, the Military Services shall ensure that pest management consultants provide guidance as needed to protect all closing or closed facilities from pests from the beginning of deactivation until property disposal.

E4.7.9. Quarantinable Pests. Reference (af) contains quarantine policy oriented toward medical pests. Reference (ab) establishes policy and responsibilities for administrating the USDA Agriculture Pre-Clearance Program as part of the Defense Transportation Regulation (Reference (ai)).

E4.7.10. Stored Products Pests. The Military Services shall implement measures to minimize insect and vertebrate pest damage to subsistence, clothing and textiles, medical, and other infestible stored materiel according to References (l) and (v). Reference (l) provides guidance on fumigating subsistence stocks. Guidance for protecting meal, ready-to-eat rations is available from Military Service pest management consultants. DLA Regulation 4145.31 (Reference (aj)) provides pest management guidance on infestible stored products.

E4.7.11. Turf and Ornamental Pests. Installation commanders shall implement measures to prevent unacceptable damage to shade trees, ornamental plantings, and turf by insects, diseases, and weeds. The pest management plan shall identify recurring infestations. Installation commanders shall ensure the IPM plan describes the use of IPM for turf and ornamental pests as well as environmentally and economically beneficial land management practices, such as the use of native plants, to reduce pesticide use. For information regarding pest management on military golf courses consult the Green Book (Reference (ak)).

E4.7.12. Undesirable Plants. The Military Services shall develop programs to comply with section 10 of Reference (d) and the National Invasive Species Management Plan. The Military Services shall:

E4.7.12.1. Designate an office or person adequately trained in the management of undesirable plant species to develop and coordinate the Military Services' undesirable plant management program.

E4.7.12.2. Plan, program, and budget to achieve, maintain, and monitor compliance with section 10 of Reference (d).

E4.7.12.3. Ensure that installations complete and carry out cooperative agreements with State agencies regarding the management of undesirable plant species on installations.

E4.7.12.4. Establish integrated management systems to control or contain undesirable plant species targeted under cooperative agreements. Section 10 of Reference (d) does not require the Military Services to carry out programs on installations unless similar programs are being implemented on State or private lands in the vicinity of the installation.

E4.7.13. Vertebrate Pests. The Military Services shall manage vertebrate pests in accordance with the DoD-USDA/Animal and Plant Health Inspection Service/Animal Damage Control MOA (Reference (al)), and shall:

E4.7.13.1. Implement vertebrate pest management programs, including wildlife aircraft strike hazard reduction programs, to prevent vertebrate pest interference with operations, destruction of real property, and adverse impacts on health and morale.

E4.7.13.2. Cooperate with Federal, State, and local agencies that have implemented animal damage control programs on adjacent public and private lands.

E4.7.13.3. Identify the potential for secondary and non-target effects to other organisms and design programs to preclude or minimize the risks.

E4.7.13.4. Obtain all applicable Federal, State, and local permits.

E4.7.13.5. Use guidance in AR 40-905/SECNAVINST 6401.1A/AFR 48-131 (Reference (an)) for managing feral animal problems.

E4.7.14. Weed Control. Installation commanders shall ensure that weed control is performed according to section 1001 et seq. of title 16, U.S.C. (Reference (an)) on DoD installations. Herbicides will not be used in war except as provided for in Executive Order 11850 (Reference (ao)).

E4.7.15. Wood-Destroying Organisms. The Military Services shall ensure that:

E4.7.15.1. Pest management consultants review contract specifications for construction or repair of wooden structures and for termite control. The purpose is to protect wood where wood-destroying fungi and insects are present and to specify that termiticides, when needed, are applied at the highest EPA-labeled concentration and application rate. Soil treatment for termite prevention will be conducted during building construction in accordance with Unified Facilities Guide Specifications 31 31 16 (Reference (ap)).

E4.7.15.2. DoD-certified pesticide applicators or PMQAEs or PMPARs trained in pest control inspect applications of pesticides by contractors to control termites and other wood-destroying organisms.

E4.7.15.3. Trained personnel inspect wooden buildings and structures at frequencies recommended by the designated pest management professional. Installation commanders shall follow the inspection guidance provided in Reference (x).

E4.8. PEST MANAGEMENT IN SENSITIVE AREAS

E4.8.1. Pesticide Applications in the Range of Endangered Species. The Military Services and their facilities shall comply with section 1531 et seq. of Reference (an) (the Endangered Species Act (ESA)) and appropriate sections of Service regulations. This includes the requirement to consult or confer with Fish and Wildlife Service (FWS) or National Marine Fisheries Service (NMFS) on any activities that may affect species that are proposed for listing or listed as threatened or endangered (ESA Section 7(a)(2)). Examples of activities on a military facility that would require consultation with FWS or NMFS are development of installation pest management plans and the application of pesticides in listed species habitat. Label restrictions designed to protect listed species (e.g., regarding application of pesticides adjacent to aquatic habitats) shall be followed. PMPs will coordinate all activities that may affect listed species with the facilities' natural resource management professionals. Installation commanders shall ensure that their installation pest management plans identify areas within their installations that contain ETS, and that personnel using pesticides on the installation understand the potential impact that pesticide applications could have on ETS. OCONUS installations shall comply with paragraph 2.6 of this Instruction.

E4.8.2. Pests in Health Care Facilities. The Military Services shall ensure that pest management in health care facilities is conducted pursuant to Reference (r).

E4.8.3. Pest Management in Child Care and Food Service Facilities. The Military Services shall ensure that responsibilities for surveillance and control of rodents, insects, and other

arthropods in schools, child care, food service, and other sensitive areas are clearly delineated in installation pest management plans and operations.

E4.8.4. Cultural Resources. Installation commanders shall ensure that their installation pest management plans identify areas within their installations that are considered historic properties or cultural sites, and that personnel using pesticides on the installation understand the potential impact that pesticide applications could have on historic properties and cultural sites. DoD pest management plans shall be coordinated with the ICRMP on the limitation of pesticide usage.

E4.9. PEST MANAGEMENT AND DISEASE VECTOR CONTROL IN MILITARY CONTINGENCY OPERATIONS

E4.9.1. Military personnel and contractors responsible for pest management and disease vector control during military contingency operations, readiness training exercises, and deployments shall apply pesticides and conduct operations consistent with the policies and procedures in this Instruction and the guidance in Reference (t).

E4.9.2. The application of pesticides for pest management and disease vector control during military contingency operations, readiness training exercises, and deployments shall be under the overall direction of personnel certified in accordance with References (g) or (h). Individuals who apply pesticides in these situations shall be certified in accordance with References (g) or (h) or shall be under the direct or on-site supervision of individuals certified in accordance with References (g) or (h). Shipboard independent duty corpsmen and other military personnel who have received special training for limited site application of pre-selected pesticides during military operations or deployments are exempt from the certification requirement. However, these individuals shall be fully trained, including hands-on training for these specific applications. The Military Services shall develop specific site training programs for these individuals and a means to document training received. At a minimum, the training shall include the safe use and proper application of the limited, pre-selected pesticides for the specific site for which these individuals are trained in accordance with Reference (h).

E4.9.3. Contract specifications shall be in compliance with the policy in paragraph 2.5 of this Instruction.

E4.9.4. The Military Services shall ensure that pesticide use in these situations is recorded as stated in subparagraph 5.4.5 of this Instruction.

E4.10. PROHIBITED PEST MANAGEMENT PRACTICES

E4.10.1. Electrically Operated Devices. Electromagnetic exclusion or control devices, ultrasonic repellent or control devices, and outdoor devices for electrocuting flying insects are not approved for use on DoD installations. However, indoor devices for electrocuting flying insects can be used when selected, purchased, located, and used in accordance with Reference

(x). Pest surveillance traps and monitoring equipment, such as non-electrocuting mosquito light traps, are integral tools for IPM programs.

E4.10.2. Paints and Coatings Containing Pesticides and Other Biocides. Paints containing insecticides are not approved for use on DoD property. This guidance applies to interior and exterior pesticide-containing paints intended for application to structural surfaces, such as walls, ceilings, and siding. It also applies to insecticides formulated and labeled for use as paint additives. Paints containing fungicides as mildew inhibitors may be used when application directions specify no special restrictions due to the fungicide. Approved marine anti-fouling compounds or coatings may be applied to protect surfaces of watercraft.

E4.10.3. Preventive or Scheduled Pesticide Treatments. Regularly scheduled, periodic pesticide applications are not approved for DoD property except in situations where the IPM plan clearly documents that no other technology or approach is available to protect personnel or property of high value. Installations shall not use preventive pesticide treatments, to include automated misting devices, unless the appropriate pest management consultant has given approval based upon current surveillance information or records documenting past disease vector or pest problems that require this approach.

E4.11. REPORTS AND RECORDS

E4.11.1. The Military Services shall ensure that all DoD installations maintain complete daily records of pesticide applications, inspections, and non-chemical pest management operations using IPMIS or a computer-generated equivalent as stated in subparagraph 5.4.20.8 of this Instruction. These records shall account for all pest control operations and shall provide a historical record of pest management operations and pesticide applications for each building, structure, or outdoor site.

E4.11.1.1. Records shall include information on the kinds, amounts, uses, dates, and places of pesticide applications as well as applicators' names and certification numbers.

E4.11.1.2. The record shall include all in-house, housing, formally contracted, and Government purchase card-procured pesticide applications performed on the installation, including work done on golf courses, by non-appropriated fund activities, by contract services, and as part of outleases and land management and forestry programs, as well as work performed by installation pest management shops.

E4.11.2. DD Form 1532 , "Pest Management Report," or an equivalent computer product, shall be produced monthly using DD Form 1532-1, "Pest Management Maintenance Record," archived at the installation and distributed to the designated pest management consultant in accordance with Military Service procedures. DD 1532s may be downloaded at http://www.dtic.mil/whs/directives/infomgt/forms/forminfo/forminfopage2130.html.

E4.11.3. Pest management consultants shall use these data to evaluate the efficiency of the overall installation pest management program and pest management operations.

E4.11.4. Pesticides applied by installation personnel for their own relief are excluded from the record-keeping requirement.

E5. ENCLOSURE 5

CONTENT OF IPM PLANS, SUGGESTED FORMAT

E5.1. IPM PLAN ELEMENTS: GENERAL

IPM plans may include the following elements as appropriate for installation:

E5.1.1. Cover and Signature Pages

E5.1.1.1. Title

E5.1.1.2. Installation Name or Unit Identification Code

E5.1.1.3. Approval and Technical Review

E5.1.1.3.1. Signatures From:

E5.1.1.3.1.1. IPM Coordinator

E5.1.1.3.1.2. Installation Environmental Coordinator

E5.1.1.3.1.3. Installation Medical Officer

E5.1.1.3.1.4. Senior Installation Engineer

E5.1.1.3.1.5. Pest Management Consultant

E5.1.1.3.1.6. Supply Officer (if responsible for Government purchase card procurement of pest control services)

E5.1.1.3.1.7. Natural Resources Program Manager

E5.1.1.3.1.8. Cultural Resource Manager

E5.1.1.3.1.9. Installation Commander or Appropriate Government Authority

E5.1.1.3.2. Dates of Last Annual Review and Technical Approval

E5.1.2. Executive Summary

E5.1.3. Background

E5.1.3.1. Purpose

E5.1.3.2. Authority (include installation instruction, standard operating procedure, etc.), if applicable

E5.1.3.3. Plan Maintenance

E5.1.4. Responsibilities

E5.1.4.1. Commander's Representative

E5.1.4.2. IPM Coordinator

E5.1.4.3. Pest Management Personnel or Contractors

E5.1.5. Integrated Pest Management

E5.1.5.1. Legal Mandate

E5.1.5.2. IPM Operations

E5.1.6. Priority of Pest Management Work

E5.1.6.1. Public Health Pests

E5.1.6.2. Pests Found in and Around Buildings

E5.1.6.3. Structural Pests

E5.1.6.4. Noxious or Invasive Plants and Animals

E5.1.6.5. Undesirable Vegetation

E5.1.6.6. Golf Course Pests

E5.1.6.7. Quarantine and Regulated Pests

E5.1.6.8. Vertebrate Pests

E5.1.7. Health and Safety

E5.1.7.1. Medical Surveillance of Pest Management Personnel

E5.1.7.2. Hazard Communication

E5.1.7.3. Personnel Protective Equipment

E5.1.7.4. Fire Protection

E5.1.7.5. Pest Management Vehicle(s)

E5.1.7.6. Protection of the Public

E5.1.7.7. Pesticide Shop Health, Safety, and Hazard Surveys (including air sampling and ventilation systems)

E5.1.8. Environmental Considerations

E5.1.8.1. Sensitive Areas

E5.1.8.2. Endangered or Protected Species and Critical Habitats

E5.1.8.3. Cultural and Historical Sites

E5.1.8.4. Environmental Documentation

E5.1.8.5. Pesticide Spills and Remediation

E5.1.9. Program Administration

E5.1.9.1. Pest Management Operations

E5.1.9.2. Contracts or Quality Assurance

E5.1.9.3. Outleases (agricultural and housing)

E5.1.9.4. Interservice Support Agreements

E5.1.9.5. Reports and Records

E5.1.9.6. Training and Certification

E5.1.9.7. Pesticide Security

E5.1.9.8. Emergency Disease Vector Surveillance and Control

E5.1.9.9. Coordination (DoD, other Federal, State, and local)

E5.1.10. Sale and Distribution of Pesticides

E5.1.11. IPM References and Links

E5.1.12. Annexes

E5.1.12.1. IPM Outlines

E5.1.12.2. Annual Pesticide Use Proposal

E5.1.12.3. Points of Contact

E5.1.12.4. Certificates of Training or Competency

E5.2. IPM OUTLINE ELEMENTS

E5.2.1. Outline Number, Installation, and Date

E5.2.2. Target Pest or Disease Vector

E5.2.3. Site

E5.2.4. Surveillance

E5.2.4.1. Responsible organization

E5.2.4.2. Methods

E5.2.4.3. Frequency

E5.2.5. Non-chemical Techniques

E5.2.5.1. Responsible organization

E5.2.5.2. Type (biological, cultural, mechanical, etc.)

E5.2.5.3. Methods

E5.2.6. Chemical Techniques

E5.2.6.1. Responsible organization

E5.2.6.2. Basis for treatment

E5.2.6.3. Control standard

E5.2.6.4. EPA registration number(s) or refer to pesticide use proposal

E5.2.7. Remarks

E5.2.7.1. Sensitive areas

E5.2.7.2. Prohibited practices

E5.2.7.3. Environmental concerns

E5.2.8. Additional Comments (if necessary)

E6. ENCLOSURE 6

AFPMB FUNCTIONS, ORGANIZATION, AND MANAGEMENT

E6.1. FUNCTIONS

The AFPMB, under the authority, direction, and control of the ADUSD(ESOH), shall:

E6.1.1. Develop guidance and recommend policy to the Deputy Under Secretary of Defense for Installations and Environment (DUSD(I&E)) for the DoD IPM Program.

E6.1.2. Coordinate pest management activities throughout the Department of Defense.

E6.1.3. Develop, issue, and maintain manuals and other guidance necessary to implement the technical requirements of section 136 of Reference (d).

E6.1.4. Implement References (g) and (h) and develop comprehensive training guidance for DoD pest management personnel.

E6.1.5. Coordinate DoD contingency disease vector and pest management with the Chairman of the Joint Chiefs of Staff; the Combatant Commands, through the Chairman of the Joint Chiefs of Staff; and other contingency planning organizations.

E6.1.6. Serve as an advisory body to the Military Services and provide timely scientific and professional pest management advice.

E6.1.7. Develop and electronically distribute technical information and guidance on pest management to the Military Services by means of AFPMB Technical Guides, Disease Vector Ecology Profiles, and similar publications, available at www.afpmb.org.

E6.1.8. Review and approve introduction, stockage, and deletion of pest management materiel by the DLA in the DoD supply system. The AFPMB does not review or approve disinfectants or biocides.

E6.1.9. Operate the DPMIAC.

E6.1.10. Coordinate and develop requirements for pest management research, development, and testing in the Department of Defense.

E6.1.10.1. Provide technical coordination for the annual review of USDA pest management research of interest to the Department of Defense.

E6.1.10.2. Provide research requirements and recommendations to the Director of Defense Research Engineering, or his or her designee, and to other organizations performing pest management research, development, and testing for the Department of Defense.

E6.1.11. Establish committees that shall function in accordance with DoD Directive 5105.18 (Reference (aq)) to facilitate the performance of AFPMB functions.

E6.1.12. Support the Defense Environmental Security Council and the Environmental Safety and Occupational Health Policy Board in the area of pest management.

E6.1.13. Perform other functions as assigned.

E6.2. ORGANIZATION AND MANAGEMENT

The AFPMB, a joint DoD activity consisting of the Council and Committee structure, the Directorate, and the DPMIAC, shall be organized and managed as follows:

E6.2.1. The Council, a part-time approval, coordination, and advisory body of the AFPMB, shall be composed of 13 voting members appointed from the Military Services and DLA. The Army, Navy, and Air Force may each appoint up to four members. The DLA may appoint one member. Federal agencies may be invited by the Council to participate in Council meetings when matters of common interest are under consideration; however, invited participants may not vote.

E6.2.1.1. The Council shall elect from among its membership a Chair of the AFPMB and a Vice Chair who will serve in the absence of the Chair. They shall serve 2-year terms that may be extended once by reelection. The Chair shall preside over meetings of the Council and the Board; establish standing and ad hoc committees and task groups to assist the Council in performing its functions; and call at least two meetings annually to carry out the mission of the Board.

E6.2.1.2. The Council may develop procedural rules as necessary to accomplish its mission.

E6.2.2. The Directorate shall be the full-time administrative and operational body of the Board. It shall be composed of a Director; a Deputy Director; a Contingency Liaison Officer (CLO); a Research Liaison Officer (RLO); the Chief, Defense Pest Management Information Analysis Center; and any professional, technical, and clerical personnel necessary for its operation and administration.

E6.2.2.1. The Director shall be an active duty military medical entomology officer, preferably in the grade O-6, nominated by the respective Surgeon General of the Military Service, and appointed by the DUSD(I&E) for a period of 4 years. When practical, appointees shall rotate in the order of the Army, Navy, and Air Force. The Director shall supervise the Directorate, provide assistance to the Council as required, and perform other tasks the DUSD(I&E) may assign. The Director shall also serve as the Director of Defense Pest Management, Office of the DUSD(I&E).

E6.2.2.2. The Deputy Director shall be an active duty military medical entomology officer, in the minimum grade of O-5. Length of tour, nomination, and appointment procedures shall be the same as for the Director. The Deputy Director shall serve in the absence of the Director.

E6.2.2.3. The CLO shall be an appropriately trained active duty medical entomology officer, with a minimum grade of O-5 and extensive field and staff experience. Length of tour, nomination, and appointment procedures shall be the same as for the Director. The CLO shall serve as the principal contact between the AFPMB and the Chairman of the Joint Chiefs of Staff; the Combatant Commands, through the Chairman of the Joint Chiefs of Staff; and Military Service organizations lacking a staff medical entomologist. The CLO shall support the contingency, readiness, and deployment functions of the AFPMB. The CLO shall provide updated information on specific vector-borne disease threats in any country in the world in coordination with the DPMIAC, shall assist in the development of appropriate sections of operational plan medical annexes, and shall identify resources for surveillance and control of disease vectors for specific operations.

E6.2.2.4. The RLO shall be an active duty military medical entomology officer, with a minimum grade of O-5, with experience in both research and administration. The length of tour, nomination, and appointment procedures shall be the same as for the Director. The RLO shall coordinate the research and evaluation function of the AFPMB and shall serve as the principal contact between the AFPMB and other Federal agencies' pest management research offices.

E6.2.2.5. The DPMIAC shall be the center for collection and analysis of IPM scientific and technical information, including images pertaining to IPM and disease vectors. It shall, upon request, distribute this information to the Military Services, the Chairman of the Joint Chiefs of Staff, and Combatant Commands. It shall also assist committees, task groups, and the AFPMB Council; provide resource material; and develop pest management Technical Guides, bulletins, and other guidance for the Military Services, the Chairman of the Joint Chiefs of Staff, and Combatant Commands. Each of the Military Services shall provide one medical entomology field grade officer to the staff of the DPMIAC. The Army, Navy and Air Force's medical entomology consultants shall nominate personnel for approval by the Director.

E7. ENCLOSURE 7

PROCEDURES FOR THE ACQUISTION OF PEST MANAGEMENT MATERIEL (EQUIPMENT AND PESTICIDES)

E7.1. DoD installations may purchase pest management materiel from the Federal Supply System (FSS) or from local sources when local purchase is in the best interest of the Government pursuant to Subpart 208.7003-1 of the Defense Federal Acquisition Regulation Supplement (Reference (ar)).

E7.2. DoD pest management consultants approve the procurement and use of all pesticides on DoD installations. This is normally done during the annual review of the installation's IPM plan.

E7.2.1. The AFPMB reviews and approves the stockage or deletion of pest management materiel into the FSS by the DLA.

E7.2.2. The DLA submits cataloging actions only for pest management materiel that has been approved by the AFPMB. Unapproved materiel shall be referred to the AFPMB for consideration.

E7.2.3. The Services request approval of stocking of pest management materiel through command channels to the AFPMB. Once approved, the AFPMB forwards the request to the DLA for cataloging action. Proposals from the Services recommending revision or deletion of pest management materiel from the supply system are submitted to the AFPMB in the same manner.

E7.2.4. National Stock Numbers (NSNs) are only assigned to pest management materiel for DoD use that has been approved by the AFPMB.

E7.1.5. When approved by the certified pest management consultant concerned, pest management materiel may be procured locally if needed for an emergency, required due to unique local situations, or used in quantities so small that assignment of an NSN is not feasible. Installations shall make every effort to use pest management materiel in the DoD Supply System before requesting local purchase authority. In answer to AFPMB data calls, the Military Services shall provide the AFPMB with memorandums listing all locally procured pest management materiel they have approved. The listings shall include the amount purchased, the proposed use, and any other information needed by the AFPMB. The AFPMB shall monitor the appropriateness of locally procured pest management materiel for use in the Department of Defense. When justified, the AFPMB shall request that an NSN be assigned to pest management materiel.

E7.1.6. The AFPMB's decision to stock pest management materiel will use data from all available government and commercial sources. When additional testing and evaluation is

needed, the U.S. Navy Bureau of Medicine and Surgery will evaluate the efficacy, military applicability, and durability of commercially available equipment.

E7.1.7. During deployment operations, pesticides may be locally procured according to the following instructions:

E7.1.7.1. Only those pesticides listed in the DoD Contingency Pesticide List can be used during contingency operations except where an emergency exists, as determined by the task force commander. During emergency conditions, pesticides may be procured locally with the proper approval. The DoD Contingency Pesticide List is available at http://www.afpmb.org/pubs/standardlists/dod%20contingency%20pesticides%20list.pdf.

E7.1.7.2. Individuals designated as PMPs by the task force surgeon approve in writing any local procurement of EPA-registered pesticides.

E7.1.7.3. Obtain approval from the AFPMB, PMPs, and the task force surgeon for local procurement of any pesticides that are not EPA-registered, but that have active ingredients and formulations listed in the DoD Contingency Pesticide List.

E7.1.7.4. Requests for local procurement of pesticides that are not EPA-registered and have active ingredients or formulations that are not listed in the DoD Contingency Pesticide List are forwarded for approval to the AFPMB (CLO), Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307. Requests may also be made to http://www.afpmb.org/forums/sendmessage.php. Such requests should be forwarded by professional pest management personnel and the task force surgeon.

E7.1.7.5. Under no circumstances will pesticides be procured that contain active ingredients that are not registered by the EPA for use in the United States.

Presidential Documents

Executive Order 13112 of February 3, 1999

Invasive Species

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*), Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C. 4701 *et seq.*), Lacey Act, as amended (18 U.S.C. 42), Federal Plant Pest Act (7 U.S.C. 150aa *et seq.*), Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2801 *et seq.*), Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), and other pertinent statutes, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause, it is ordered as follows:

Section 1. *Definitions.*

(a) ''Alien species'' means, with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

(b) ''Control'' means, as appropriate, eradicating, suppressing, reducing, or managing invasive species populations, preventing spread of invasive species from areas where they are present, and taking steps such as restoration of native species and habitats to reduce the effects of invasive species and to prevent further invasions.

(c) ''Ecosystem'' means the complex of a community of organisms and its environment.

(d) ''Federal agency'' means an executive department or agency, but does not include independent establishments as defined by 5 U.S.C. 104.

(e) ''Introduction'' means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.

(f) ''Invasive species'' means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

(g) ''Native species'' means, with respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

(h) ''Species'' means a group of organisms all of which have a high degree of physical and genetic similarity, generally interbreed only among themselves, and show persistent differences from members of allied groups of organisms.

(i) ''Stakeholders'' means, but is not limited to, State, tribal, and local government agencies, academic institutions, the scientific community, non-governmental entities including environmental, agricultural, and conservation organizations, trade groups, commercial interests, and private landowners.

(j) ''United States'' means the 50 States, the District of Columbia, Puerto Rico, Guam, and all possessions, territories, and the territorial sea of the United States.

Sec. 2. *Federal Agency Duties*. (a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

(1) identify such actions;

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

Sec. 3. *Invasive Species Council*. (a) An Invasive Species Council (Council) is hereby established whose members shall include the Secretary of State, the Secretary of the Treasury, the Secretary of Defense, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Transportation, and the Administrator of the Environmental Protection Agency. The Council shall be Co-Chaired by the Secretary of the Interior, the Secretary of Agriculture, and the Secretary of Commerce. The Council may invite additional Federal agency representatives to be members, including representatives from subcabinet bureaus or offices with significant responsibilities concerning invasive species, and may prescribe special procedures for their participation. The Secretary of the Interior shall, with concurrence of the Co-Chairs, appoint an Executive Director of the Council and shall provide the staff and administrative support for the Council.

(b) The Secretary of the Interior shall establish an advisory committee under the Federal Advisory Committee Act, 5 U.S.C. App., to provide information and advice for consideration by the Council, and shall, after consultation with other members of the Council, appoint members of the advisory committee representing stakeholders. Among other things, the advisory committee shall recommend plans and actions at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Management Plan in section 5 of this order. The advisory committee shall act in cooperation with stakeholders and existing organizations addressing invasive species. The Department of the Interior shall provide the administrative and financial support for the advisory committee.

Sec. 4. *Duties of the Invasive Species Council*. The Invasive Species Council shall provide national leadership regarding invasive species, and shall:

(a) oversee the implementation of this order and see that the Federal agency activities concerning invasive species are coordinated, complementary, cost-efficient, and effective, relying to the extent feasible and appropriate on existing organizations addressing invasive species, such as the Aquatic Nuisance Species Task Force, the Federal Interagency Committee for the Management of Noxious and Exotic Weeds, and the Committee on Environment and Natural Resources;

(b) encourage planning and action at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Management Plan in section 5 of this order, in cooperation with stakeholders and existing organizations addressing invasive species;

(c) develop recommendations for international cooperation in addressing invasive species;

(d) develop, in consultation with the Council on Environmental Quality, guidance to Federal agencies pursuant to the National Environmental Policy Act on prevention and control of invasive species, including the procurement, use, and maintenance of native species as they affect invasive species;

(e) facilitate development of a coordinated network among Federal agencies to document, evaluate, and monitor impacts from invasive species on the economy, the environment, and human health;

(f) facilitate establishment of a coordinated, up-to-date information-sharing system that utilizes, to the greatest extent practicable, the Internet; this system shall facilitate access to and exchange of information concerning invasive species, including, but not limited to, information on distribution and abundance of invasive species; life histories of such species and invasive characteristics; economic, environmental, and human health impacts; management techniques, and laws and programs for management, research, and public education; and

(g) prepare and issue a national Invasive Species Management Plan as set forth in section 5 of this order.

Sec. 5. *Invasive Species Management Plan*. (a) Within 18 months after issuance of this order, the Council shall prepare and issue the first edition of a National Invasive Species Management Plan (Management Plan), which shall detail and recommend performance-oriented goals and objectives and specific measures of success for Federal agency efforts concerning invasive species. The Management Plan shall recommend specific objectives and measures for carrying out each of the Federal agency duties established in section 2(a) of this order and shall set forth steps to be taken by the Council to carry out the duties assigned to it under section 4 of this order. The Management Plan shall be developed through a public process and in consultation with Federal agencies and stakeholders.

(b) The first edition of the Management Plan shall include a review of existing and prospective approaches and authorities for preventing the introduction and spread of invasive species, including those for identifying pathways by which invasive species are introduced and for minimizing the risk of introductions via those pathways, and shall identify research needs and recommend measures to minimize the risk that introductions will occur. Such recommended measures shall provide for a science-based process to evaluate risks associated with introduction and spread of invasive species and a coordinated and systematic risk-based process to identify, monitor, and interdict pathways that may be involved in the introduction of invasive species. If recommended measures are not authorized by current law, the Council shall develop and recommend to the President through its Co-Chairs legislative proposals for necessary changes in authority.

(c) The Council shall update the Management Plan biennially and shall concurrently evaluate and report on success in achieving the goals and objectives set forth in the Management Plan. The Management Plan shall identify the personnel, other resources, and additional levels of coordination needed to achieve the Management Plan's identified goals and objectives, and the Council shall provide each edition of the Management Plan and each report on it to the Office of Management and Budget. Within 18 months after measures have been recommended by the Council in any edition of the Management Plan, each Federal agency whose action is required to implement such measures shall either take the action recommended or shall provide the Council with an explanation of why the action is not feasible. The Council shall assess the effectiveness of this order no

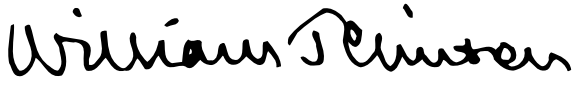
less than once each 5 years after the order is issued and shall report to the Office of Management and Budget on whether the order should be revised.

Sec. 6. *Judicial Review and Administration.* (a) This order is intended only to improve the internal management of the executive branch and is not intended to create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any other person.

(b) Executive Order 11987 of May 24, 1977, is hereby revoked.

(c) The requirements of this order do not affect the obligations of Federal agencies under 16 U.S.C. 4713 with respect to ballast water programs.

(d) The requirements of section 2(a)(3) of this order shall not apply to any action of the Department of State or Department of Defense if the Secretary of State or the Secretary of Defense finds that exemption from such requirements is necessary for foreign policy or national security reasons.



THE WHITE HOUSE,
February 3, 1999.

[FR Doc. 99–3184
Filed 2–5–99; 8:45 am]
Billing code 3195–01–P

APPENDIX B: MATRICES

Master List of Invasive Species for Adelphi Laboratory Center

Scientific Name	Common Name
Acer platanoides	Norway Maple
Ailanthus altissima	Tree of Heaven
Alliaria petiolata	Garlic Mustard
Allium vineale	Wild Garlic
Ampelopsis brevipedunculata	Porcelain Berry
Artemisia vulgaris	Mugwort
Berberis thunbergii	Japanese Barberry
Cardamine impatiens	Narrowleaf Bittercress
Carduus acanthoides	Plumeless Thistle
Carduus nutans	Musk Thistle
Caulerpa taxifolia	Marine Macroalgae
Celastrus orbiculatus	Oriental Bittersweet
Centaurea stoebe	Spotted Knapweed
Cirsium arvense	Canada Thistle
Cirsium vulgare	Bull Thistle
Didymosphenia geminata	Rock Snot
Egeria densa	Brazilian Waterweed
Eichhornia crassipes	Water Hyacinth
Elaeagnus umbellata	Autumn Olive
Euonymus fortunei	Winter Creeper
Fallopia japonica	Japanese Knotweed
Frangula alnus	Glossy Buckthorn
Hedera helix	English Ivy
Hemerocallis fulva	Daylily
Heracleum mantegazzianum	Giant Hogweed
Humulus japonicus	Japanese Hops
Hydrilla verticillata	Hydrilla
Imperata cylindrica	Cogongrass
Lonicera japonica	Japanese Honeysuckle
Lonicera maackii	Amur Honeysuckle
Lonicera morrowi	Morrow's Honeysuckle
Lonicera standishii	Standish's Honeysuckle
Lonicera tatarica	Tartarian Honeysuckle
Lythrum salicaria	Purple Loosestrife
Microstegium vimineum	Japanese Stiltgrass
Miscanthus sinensis	Chinese Silvergrass
Morus alba	White Mulberry
Murdannia keisak	Marsh Dayflower
Myriophyllum aquaticum	Parrot Feather
Myriophyllum spicatum	Eurasian Water-Milfoil
Oplismenus undulatifolius	Wavyleaf Basketgrass
Paulownia tomentosa	Princess Tree
Perilla frutescens	Perilla
Persicaria perfoliata	Mile-a-minute
Phalaris arundinacea	Reed Canarygrass
Phragmites australis	Phragmites
Phyllostachys spp.	Running Bamboos
Potamogeton crispus	Curly Leaved Pondweed
Prymnesium parvum	Golden Algae
Pueraria montana var.*lobata*	Kudzu
Pyrus calleryana	Bradford Pear
Rhamnus cathartica	Common Buckthorn
Rhodotypos scandens	Jetbead
Rosa multiflora	Multiflora Rose
Rottboellia cochinchinensis	Itchgrass
Salvinia molesta	Giant Salvinia
Schoenoplectus mucronatus	Bog Bulrush
Sorghum bicolor	Shattercane
Sorghum halepense	Johnsongrass
Trapa natans	Water Chestnut
Tribulus terrestris	Puncturevine
Wisteria floribunda	Japanese Wisteria
Wisteria sinensis	Chinese Wisteria

Scientific Name	Common Name	Area 100	Area 200	Area 400	Area 500	Area 600	Total # of Species Occurrences on ALC	Total Density per Species on ALC
Alliaria officinalis	Garlic mustard		M				1	2.0
Ampelopsis brevipedunculata	Porcelain berry				L		1	1.0
Berberis thunbergii	Japanese barberry	M-H	M-H	M		M	4	9.0
Cirsium arvense	Canada thistle		L-M	L			2	2.5
Cirsium vulgare	Bull thistle			L	L		2	2.0
Euonymus atropurpureus	Burning bush		L				1	1.0
Euonymus fortunei	Winter creeper		L				1	1.0
Glechoma hederacea	Ground ivy		M-H	M	M-H		3	7.0
Lespedeza cuneata	Chinese bushclover		M	M	M-H	M-H	4	9.0
Ligustrum sinense	Chinese privet		L				1	1.0
Lonicera japonica	Japanese honeysuckle			M-H	M-H		2	5.0
Lonicera tatarica	Bush honeysuckle			L-M			1	1.5
Microstegium vimineum	Japanese stiltgrass	M-H	M-H	M-H	M-H	M	5	12.0
Miscanthus sinensis	Chinese silvergrass		L				1	1.0
Persicaria perfoliata	Mile-a-minute			M-H	M-H	M	3	7.0
Phragmites australis	Common reed		M		M-H	M	3	6.5
Phyllostachys aurea	Golden bamboo					L-M	1	1.5
Pyrus calleryana	Bradford pear	L		L			2	2.0
Rosa multiflora	Multiflora rose		M				1	2.0
Rubus phoenicolasius	Wineberry	M	M				2	4.0
Securigera varia	Crownvetch			L-M	L		2	2.5
Vinca minor	Periwinkle		L				1	1.0
Wisteria sinensis	Chinese wisteria		M		L-M		2	3.5
	# of Species per Site	4	15	11	10	6		
	Acreage per Site	36.0	53.0	40.0	26.0	52.0		
	Overall Density Coverage per Site	Species identified throughout landscaping and along wood edges near buildings	Species identified widespread throughout area, along road edges and within Paint Branch floodplain	Species indentified near stormwater pond and on hillside west of access road, densely throughout Paint Branch floodplain	Species identified along road edge, around building and guard shack swale and on/near perimeter fenceline	Species identified in high densities throughout entire area		

Density: L = Low or Light, M = Moderate or Scattered, H = High
Species Density: L = 1, L-M = 1.5, M = 2, M-H = 2.5, H = 3

APPENDIX C: DATASHEETS

Date:	30 June 2015	**Site:**	Adelphi Lab 100 Area	**Time:**	0930

SPECIES OF CONCERN

INVASIVE SPECIES	**Description (density - # stems/area)**	**GPS POINT**	**PHOTO ID**	**Mgt necessary?**	**Adj water res? Adj end sp habitat?**	**Recommended Mgt. actions**
BETH	Landscaping					Remove and replace with native species
Bradford Pear						
EUVI	Wood edges near buildings					Spray or manual removal
RUPH	Wineberry					

ENDANGERED SPECIES	**Description**	**GPS POINT**	**PHOTO ID**	**Habitat Present?**		**Recommended Mgt. actions**

ADDITIONAL NOTES

Date:	30 Jun 2015	Site:	Adelphi Lab 200 Area	Time:	1000

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
BETH	15-20 Stems/~1/2 acre	38˚25'13", 77˚5'90"		Yes	Trib to Paint	Manual removal/spray
EUVI	Widespread throughout / road edges					
RUPH						
LECU						
Field Thistle	Perimeter road edges					
Canada Thistle						
Silvergrass						
BETH	C area	1				Manual removal
RUPH		1				
LECU		1				
BETH	Pt. 2 heavy BETH & EUVI	2				Spray
RUPH		2				
EUVI		2				
WICH	Winter Creeper/Wisteria sinensis	2				
LEVU/EUAT	Garlic mustard					
PHAU	In BMP from parking (wetland area)	3				Spray with approved herbicide for wetlands
EUVI	Floodplain of Paint Branch					
Ground Ivy						
BETH/RUPH						
ROMU	Corner of gravel road and Floral Drive	4				Spray
BETH	Understory	5				Spray

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Area with BETH has little understory to prevent widespread take over

BETH used in landscape at Building 207

Date:	1 Jul 2015	Site:	Adelphi Lab 400 Area	Time:	0915

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Bull Thistle	10-20 individuals	6				Spray/manual removal
Barberry	2-3 bushes	6				Spray
LOJA	Ground cover	6				Spray
EUVI		6				
Canada Thistle		6				
EUVI	Floodplain of Paint Branch	7				Spray/plant native shrubs
BETH	Dense	7				
Ground Ivy		7				
POPE	Storm Pond	8				Spray
Crownvetch		8				Spray
PYCA		8				Spray
LOJA	Dense ground cover	9				Spray
JOTA	Sparce Hillside to west of road					
BETH	Sparce					
LOJA		10				
LECU						
EUVI		11				
BETH	Floodplain of Trib to Paint Branch	11				
POPE		11				

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	1 Jul 2015	Site:	Adelphi Lab 500 Area	Time:	1300

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
PHAU	Along road edge around Building 500, dense PHAU	14				Spray
LOJA		14				
LECU		14				
Bull Thistle		14				
LECU	Around building - Dense					
EUVI	Perimeter Fence = 15' + adjacent area	15				Spray
PHAU	Small patch 15x30' next to perimeter	16				Spray
WICH	Either side of fence around Building 500, Adjacent to Floral Avenue	17				Spray
POPE						
EUVI						
Ground ivy	Swale by guard shack	18				
Crown vetch		18				
Porcelain berry	On fence	19				Cut and spray

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	1 Jul 2015	Site:	Adelphi Lab 600 Area	Time:	1100
	2-Jul-15				930

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
EUVI	Perimeter road	12				Spray
EUVI	In bog area	13				
BETH						
LECU	Very dense - helio pad					Spray / Mow
	All open areas					Spray / Mow
	Road edges					Spray / Mow
PHAU	Sparce along road edge at woodline	20				Spray
Golden Bamboo	Dense patch on fenceline (perimeter)	21				Spray
POPE/LECU	Parking area bioretention	22				Spray
EUVI/BETH	Space/ in wood edge	23				
EUVI/BETH	Dense	25				Spray
EUVI/LECU	Dense in clearings - also throughout understory	26				
BETH		27				

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions
??	Area similar in veg and soil to Powder Mill Bog	24				Map and protect

ADDITIONAL NOTES
GPS Pt. 27 - Clearings in woods - EUVI/BETH
GPS Pt. 28 - Edge of woods at top(North) of parking lot LECU/POPE

APPENDIX D: MAPS

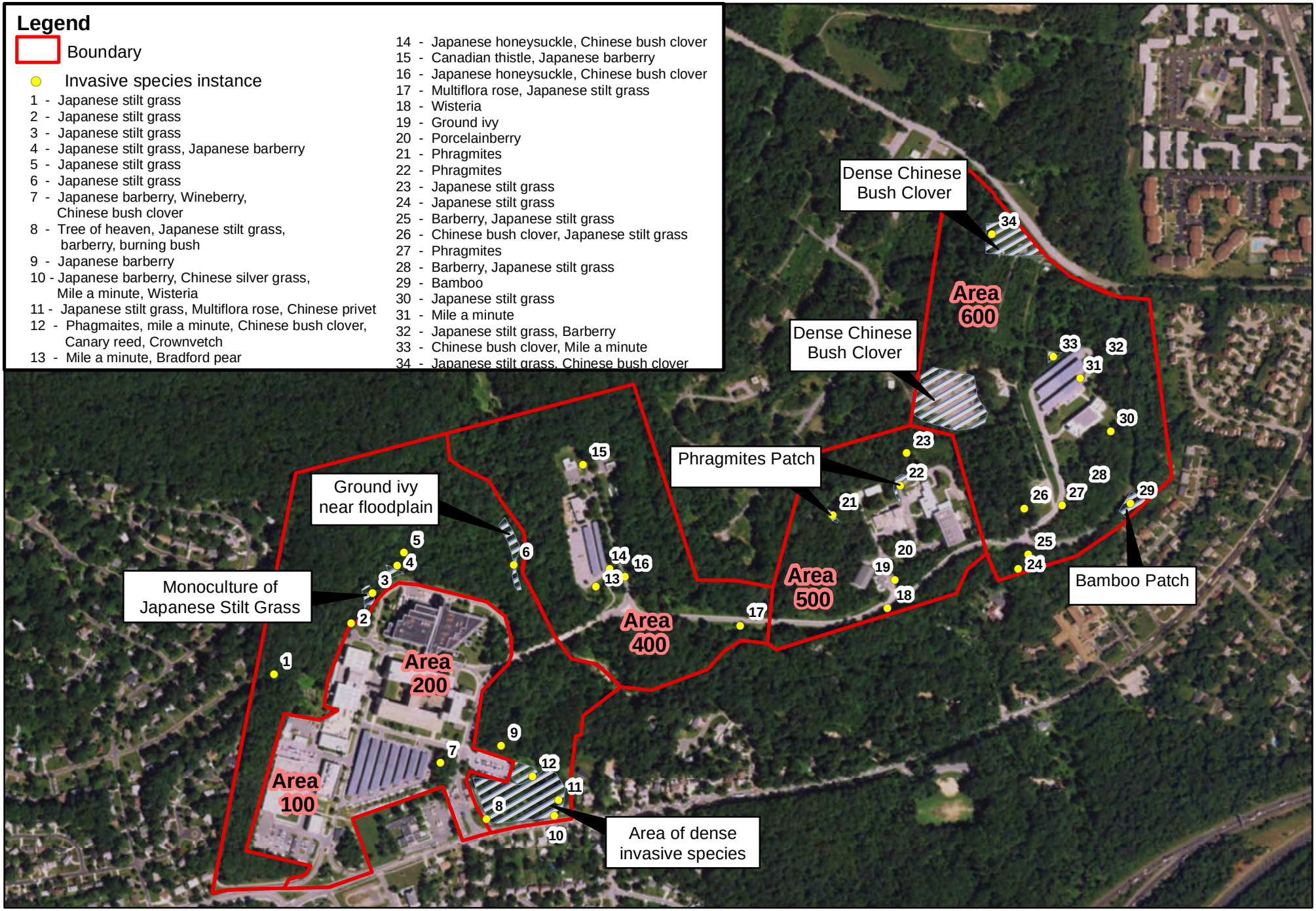


Figure 1. Adelphi Laboratory Center
Occurrence of Invasive Species
Prince Georges and Montgomery Counties

APPENDIX E: PHOTOS

Golden Bamboo

Bush honeysuckle, Japanese stiltgrass, mile-a-minute and Chinese wisteria

Japanese stiltgrass along perimeter fenceline

Japanese barberry

Japanese stiltgrass

Periwinkle

Wineberry

Paint Branch

APPENDIX F: HERBICIDES

ENVIRONMENTAL ASSESSMENT
INVASIVE SPECIES MANAGEMENT PLAN

U.S. Army Garrison Adelphi Laboratory Center
Prince George's and Montgomery Counties, Maryland

U.S. Army Garrison Adelphi Laboratory Center
Environmental Division
2800 Powder Mill Road
Adelphi, Maryland 20783

APRIL 2017

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

FINDING OF NO SIGNIFICANT IMPACT

Implementation of U.S. Army Garrison Adelphi Laboratory Center
Invasive Species Management Plan
Prince George's and Montgomery Counties, Maryland

In compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, the U.S. Army Garrison Adelphi Laboratory Center (ALC) has prepared an Environmental Assessment (EA) to evaluate and document the potential environmental effects associated with implementation of the ALC Invasive Species Management Plan (ISMP).

The Proposed Actions includes the implementation of an updated ISMP by ALC to provide an integrated and comprehensive method for identifying and managing invasive plant species on the installation. The ISMP provides a description of invasive plant species that occur on ALC. The Proposed Action also provides guidance for facility managers to identify invasive plant species and implement appropriate management actions. The ISMP brings ALC into compliance with all applicable legal requirements.

All natural and social environmental factors that may be relevant to the Proposed Action, including the cumulative effects thereof, were considered. Potential short-term, minor, adverse impacts from the Proposed Action include soil erosion from mechanical weed removal and soil contamination from pesticide application. Other short-term, minor, adverse impacts include air emissions and noise from lawn mowers, weed whackers, chainsaws and other equipment used for weed removal and potential displacement of wildlife. Potential, minor adverse impacts from pesticides is possible; however, potential impacts will be minimized through the proper use and storage in accordance with manufacturer's label and EPA guidance. Long-term benefits to land use, soils, surface water and biological resources could result from the Proposed Action due to the elimination of over-populating weeds and the use of fewer pesticides to do so. Mitigations identified in the EA will be implemented.

Public participation opportunities with respect to this EA and decision making on the Proposed Action are guided by 32 CFR Part 651. The EA was made available to the public for 30 days, along with a draft Finding of No Significant Impact (FNSI). A notice of availability was published in The Sentinel Newspaper (Prince George's and Montgomery Counties, Maryland) on September 1, 2016. Copies of the draft EA and draft FNSI were available for review at the White Oak Library, Silver Spring, Maryland. No comments or responses were received.

Upon reviewing the Environmental Assessment, I find that there would be no significant impacts to resources considered and that an Environmental Impact Statement is not required for the proposed project.

William A. Cole
Garrison Manager
U.S. Army Garrison Adelphi Laboratory Center

Date: 7 Apr 2017

ENVIRONMENTAL ASSESSMENT
INVASIVE SPECIES MANAGEMENT PLAN

U.S. Army Garrison Adelphi Laboratory Center
Prince George's and Montgomery Counties, Maryland

U.S. Army Garrison Adelphi Laboratory Center
Environmental Division
2800 Powder Mill Road
Adelphi, Maryland 20783

April 2017

EXECUTIVE SUMMARY

INTRODUCTION

The Department of the Army requires all Army installations to prepare an Invasive Species Management Plan (ISMP) in accordance with the Executive Order (EO) 13112 and the Army Policy Guidance for Management and Control of Invasive Species (DA1999). The ISMP outlines U.S. Department of Army policies, procedures and responsibilities for meeting ISMP compliance and management requirements at the U.S. Army Garrison Adelphi Laboratory Center (ALC). Additionally, the ISMP is designed to ensure that ALC makes informed decisions regarding the ISMP under its control.

ALC has prepared this Environmental Assessment (EA) for the implementation of the ISMP at ALC. The ISMP covered by this EA is titled *Invasive Species Management Plan, U.S. Army Garrison Adelphi Laboratory Center, April 2017*. This EA evaluates the potential environmental effects that would occur as a result of implementing the updated ISMP.

PROPOSED ACTION

The Proposed Action is the implementation of an updated ISMP by ALC to provide an integrated and comprehensive method for identifying and managing invasive plant species on the installation. The ISMP provides a description of potential invasive plant species that may occur on ALC. The proposed action also provides guidance for facility managers to identify invasive plant species and appropriate management actions; develop individual management plans; and incorporate invasive plant species management plans into the facility Integrated Pest Management Plan (IPMP). The ISMP brings ALC into compliance with all applicable legal requirements.

NO ACTION ALTERNATIVE

The "No Action Alternative" is the only alternative to the Proposed Action considered in detail in this EA. The No Action Alternative reflects the status quo and serves as a benchmark against which federal actions can be evaluated.

CONCLUSION

Based upon the analyses contained in this EA, it has been determined that the known and potential impacts of implementing the Proposed Action on the physical, natural and cultural environment would have no significant effects. Implementation of the ISMP would result in the efficient identification and control of invasive plant species, thereby benefiting native species and their habitat. The ISMP establishes procedures for managing invasive plant species in compliance with all applicable federal laws, regulations and installation guidelines. By implementing the ISMP, ALC will be in compliance with EO 13112 and Army Policy Guidance for Management and Control of Invasive Species.

Table ES-1: Summary of Potential Individual and Cumulative Effects on Environmental Resources		
Resource	**Proposed Action**	**No-Action**
Land Use	Possible long-term, minor, benefits	No impacts to minor, negative impacts
Soils and Topography	Short-term, minor, adverse impacts Long-term, minor benefits	Possible long-term, adverse impacts
Water Resources		
Surface Water	Short-term, minor, benefits	Possible long-term, adverse impacts
Wetlands	Possible minor, benefits	No impacts
Floodplains	Possible minor, adverse impacts	No impacts
Groundwater	No impacts	Possible long-term, adverse impacts
Air Quality	Short-term, minor, adverse impacts	Minor, adverse impacts
Noise	Short-term, minor, adverse impacts	No impacts
Biological Resources		
Vegetation	Minor benefits	Possible long-term, adverse impacts
Wildlife Resources	Minor benefits, possible minor, adverse impacts	Possible long-term, adverse impacts
Threatened and Endangered Species	Minor benefits	Possible adverse impacts
Aquatic Habitat	Minor benefits	Possible long-term, adverse impacts
Socioeconomic	No impacts	No impacts
Environmental Justice	No impacts	No impacts
Hazardous, Toxic, and Radioactive Substances	Possible minor, adverse impacts	No impacts
Cumulative Impacts	No impacts	No impacts

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ACRONYMS AND ABBREVIATIONS

ACSIM	Assistant Chief of Staff for Installation Management
ALC	Adelphi Laboratory Center
ARL	Army Research Laboratory
CO	Carbon Monoxide
COR	Contracting Officers' Representative
DoD	Department of Defense
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
FNSI	Finding of No Significant Impact
HEL	Highly Erodible Lands
INRMP	Integrated Natural Resources Management Plan
IPMC	Installation Pest Management Coordinator
IPMP	Integrated Pest Management Plan
ISMP	Invasive Species Management Plan
ITAM	Integrated Training Area Management
MDE	Maryland Department of the Environment
MD DNR	Maryland Department of Natural Resources
MSL	Mean Sea Level
N/A	Not Applicable
NEPA	National Environmental Policy Act
NO_2	Nitrogen Dioxide
O_3	Ozone
ODEP	Office of the Director of Environmental Program
Pb	Lead
PM	Particulate Matter
PPE	Personal Protective Equipment
QAE	Quality Assurance Evaluator
SO_2	Sulfur Dioxide
USFWS	U.S. Fish and Wildlife Service

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1.0 PURPOSE, NEED AND SCOPE

1.1 INTRODUCTION

The Adelphi Laboratory Center (ALC) is located in Adelphi, Maryland (Appendix A, Figure 1). The site straddles the border between two Maryland jurisdictions, Prince George's and Montgomery Counties. Of the total 202 acre area, 84 acres are within Montgomery County and 118 acres are within Prince George's County. ALC is approximately 6 miles from the District of Columbia. The installation is located within one mile of the Capital Beltway (Interstate 495) and Interstate 95 (I-95). ALC lies in the Anacostia River drainage basin which is a tributary of the Potomac River. It is bordered by residential areas on the east and south and by the General Service Administration's Federal Center on the north and west. ALC consists of four main building areas with parking lots, forested lands and two stream corridors, Paint Branch and Hillandale Tributary.

ALC does not currently have an Invasive Species Management Plan (ISMP) and is in the process of preparing one. This Environmental Assessment (EA) evaluates the implementation of the ISMP.

1.2 PURPOSE AND NEED

Like all Army landholders, ALC is required to comply with Federal, Department of Defense (DoD) and Army laws, regulations and guidance regarding invasive species control and non-proliferation. Relevant requirements include Executive Order (EO) 13112, *Invasive Species*; Army Policy Guidance for Management and Control of Invasive Species; DoD Pest Management Program (DoD Instruction 4150.07); and the Armed Forces Pest Management Board. These documents are provided in the ISMP.

EO 13112, signed February 3, 1999, established in Invasive Species Council, and specified duties for each Federal agency as follows:

(a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

(1) identify such actions;

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to:

(i) prevent the introduction of invasive species;
(ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner;
(iii) monitor invasive species populations accurately and reliably;
(iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded;

(v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and

(vi) promote public education on invasive species and the means to address them; and

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

In response to EO 13112, DoD analyzed its activities, and identified those activities that may affect the status of invasive species. As a result of this analysis, the Army assigned the Assistant Chief of Staff for Installation Management (ACSIM), through the Office of the Director of Environmental Programs (ODEP), as the proponent and Army program manager for all environmental aspects of invasive species management. The Deputy Chief of Staff for Operations and Plans ensures that all aspects of the Integrated Training Area Management (ITAM) Program are consistent with this policy.

The Army Policy Guidance for Management and Control of Invasive Species, issued by the Department of the Army Assistant Chief of Staff for Installation Management on 26 June 2001, is designed to provide policy guidance for the environmental management and control of invasive species on US Army installations. Major points of this guidance, as it applies to ALC are:

- Invasive species shall be managed within the context of the goals and objectives of an installation's Integrated Natural Resources Management Plan (INRMP) and will be integrated into other installation plans as appropriate.

- Installations, subject to legal authorities and limitations, will monitor invasive species populations and track the presence and status of invasive species over time, determine when control measures are necessary, and evaluate the effectiveness of prevention, control/eradication, and restoration measures.

- Installations will give priority to invasive species management actions, including actions to restore native species habitat conditions in ecosystems that have been invaded, that support the installation's primary military mission, and that contribute

to the protection of federally listed threatened and endangered species and critical habitat. Installations should ensure that invasive species do not detract from the usefulness of military training and testing lands and will ensure that invasive species management and control practices do not result in non-permitted take or jeopardize the existence of threatened and endangered species.

- Installations are encouraged to enter into partnerships with other federal agencies, state agencies, and local agencies, tribes, and non-government organizations.

- Installations are encouraged to cooperate with state programs for controlling invasive species and will allow access to the installations for this purpose. Such access must be consistent with installation safety and security considerations. Control measures must be fully coordinated with installation stakeholders and acceptable for use on the installation.

The purpose of the Proposed Action is to implement an ISMP for the identification and development of specific management plans for invasive plant species located on ALC. The Proposed Action will be in compliance with all applicable resource management legal requirements including federal statutes and regulations, and U.S. Army guidelines. The ISMP complements the INRMP and sets procedures for the identification and management of invasive plant species at ALC.

1.3 SCOPE

This EA does not analyze site-specific impacts associated with individual projects for invasive plant species control that may be implemented by the ISMP for ALC. Consideration of site specific impacts will be undertaken by subsequent National Environmental Policy Act (NEPA) analysis specific to those future individual projects.

This EA considers, compares, and evaluates two alternatives. The first alternative, which serves as the Army's preferred alternative, is the adoption and implementation of an updated ISMP for ALC. The second alternative is the "No Action Alternative" which would continue the status quo: continued management of invasive species under the existing non-comprehensive procedures.

1.4 PUBLIC INVOLVEMENT

Coordination with Federal and state agencies including the U.S. Fish and Wildlife Service (USFWS) and the Maryland Department of Natural Resources (MD DNR) was initiated for the Proposed Action in September 2016. Copies of coordination letters are located in Appendix B.

Public participation opportunities with respect to this EA and decision making on the Proposed Action are guided by 32 CFR Part 651. The EA was made available to the public for 30 days, along with a draft Finding of No Significant Impact (FNSI). A Notice of Availability was published in The Sentinel Newspaper (Prince George's and Montgomery Counties, Maryland) on September 1, 2016. Copies of the EA and draft FNSI were available for review at the White Oak

Library, Silver Spring, Maryland. No comments or responses were received. ALC will execute a FNSI and will proceed with implementation of the Proposed Action.

2.0 PROPOSED ACTION

An ISMP is a critical component of the INRMP and, as such, is a decision document used by Army installations to guide its natural resource actions and procedures with regard to invasive species. The ISMP provides guidance for facility managers to identify invasive species at their properties and develop individual management plans for dealing with specific invasive species and incorporating these plans into the facilities Integrated Pest Management Plan (IPMP). The ISMP provides an overview of management methods that can be employed to control invasive species; information on invasive species identification and management; factsheets and maps for invasive species found in the area; and guidance for further implementation and incorporation of management plans to eradicate or manage invasive species at each facility.

The Proposed Action is, therefore, the implementation of an ISMP to identify and control invasive plant species at ALC in Prince George's and Montgomery Counties. The Proposed Action provides a basis for addressing applicable requirements and best management practices consistent with achievement of the needs, goals and objectives of the Command's military mission.

There are four kinds of invasive plant management methods recommended in the ISMP: biological, chemical, manual and mechanical. The first and best method for managing or eradicating invasive plant species varies from species to species and is also dependent on the size of the area to be treated.

Biological Management - Biological management of invasive species includes the use of organisms, which through predation, parasitism, or competition, kill or prevent the reproduction of invasive species. For example, the use of *Rhinoncomimus latipes* (weevil) on mile-a minute, is a biological management technique.

Chemical Management - Chemical management of invasive plant species consists of the use of pesticides, specifically herbicides to slow the spread of or kill invasive plant species. An example would be the application of glyphosate to multiflora rose (*Rosa multiflora*) through a backpack sprayer. Chemical management techniques for invasive plant species should only be implemented as a facet of an integrated pest management approach. ALC has an IPMP dated September 2015. According to the IPMP, pesticide application and surveillance records are maintained by the ALC pest controller using the Pest Management Maintenance Record (DD Form 1532-1) and an electronic surveillance log. These reports are prepared by the ALC pest controller and approved by the ALC Installation Pest Management Coordinator (IPMC). Completed Pest Management Reports are kept electronically on the Conservation server. Contracts for pest management (i.e., lawn and ornamental pest management, termite control) are on file in the office of the IPMC. The contractor is required to file a monthly Pest Management Report (DoD Form 1532) or state of Maryland equivalent with the Quality Assurance Evaluator (QAE). The contract requires adherence to all guidelines of DoD Instruction 4150.07, "DoD Pest Management Program". All contractors are required to be Environmental Protection Agency (EPA) and state approved/licensed, and all work must be performed by certified pest management technicians (Long, 2009).

Several factors should be considered when utilizing chemical management techniques, such as what herbicide to apply and when to apply it. Correct timing and application may be the most essential elements for success with herbicide applications. Because herbicides are toxic materials, users must read and follow label directions exactly. Each state has its own agricultural chemicals handbook, updated yearly for appropriate control recommendations.

Manual Management - Manual management of invasive species consists of hand pulling the target species. This is an effective treatment for small areas of invasive species which are susceptible to hand pulling, such as Japanese honeysuckle (*Lonicera japonica*). When hand pulling species with thorns, such as wine berry (*Rubus phoenicolasius*), gloves are recommended.

Mechanical Management - Mechanical management is the use of machines to remove or destroy invasive plant species. An example would be mowing Chinese bushclover (*Lespedeza cuneata*) seedlings. Depending on the means, mechanical removal may require users to be trained in proper usage of the tools. Nearly all forms of mechanical removal may result in injury if the tools are improperly used.

2.1 ALTERNATIVE TO THE PROPOSED ACTION

The proposed action is the preferred alternative. The only other action alternative, consisting of only a partial implementation of the ISMP, was considered but was excluded from further study because this incomplete action would not comply with EO 13112, and thus not meet the purpose and need for the proposed action.

2.1.1 No-Action Alternative

The Proposed Action is the implementation of the ISMP to establish a uniform policy for identification and management of invasive plant species located on ALC.

The No Action Alternative reflects the status quo and serves as a benchmark against which federal actions can be evaluated.

3.0 AFFECTED ENVIRONMENT

This section describes the existing environmental and operational baseline conditions that exist at ALC without implementation of the ISMP. Specific conditions would be addressed as individual projects are developed to implement species specific management plans and actions at ALC.

As a result of examination for applicability to the proposed action, implementation of the ISMP has been determined not to bear on certain resource areas that frequently receive attention in NEPA analyses. Resource areas considered, but excluded from further analysis in this EA include: prime and unique farmland, geology, climate, coastal zone, wild and scenic rivers, cultural resources and child health and safety, as implementation of ISMP procedures to identify and manage invasive plant species will have no effect on these resources.

Physical measures carried out to identify, evaluate or manage invasive plant species have the potential to impact land use, soils, surface water, air quality, noise, biological resources, hazardous toxic and radioactive substances and environmental justice. The following is an overview of natural resource areas at ALC.

3.1 LAND USE

ALC consists of four main building areas with parking lots, forested lands and two stream corridors, Paint Branch and Hillandale Tributary (Appendix A, Figure 2).

ALC is home to the Headquarters for the Army Research Laboratory (ARL). ARL provides America's soldiers a technological edge through scientific research, technology development, and analysis. The mission of ARL is to provide the underpinning science, technology, and analysis that enable full-spectrum operations. The Laboratory also provides critical analysis on existing developmental weapon systems, with emphasis on factors such as survivability, lethality, man-machine interface, and battlefield environmental effects. The ARL is unique because it serves as one of the few Army Laboratories that provides highly advanced, specialized, and one-of-a-kind research facilities. The laboratory works in a variety of technical disciplines, through direct in-house laboratory efforts and joint programs with government, industry, and academia.

3.2 SOILS AND TOPOGRAPHY

Twenty-three soil types are present at ALC and are presented in Table 3-1 and Figure 3 in Appendix A. The Blocktown channery silt loam, Christiana-Downer complex, and Sassafras-Croom complex cover a majority of the facility. Upland areas have deep, very permeable soils, which are moderately to somewhat excessively well drained, and are subject to severe erosion. Soils on the intermediate elevations and slopes are generally shallower, overlying a dense fragipan, resulting in impeded internal drainage. Soils in the low areas along stream valleys are poorly drained, silty loams.

Outside of the stream corridors, development constraints that occur on the facility are generally slight to moderate and result from steep slopes or perched high water tables. Highly erodible land

(HEL) determinations by the Montgomery County and Prince George's County Soil Conservation Districts identified the Croom gravelly (8% slopes or greater), and Manor soils as highly erodible soils.

Table 3-1: Soil Types on ALC

Soil Key	Soil Type	County	Hydric
116E	Blocktown channery silt loam, 25-40% slopes, very rocky	Montgomery	Yes (5% of map unit)
1C	Gaila silt loam, 8-15% slopes	Montgomery	Yes (5% of map unit)
400	Urban land	Montgomery	
54A	Hatboro silt loam, 0-3% slopes, frequently flooded	Montgomery	Yes
59B	Beltsville silt loam, 3-8% slopes	Montgomery	
61B	Croom gravelly loam, 3-8% slopes	Montgomery	
61UB	Croom-Urban land complex, 0-8% slopes	Montgomery	
BaB	Beltsville silt loam, 2-5% slopes	Prince George's	Yes (5% of map unit)
BuB	Beltsville-Urban land complex, 0-5% slopes	Prince George's	Yes (5% of map unit)
ByF	Brinklow-Blockton channery loams, 25-65% slopes	Prince George's	
CaC	Chillum silt loam, 5-10% slopes	Prince George's	
CaD	Chillum silt loam, 10-15% slopes	Prince George's	
CcC	Christiana-Downer complex, 5-10% slopes	Prince George's	Yes (5% of map unit)
CF	Codorus and Hatboro soils, frequently flooded	Prince George's	Yes (40% of map unit)
CrE	Croom gravelly sandy loam, 15-25% slopes	Prince George's	
CzB	Croom-Urban land complex, 0-5% slopes	Prince George's	
McD	Manor loam, 15-25% slopes	Prince George's	
MfF	Manor-Brinklow complex, 25-65% slopes, very rocky	Prince George's	
RcB	Russett-Christiana complex, 2-5% slopes	Prince George's	Yes (5% of map unit)
ScC	Sassafras-Croom complex, 5-10% slopes	Prince George's	
SnB	Sassafras-Urban land complex, 0-5% slopes	Prince George's	
SnD	Sassafras-Urban land complex, 5-15% slopes	Prince George's	
SOF	Sassafras and Croom soils, 25-40% slopes	Prince George's	Yes (5% of map unit)

The terrain of ALC is hilly, with numerous rock outcroppings, sloping generally towards the Paint Branch Valley. Elevations range from 138 to 282 feet above mean sea level (MSL). The highest elevations on ALC are found in the 600 Area, reaching 282 feet above MSL and in the northwest and southwest corners of the installation ranging from 274 to 278 feet above MSL. The lowest point on ALC is 138 feet above MSL, at Paint Branch where it flows off the installation at the southern boundary. Slopes found within ALC range from 2 to 40 percent and are steepest along the stream valleys (Appendix A, Figure 4).

3.3 WATER RESOURCES

The dominant hydrologic feature on ALC is Paint Branch. The stream originates approximately 6 miles north of the installation, cuts in a southeasterly direction through the interior of ALC, and then flows another 4 miles south to its confluence with the Northeast Branch of the Anacostia River. Ultimately, the Anacostia River empties into the Potomac River, which discharges into the Chesapeake Bay.

Hillandale Run flows east to west across ALC, empties into Paint Branch in the north central portion of the installation. Both streams have predominantly cobble substrates, moderately rapid currents, and well-shaded, undeveloped stream banks. Another unnamed tributary of Paint Branch is located primarily outside of the eastern boundary of the installation, more or less parallel to Kuester Road. This stream receives drainage from the 400 Area. The USGS has a water quality monitoring station at ALC on Paint Branch.

Throughout much of the installation steep side slopes restrict the 100-year floodplain for both tributaries and Paint Branch to their narrow stream valleys. Below their confluence, the floodplain broadens and reaches its widest point, approximately 250 feet, between Floral Drive and the installation's southeastern boarder.

A stream protective buffer must be maintained adjacent to Paint Branch and its tributaries. The State of Maryland designates these waterways as Class III – Natural Trout Waters. Montgomery County, Maryland guidelines for environmental management of development recommend a minimum buffer width of 200-feet from the stream bank when slope ranges are 25 percent or greater. This 200-foot buffer is applicable to Paint Branch. A 150-foot buffer is to be maintained on the Paint Branch tributaries within the boundaries of ALC.

The 100-year flood elevation at ALC is approximately 155 feet above MSL along Paint Branch. Throughout much of the installation steep side slopes restrict the 100-year floodplain for Paint Branch and both tributaries to their narrow stream valleys. Below their confluence, the floodplain broadens and reaches its widest point, approximately 250 feet, between Floral Drive and the installations' southeastern boarder. This floodplain, which occupies approximately eight acres of land, is generally within the protective stream buffers.

3.4 AIR QUALITY

Prince George's and Montgomery Counties are in the Washington, DC-MD-VA nonattainment area for failing to meet the national ambient air quality standard for ozone (O_3) air pollutants.

The State of Maryland had adopted ambient air quality standards and emission regulations for the following pollutants:

- Particulate matter with a diameter of 10 microns or less (PM-10),
- Carbon monoxide (CO),
- Sulfur dioxide (SO_2),
- Nitrogen dioxide (NO_2),
- Lead (Pb),
- Ozone (O_3), and
- Fluorides.

3.5 NOISE

Noise is considered unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. Receptors of noise at ALC consist of employees, visitors and wildlife. The change may be intermittent or continuous, steady or impulsive. It may involve a broad range of sound sources and frequencies, or it can have a specific, readily identifiable source. There is a wide diversity among human responses to noise that vary not only according to the type and characteristics of the noise source, but also to the sensitivity and expectations, the time of day, and the distance between the noise source (i.e., aircraft or equipment) and the receptor (i.e., a person or animal). Behavioral and physiological responses have the potential to cause stress and health problems or injury in humans and wildlife. The effects of noise can be immediate or latent as a result of long-term exposure. There is a strong tendency for species to acclimate or habituate to a repetitive noise disturbance.

3.6 BIOLOGICAL RESOURCES

3.6.1 Vegetation

Vegetation at ALC is a mix of oak-hickory-pine forest and Appalachian oak forest. A planning level survey for flora was conducted at ALC on August 2 and 3, 2011. The majority of the installation is forested with urban, developed land and mowed, maintained lawns. Tree species found on the installation include the following:

- Oak – Hickory – Pine Forest:
  - Dominant Species – hickories, loblolly pine, and white and post oaks
  - Subdominant Species – black gum, tulip poplar, sweetgum, persimmon, flowering dogwood, sourwood, Virginia pine and a variety of oak species

- Appalachian Oak Forest:
  - Dominant Species – white and northern red oaks
  - Subdominant Species – red and sugar maple, yellow birch, hickories, tulip poplar, sweetgum, beech, and several oak species

The forested areas on ALC are considered Forest Interior Dwelling Bird habitat by the MD DNR, and should be protected if possible. A stream buffer consists of the forested areas along Paint Branch and its tributaries, which is maintained to protect water resources and habitat.

Gypsy moth infestations are a continuing threat to the hardwoods and could produce significant damage to ALC's forest resources. The moth is found throughout the State of Maryland in its preferred oak forest habitat. Annual aerial surveys for gypsy moth defoliation are conducted by the U.S. Department of Agriculture's Forest Service.

3.6.2 Wildlife

A planning level survey for fauna was conducted at ALC on August 2 and 3, 2011. The large tract of contiguous forest provides good habitat for fauna species, especially Forest Interior Dwelling Birds. Common mammals that were observed during the survey include white-tailed deer (*Odocoileus virginianus*) and common raccoon (*Procyon lotor*). The floodplains and streams on ALC provide habitat for reptiles and amphibians including bullfrogs (*Rana catesbeiana*), eastern American toad (*Anaxyrus americanus americanus*), and eastern box turtle (*Terrapene carolina*), which were observed during the survey. Bird species observed during the survey include American robin (*Turdus migratorius*), great blue heron (*Ardea herodias*), mourning dove (*Zenaida macroura*), and red-winged blackbird (*Agelaius phoeniceus*). Blue bird boxes have been installed on ALC.

Spawning areas for brown trout, an important sport fish, are found upstream of ALC in the upper part of Paint Branch (the area upstream of Fairland Road). The Montgomery County Council has designated this area as a Special Protection Area based on its trout spawning capability, high water quality, and the threat posed by the intensity of existing and future development in the watershed.

3.6.3 Rare, Threatened, and Endangered Species

No state or federally-listed RTE species of flora or fauna were observed during the 2015 USACE survey.

The survey was concentrated in undeveloped areas, including forested areas and stream corridors and wetlands. Special attention was given to the Powder Mill Bog, a Fall-line Terrace Gravel Wetland, which is considered a highly state-rare habitat. Two state endangered plant species, Long's rush (*Juncus longii*) and capitate beaked-rush (*Rhynchospora capitellata*), which were recorded in Powder Mill Bog previously, were not observed during planning level surveys in 2011.

Although the Powder Mill Bog remnant is still intact, neither of the two state-listed plants, mentioned above, were observed during the 2015 survey. However, this highly state-rare habitat could still provide potential habitat for those species, or other RTE species, in the future. Some encroachment of non-native, invasive species, especially Japanese stiltgrass (*Microstegium vimineum*) was noted in the Powder Mill Bog.

Habitat for FIDS, some of which are listed as RTE, does exist on-site and is contiguous with similar habitat in the surrounding area. These large tracts of forest are important habitat for certain bird species and may also serve as summer foraging and roosting habitat for the federally-listed Northern long-eared bat (*Myotis septentrionalis*) and Indiana bat (*Myotis sodalis*).

Habitat for the spotted turtle (*Clemmys guttata*) is present on ALC. The spotted turtle is currently under a 12 month review period, as of July 2015, to be considered for listing as threatened or endangered.

3.6.4 Wetlands

There are 10 wetlands on ALC, amounting to approximately 10.4 acres (Appendix A, Figure 5). The majority of the wetlands are located within the floodplains of Paint Branch and Hillandale Run. There is also a large wetland area in the center of the site that is associated with an unnamed tributary to Paint Branch that runs along the border of ALC and through ALC under Floral Drive near the center of the facility. There are scattered smaller wetlands in the forested areas on the eastern portion of the facility that drain to drainage ditches that eventually flow to Paint Branch.

The Powder Mill Bog on ALC is located on the southeastern portion of ALC. This bog is a remnant magnolia bog that drains to Paint Branch. The Powder Mill Bog was observed to have decreased in size, most likely due to several dry summers and the maturation of the surrounding forest. The soils within the bog were completely saturated and coated in organic matter.

3.7 SOCIOECONOMICS

Socioeconomics are defined as attributes and resources related to the interaction of the human environment, population and economic activity. Regional socioeconomic resources include employment, personal income and earnings, population, housing and community services.

With ALC being an average site in terms of employees there is little to no affect on regional and local existing socioeconomic conditions, such as unemployment and housing characteristics.

3.8 ENVIRONMENTAL JUSTICE

On 11 February 1994, President Clinton issued EO 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. The purpose of the order is to avoid disproportionate adverse environmental, economic, social, or health impacts from federal actions and policies on minority and low-income populations. As defined by the Council on Environmental Quality's guidance for addressing environmental justice, a minority is a person who identifies him or herself as Black, Asian or Pacific Islander, Native American or Alaskan Native, or Hispanic. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than the general population of the larger surrounding area. Low-income populations are identified using the U.S. Census Bureau's statistical poverty threshold that is based on income and family size. The U.S. Census Bureau defines a poverty area as a census tract where 20 percent or more of the residents have

income below the residents' threshold and an extreme poverty area as a census tract with 40 percent or more of the residents below the poverty level.

From 2009-2013 about 9.4 percent of Prince George's County residents were classified as living below the poverty limit. The overall poverty level for the state of Maryland is 9.8 percent, 5.2 percent below the poverty rate for the United States (13.8 percent). The number of minority residents living in Prince George's County is 80.8 percent. The number of minority residents throughout the state of Maryland is approximately 44.8 percent of Maryland's population (U.S. Census Bureau, 2015).

3.9 HAZARDOUS AND TOXIC MATERIALS/WASTES

All pesticides recommended for use in the ALC IPMP are EPA as well as state registered pesticides. Pesticide registration is the process through which EPA examines the ingredients of a pesticide; the site or crop on which it is to be used; the amount, frequency and timing of its use; and storage and disposal practices. EPA evaluates the pesticide to ensure that it will not have unreasonable adverse effects on humans, the environment and non-target species. A pesticide cannot be legally used if it has not been registered with EPA's Office of Pesticide Programs. After a pesticide is registered by EPA, states can register pesticides under specific state pesticide registration laws. A state may have more stringent requirements for registering pesticides for use in that state. Ultimately, states have primary responsibility (called primacy) for pesticides used within state borders. The ALC pest controller who can apply pesticides and the QAE are DoD-certified. Certification by the State of Maryland in applicable categories is required for contract pest management technicians. The DoD-certified personnel are re-certified every three years, and contractor certified personnel are re-certified annually by the State of Maryland (Long, 2009).

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4.0 ENVIRONMENTAL CONSEQUENCES

4.1 LAND USE

Proposed Action

The Proposed Action would have no impact on land use at ALC. Minor, long-term benefits could result from removing and/or controlling invasive plant species. DoD released the *Invasive Species Guidebook for Department of Defense Installations in the Chesapeake Bay Watershed* which describes potential actions that may occur from the unchecked expansion of invasive species including:

- Eliminate realistic training or testing conditions and limit related activities,
- Act as a main cause of habitat destruction and biodiversity loss, further reducing training lands, and/or
- Pose security risks (e.g. creating visual screens) or lead to potentially life threatening situations (e.g. increasing the incidence and intensity of wildfires) (Gundlach, 2007).

In light of these potential negative impacts from invasive species, the Proposed Action could provide a minor, long-term benefits.

No Action Alternative

Under this alternative, there would be no impacts on land use at ALC. In the long-term, increased expansion and increased density of invasive species could result in minor, negative impacts, for the reasons indicated above.

4.2 SOILS AND TOPOGRAPHY

Proposed Action

The proposed action would have initial minor, negative impacts on soils. Mechanical weed removal may result in an increase in soil erosion, and there is a possible risk of soil contamination from pesticide applications. Those areas that are impacted by increased soil erosion would be reseeded with native species. It is anticipated that the ISMP would result in the use of less pesticides for controlling invasive plant species in the long-term. This would reduce the potential impacts of soil contamination compared to existing practices by reducing the quantities of pesticides used and resulting in a minor, cumulative, positive impact.

No Action Alternative

The No Action Alternative would have the potential to adversely affect soils at ALC. The existing invasive species management practices would continue including the existing rate of pesticide use. This repeated outdoor application of pesticides could lead to an accumulation of residues to build up, leading to potential soil contamination.

4.3 WATER RESOURCES

Proposed Action

Minor, positive impacts to surface water resources will occur if chemical and non-chemical invasive plant species control techniques are properly applied as well as reseeding is done in weed removal areas. Proper application of the applicable pesticide according to the label, target pests and environmental features eliminate the chance of material reaching any groundwater or surface water resources. No pesticides would be applied around water resources except when in accordance with manufacturer's label and EPA guidance.

ALC is not currently conducting any chemical or mechanical invasive species control techniques; however, ALC may consider this option if funding becomes available in the future. Implementation of the ISMP at ALC would ensure these techniques are properly deployed. Implementation of the ISMP at ALC could have minor, positive impacts on wetlands because no pesticide use would occur in wetlands unless specifically in accordance with the manufacturer's label and EPA guidance.

Minor impacts to floodplains, such as erosion and soil and water contamination, is a risk of utilizing chemical and mechanical control techniques. To minimize potential impacts, mechanical removal of pests would be limited to hand tools and all pesticides would be applied in accordance with manufacturer's label and EPA guidance.

No Action Alternative

Under this alternative, there could be long-term, adverse impacts to surface waters as they become choked by aquatic invasive species, specifically common reed. ALC is not currently conducting any invasive species control and this would continue under the No Action Alternative. Under this alternative, no impacts to groundwater, wetlands or floodplains would be expected.

4.4 AIR QUALITY

Proposed Action

Temporary and minor, site-specific, negative impacts would occur as a result of implementation of invasive plant species control techniques such as the running of lawn mowers and chainsaws during mechanical removal. Chemical application would result in a limited amount of pesticide released into the air. All hand spraying would be performed in accordance with the manufacturer's label and EPA approved guidance to reduce the airborne drift. No significant impacts would occur to the air quality of the areas surrounding ALC.

No Action Alternative

Under this alternative, there could be minor, site-specific, negative impacts as a result of continued mowing and pesticide application.

4.5 NOISE

Proposed Action

The Proposed Action would have minor, temporary site-specific increases in noise levels if power equipment is used for invasive species management practices. This would result in a minor, temporary site-specific negative impact, but negligible cumulative impact. Noise receptors would include ALC personnel, visitors and adjacent residences. Employees utilizing power equipment (i.e., chainsaws, lawnmowers, tractors, etc.) would wear ear protection. This alternative is not likely to generate noise that would conflict with Federal, state or local noise standards or create noise levels incompatible with existing or proposed land use. Since the impacts are temporary and the noise level will revert back to its original level, the action would not be cumulatively added to other past, present or future actions to create a significant impact.

No Action Alternative

Under this alternative, there would be no impacts to noise.

4.6 BIOLOGICAL RESOURCES

Proposed Action

Overall, implementation of the ISMP would have a minor, positive impact upon biological resources. The plan contains procedures whereby all invasive plant species management activities clearly define the target species and designate the specific actions to control those species. In the event of a pulse of invasive plant species removal efforts the sudden diminution of invasive species could have a temporary negative impact on the food source and nesting habitat of some wildlife. In this event, the possibility exists for negative impacts to wildlife in the short-term; however, due to limited resources the treatment of invasive species will likely be implemented in phases carried out over several years. As a result no single growing season will suffer a significant loss of food sources and nesting habitats provided by invasive plant species. Additionally, with proper seeding and monitoring of treatment areas, as invasive species are eradicated, native species will regrow to fill the niche and provide food sources and nesting habitats.

Adequate precautions would be taken during pesticide application to protect the public and applicators of pesticides, on and off ALC. All pesticides would be applied in accordance with the label directions. Pesticide application would be conducted by individuals wearing proper personal protective equipment (PPE) and only by personnel with proper training when training is required. Pesticides would not be applied outdoors when the wind speed exceeds five miles per hour. When pesticides are applied outdoors, care would be taken to make sure that any spray drift is kept away from individuals, including the applicator. The installation would ensure all personnel responsible for application of pesticides are entered into a medical monitoring program.

Five rare and uncommon plant species were documented at the Powder Mill Bog in 2002 and 2007. Minor benefits could result because the ISMP would ensure that no pest management operations would be conducted that have the potential to negatively affect endangered or protected species or their habitats without prior coordination with the U.S. Fish and Wildlife

Service (USFWS). No pesticides would be applied within 100-feet of known state threatened or endangered species. If management of invasive species is required within 100 feet of state or federally protected species, manual or mechanical methods would be used.

Mechanical and other non-chemical management techniques and limited pesticide use may keep target species from developing a resistance to specific pesticides. Site-specific impacts would vary based on, among other things, the specificity of the pesticide and its persistence in the environment.

Non-chemical controls and limited pesticide use would not be expected to impact wildlife populations. Proper implementation of the Proposed Action would ensure no negative impacts to biological resources on ALC and increase the likelihood of beneficial impacts.

Minor benefits could result for aquatic habitats by eliminating certain aquatic invasive species, specifically common reed.

No Action Alternative

ALC is not currently conducting any invasive species control and this would continue under the No Action Alternative. The No Action Alternative would maintain existing practices with respect to invasive plant species management and its impacts on biological resources. In the long-term, if invasive species are not controlled they could limit the recruitment of native vegetation and create a less diverse ecosystem. Ironically the lack of diversity due to the dominance of advantageous invasive species could make the system susceptible to large scale die-offs from pathogens. The replacement of stands of cattail and marsh meadow by stands of common reed negatively affect most marsh obligates such as, waterfowl, rails and amphibians. Continued expansion of common reed stands are a cause for concern because marsh obligates depend on marsh environments for breeding and common reed disturbs the marsh environment (Meyer, 2003). This alternative could adversely impact migratory birds by not supplying guidance to limit exclusion activities during periods of nesting. The ISMP will allow the installation to better implement the IPMP by providing ALC with data from which the installation can prioritize invasive plant species and areas needing treatment. In addition, surveys of birds and vegetation conducted in 40 salt and brackish marshes in Connecticut showed there were significantly fewer species of birds and state-listed species in *Phragmites*-dominated wetlands than in short-grass marshes (Benoit and Askins, 1999). As a result, the No Action Alternative could result in adverse impacts to wildlife at ALC.

4.7 SOCIOECONOMICS

Proposed Action

The Proposed Action is not expected to have an impact on socioeconomics at ALC or nearby communities.

No Action Alternative

Under this alternative, there would be no impacts to this resource.

4.8 ENVIRONMENTAL JUSTICE

Proposed Action
The Proposed Action is not expected to have a disproportionate impact on minorities or low income communities as all work would be accomplished on ALC controlled property.

No Action Alternative
The No Action Alternative would maintain existing conditions with respect to environmental justice. There would be no impact on minority or low-income populations at ALC or neighboring communities.

4.9 HAZARDOUS AND TOXIC MATERIALS/WASTES

Proposed Action
ALC is not currently conducting any chemical invasive species control techniques; however, ALC may consider this option if funding becomes available in the future. Implementation of the ISMP at ALC would ensure these techniques are properly deployed.

There are environmental risks associated with the use and storage of chemicals. To minimize potential impacts, chemical removal of invasive species would be limited. Additionally, all pesticides would be used and stored in accordance with manufacturer's label and EPA guidance.

Implementing of the ISMP will provide a better picture of the installation invasive plant species issues, which should allow for better implementation of the IPMP.

No Action Alternative
ALC is not currently conducting any invasive species control and this would continue under the No Action Alternative. Under this alternative, there would be no impacts to this resource.

4.10 CUMULATIVE IMPACT

A cumulative impact is defined as an effect on the environment that results from the incremental effect of the 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.

Based on the analyses presented in this chapter, there would be no significant cumulative effects on land use, air and noise resulting from the implementation of ISMP for ALC. The combination of non-chemical and limited pesticide use would provide an effective invasive plant species control approach. The limited and careful application of least toxic pesticides would leave a positive cumulative impact on the resources directly affected.

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5.0 CONCLUSION

Based upon this Environmental Analysis, it has been determined that the known and potential impacts of the Proposed Action on the physical and natural environment would be of an overall beneficial nature. Implementation of the updated ISMP would result in the identification and the development of plans for the management of invasive plant species at ALC. The ISMP recommends procedures for managing invasive plant species in compliance with all applicable federal laws, regulations and Army guidelines. By implementing the ISMP, ALC will be in compliance with EO 13112. Implementation of the Proposed Action would not result in significant environmental impacts.

Based upon this conclusion, preparation of an Environmental Impact Statement is not recommended prior to implementation of the Proposed Action.

Table 5-1: Summary of Potential Individual and Cumulative Effects on Environmental Resources

Resource	Proposed Action	No-Action
Land Use	Possible long-term, minor, benefits	No impacts to minor, negative impacts
Soils and Topography	Short-term, minor, adverse impacts Long-term, minor benefits	Possible long-term, adverse impacts
Water Resources		
Surface Water	Short-term, minor, benefits	Possible long-term, adverse impacts
Wetlands	Possible minor, benefits	No impacts
Floodplains	Possible minor, adverse impacts	No impacts
Groundwater	No impacts	Possible long-term, adverse impacts
Air Quality	Short-term, minor, adverse impacts	Minor, adverse impacts
Noise	Short-term, minor, adverse impacts	No impacts
Biological Resources		
Vegetation	Minor benefits	Possible long-term, adverse impacts
Wildlife Resources	Minor benefits, possible minor, adverse impacts	Possible long-term, adverse impacts
Threatened and Endangered Species	Minor benefits	Possible adverse impacts
Aquatic Habitat	Minor benefits	Possible long-term, adverse impacts
Socioeconomic	No impacts	No impacts
Environmental Justice	No impacts	No impacts
Hazardous, Toxic, and Radioactive Substances	Possible minor, adverse impacts	No impacts
Cumulative Impacts	No impacts	No impacts

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6.0 REFERENCES

Benoit, L. K. and R. A. Askins. 1999. Impact of the spread of *Phragmites* on the distribution of birds in Connecticut marshes. *Wetlands* 19: 194-208.

Gundlach, A.M. 2007. Invasive Species Guidebook for Department of Defense Installations in the Chesapeake Bay Watershed: Identification, Control, and Restoration. Wildlife Habitat Council. Silver Spring, Maryland. Prepared for the Department of Defense Legacy Resource Management Program.

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Meyer, Shawn. 2003. Comparative use of Phragmites australis and other habitats by birds, amphibians, and small mammals at Long Point, Ontario. M. Sc. Thesis, University of Western Ontario. PDF available at http://longpointwaterfowl.org/wp-content/uploads/2011/05/Meyer-MSc-Thesis-20031.pdf. Accessed 24 February 2016.

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U.S. Census Bureau. 2015. *Prince George's County, Maryland FactFinder*. http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed 24 February 2016.

U.S. Army Corps of Engineers. April 2014. *Final Integrated Natural Resources Management Plan Update 2014-2018, U.S. Army Garrison Adelphi Laboratory Center.*

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APPENDIX A

Maps

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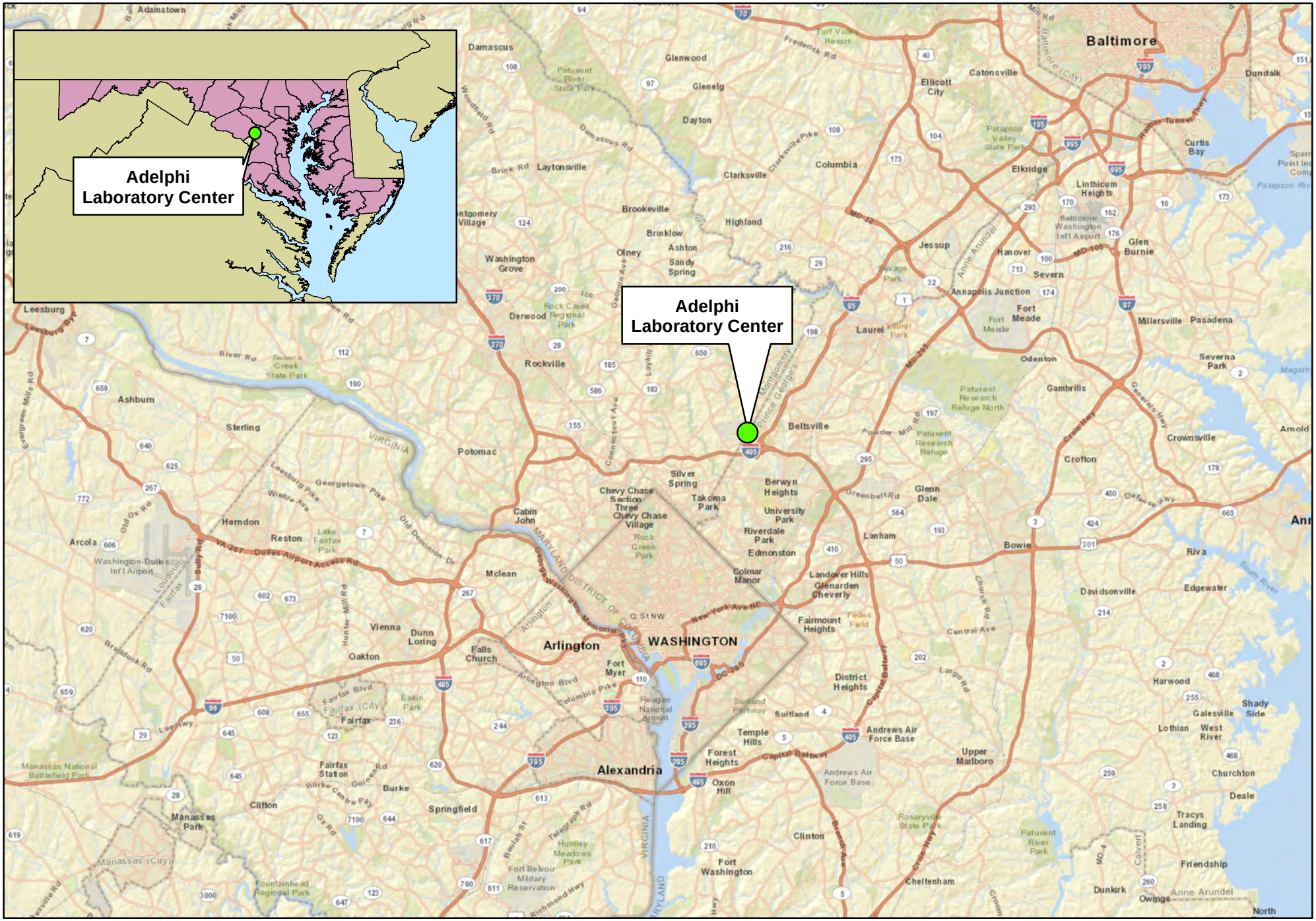

Figure 1. Location of
Adelphi Laboratory Center
Montgomery and Prince George's Counties, MD

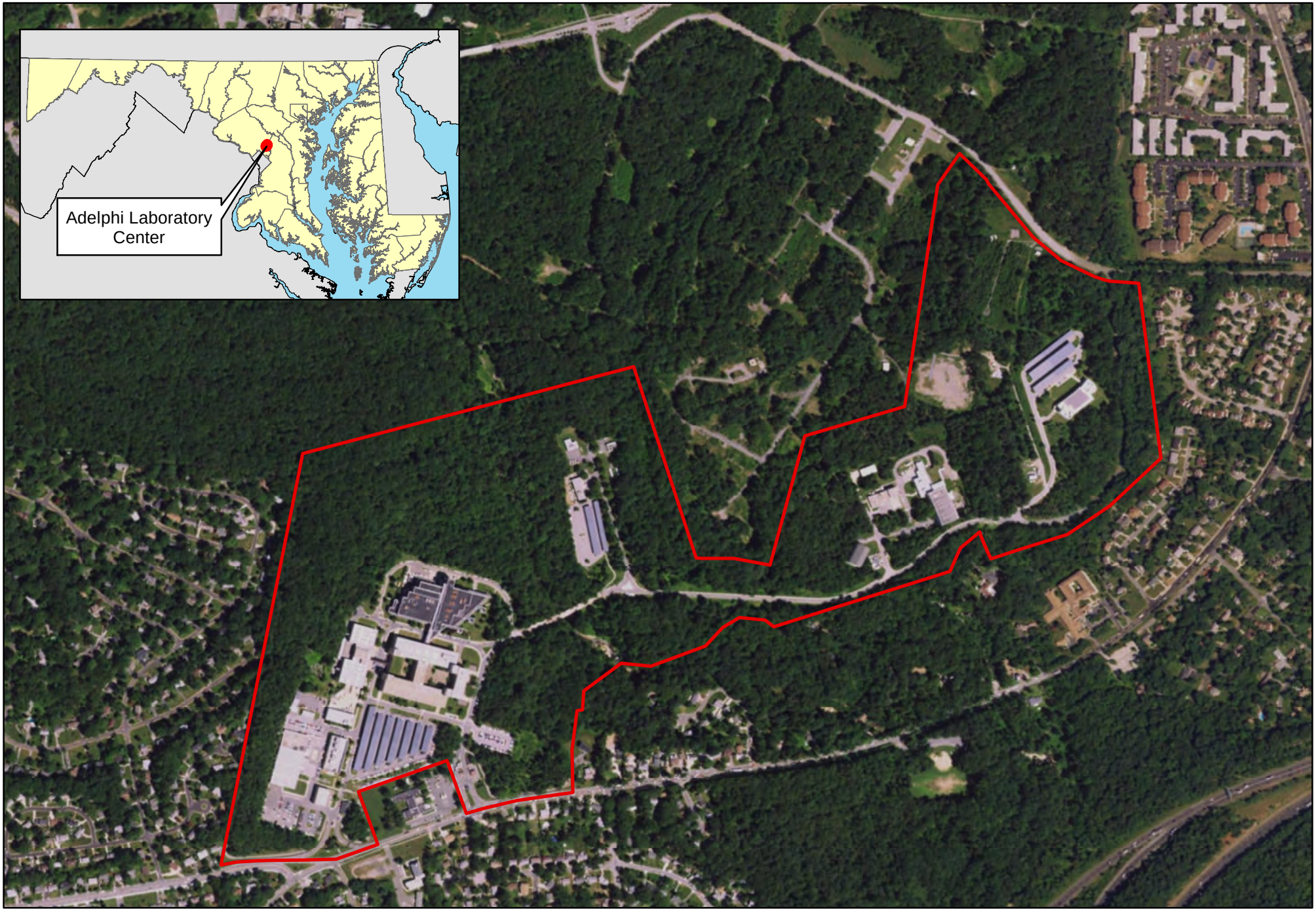

Figure 2. Adelphi Laboratory Center Layout

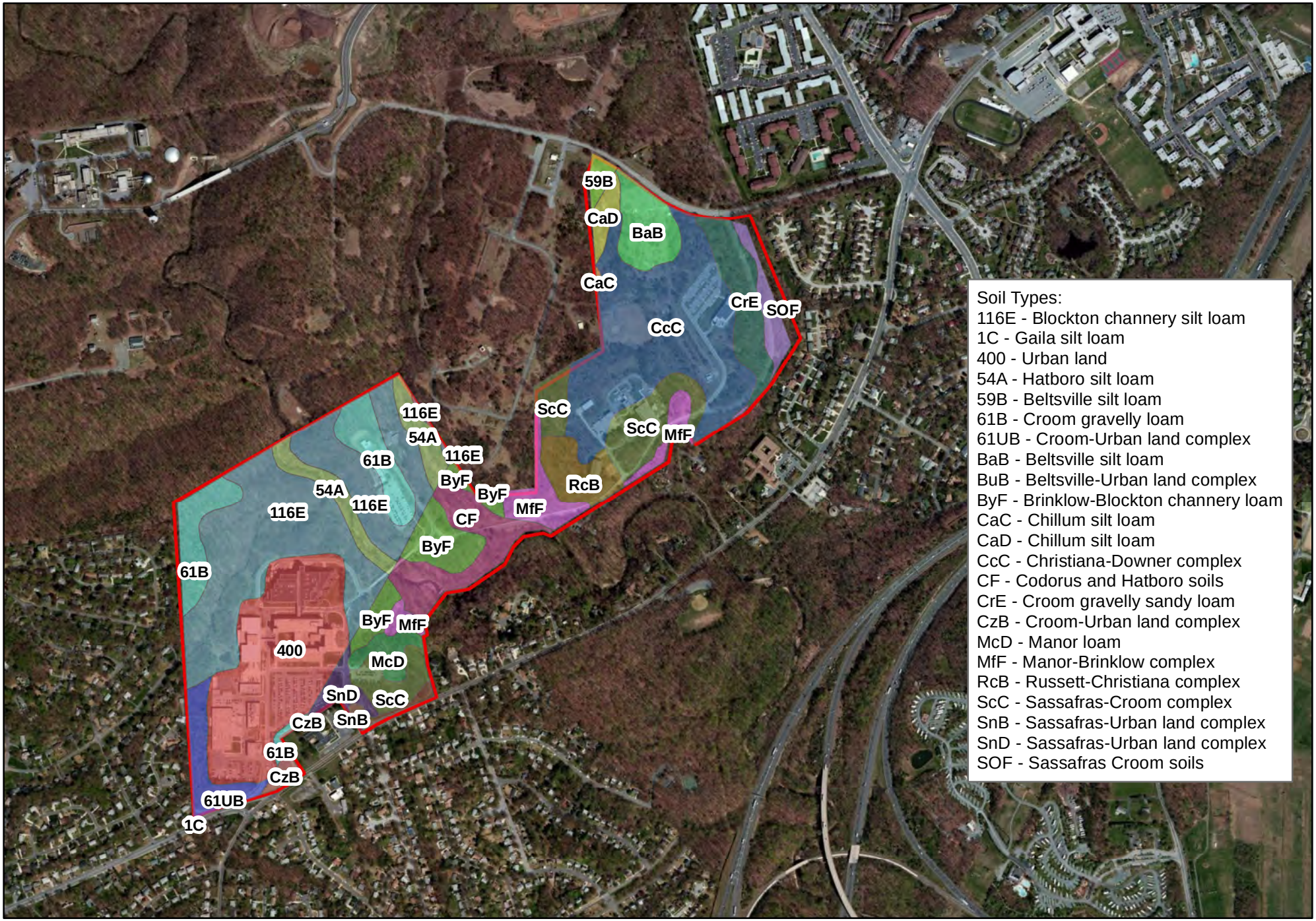

Figure 3. Soils on
Adelphi Laboratory Center
Montgomery and Prince George's Counties, MD

Sources: Aerial Photo, Bing Maps, 2010. Boundary, ALC, 2010. Soils, NRCS Soil Datamart, 2007 & 2009.

1 inch = 1,000 feet

0 375 750 1,500 2,250 3,000 Feet

Figure 4: Adelphi Laboratory Center Topography

Data Source: USA Topo Maps, 2009

1 inch = 1,000 feet

0 375 750 1,500 2,250 3,000 Feet

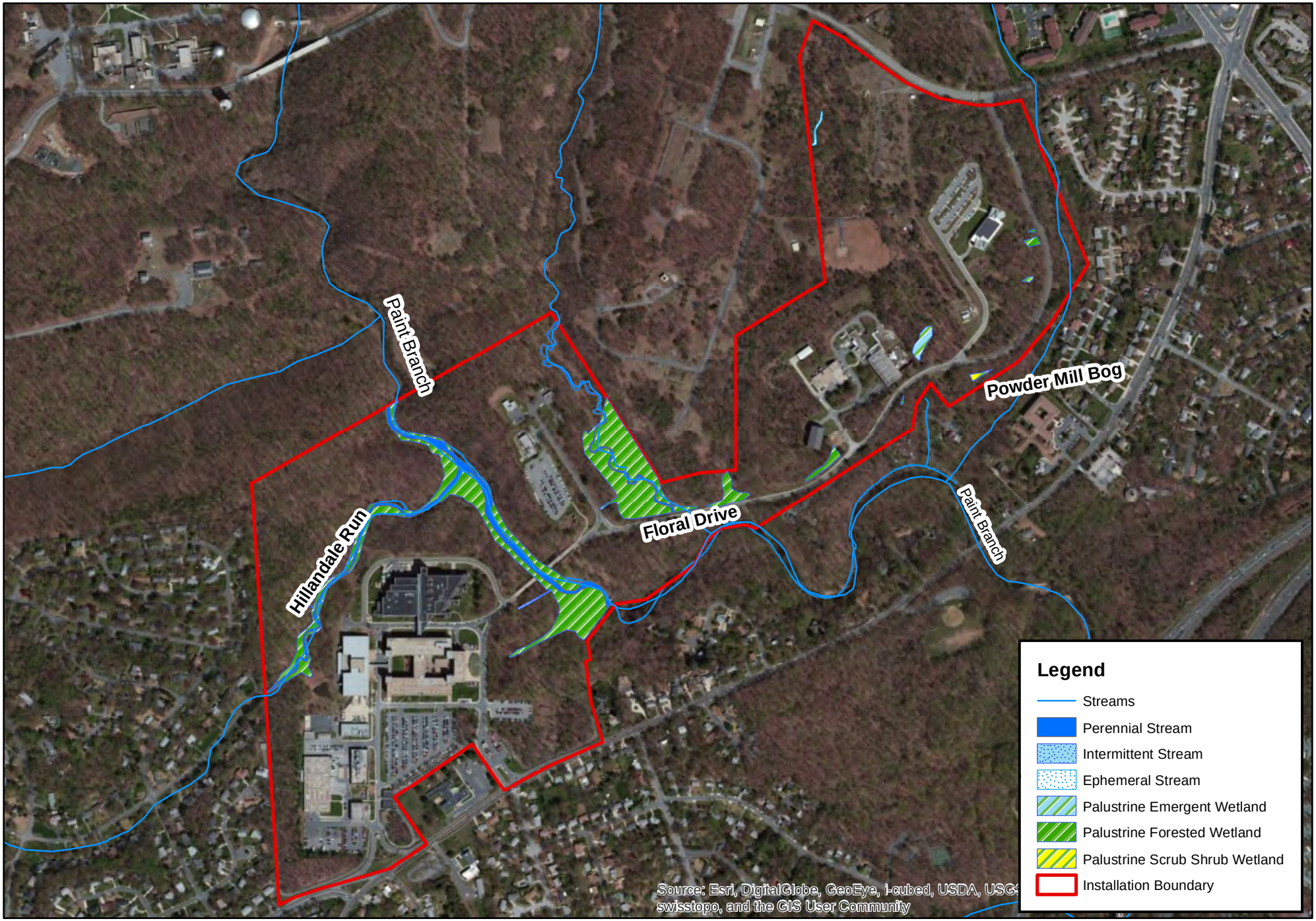

Figure 5. Streams and Wetlands on Adelphi Laboratory Center Montgomery and Prince George's Counties, MD

Sources: Aerial Photo, Bing Maps, 2010. Boundary, ALC, 2010. Wetlands, USACE, 2011. Streams, NHD.

APPENDIX B

Agency Coordination

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DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

REPLY TO
ATTENTION OF

IMAL-PWE

8 September 2016

Mr. Leopoldo Miranda
Chesapeake Bay Field Office
U.S. Department of the Interior Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, Maryland 21401

Dear Mr. Miranda:

In accordance with the National Environmental Policy Act, (NEPA) of 1969, as amended, U.S. Army Garrison Adelphi Laboratory Center (ALC) is preparing an Environmental Assessment (EA) for the implementation of an Invasive Species Management Plan (ISMP) for ALC. ALC encompasses approximately 207 acres in Montgomery and Prince George's Counties, Maryland.

The proposed action is necessary to comply with Executive Order 13112 and the Army Policy Guidance for Management and Control of Invasive Species. If no action is taken, minimal to no invasive species management will continue across ALC.

The purpose of this letter is to verify that Section 7 of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended: 16 U.S.C. 1531 et seq.) and the U.S. Fish and Wildlife Coordination Act (16 U. S. C. 661 et seq.) requirements have been met for this project as part of our Environmental Assessment. To assist us in identifying environmental issues that may affect the implementation of this project, please provide written comments within 30 days of receipt of this letter to Bridget Kelly Butcher at the address above. You may contact Bridget Kelly Butcher at 301-394-1062 if you have any comments or questions regarding this matter.

Sincerely,

James Krake

James Krake
Chief, Environmental Division

Enclosures

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
ADELPHI LABORATORY CENTER
2800 POWDER MILL ROAD
ADELPHI, MD 20783-1138

REPLY TO
ATTENTION OF

IMAL-PWE

8 September 2016

Mr. John Griffin
Maryland Dept. of Natural Resources
Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

Dear Mr. Griffin:

In accordance with the National Environmental Policy Act, (NEPA) of 1969, as amended, U.S. Army Garrison Adelphi Laboratory Center (ALC) is preparing an Environmental Assessment (EA) for the implementation of an Invasive Species Management Plan (ISMP) for ALC. ALC encompasses approximately 207 acres in Montgomery and Prince George's Counties, Maryland.

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Sincerely,

James Krake

James Krake
Chief, Environmental Division

Enclosures

US Army Corps
of Engineers
Baltimore District

INVASIVE SPECIES MANAGEMENT PLAN

Blossom Point Research Facility

Prepared for: **Environmental Division**
Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, Maryland 20783

Prepared by: **U.S. Army Corps of Engineers, Baltimore District**
10 South Howard Street
Baltimore, Maryland 21201

JANUARY 2013

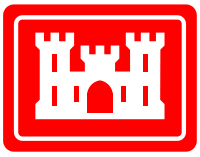
INVASIVE SPECIES MANAGEMENT PLAN

Blossom Point Research Facility
Charles County, Maryland

Prepared for:

Environmental Division
Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, Maryland 20783

Prepared by:



U.S. Army Corps of Engineers
Baltimore District
10 South Howard Street
Baltimore, Maryland 21201

January 2013

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CHAPTER 1 - INTRODUCTION

1.1 ABOUT BLOSSOM POINT RESEARCH FACILITY

The Blossom Point Research Facility (BPRF) is on Cedar Point Neck in southern Charles County, Maryland. The closest town is La Plata, Maryland, which is located approximately 9 miles north of Blossom Point. The installation covers approximately 1,600 acres and is bordered on three sides by the Potomac River and Nanjemoy Creek. The site was originally owned by the Corporation of Roman Catholic Clergymen of Maryland. It was leased to the federal government in 1942 and purchased by the Army in 1980. The primary activity at the BPRF is field research on fuzes, ordnance, pyrotechnic devices and electronic telemetry in support of the Army mission. In addition, the U.S. Naval Research Laboratory currently utilizes 306 acres for a long-range communications tracking station for satellites. The area surrounding the BPRF is currently zoned for a mixture of agricultural and rural residential uses with development restrictions to maintain rural land use (Tetra Tech, Inc., 2003).

1.2 ABOUT THE INVASIVE SPECIES MANAGEMENT PLAN

The Adelphi Laboratory Center (ALC) requested the services of the U.S. Army Corps of Engineers, Baltimore District, Planning Division (Corps) to prepare an Invasive Species Management Plan (ISMP) to be implemented at the BPRF. ALC requested that the ISMP be prepared to identify the locations of invasive plant species that occur on the BPRF, provide documentation about the species and recommendations for managing each specific species. To develop this ISMP the Corps utilized data collected from the existing 2003 *BPRF Invasive Species Survey Report*, fieldwork recently conducted at the BPRF in support of the Integrated Natural Resources Management Plan (INRMP) update, field surveys for invasive species and interviews with ALC/BPRF personnel.

Invasive terrestrial and aquatic plant species targeted during the 2012 surveys were chosen based on the species listed in the existing 2003 *BPRF Invasive Species Survey Report* and by the Maryland Invasive Species Council (MISC) as threats/invasive in the state of Maryland. Invasive species means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Alien species means with respect to a particular ecosystem, any species, including its seeds, eggs, spores or other biological material capable of propagating that species, that is not native to that ecosystem.

1.3 INVASIVE SPECIES LAWS AND GUIDANCE

Like all Army landholders, ALC is required to comply with Federal, DoD and Army laws, regulations and guidance regarding invasive species control and non-proliferation. Relevant requirements include Executive Order 13112, *Invasive Species*, 3 February 1999 (EO 13112); Army Policy Guidance for Management and Control of Invasive Species, DoD Pest Management Plan (DoD Instruction 4150.7); and the Armed Forces Pest Management Board. A copy of each of these is available in Appendix A.

1.3.1 Executive Order 13112, Invasive Species, 3 February 1999

EO 13112 established an Invasive Species Council, and specified duties for each Federal agency as follows:

(a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

(1) identify such actions;

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to:

(i) prevent the introduction of invasive species;
(ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner;
(iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded;
(v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and
(vi) promote public education on invasive species and the means to address them; and

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

In response to EO 13112, DoD analyzed its activities, and identified those activities that may affect the status of invasive species. As a result of this analysis, the Army assigned the Assistant Chief of Staff for Installation Management (ACSIM), through the Office of the Director of Environmental Programs (ODEP), as the proponent and Army program manager for all environmental aspects of invasive species management. The Deputy Chief of Staff for

Operations and Plans ensures that all aspects of the Integrated Training Area Management Program (ITAM) are consistent with this policy.

1.3.2 Army Policy Guidance for Management and Control of Invasive Species, 26 June 2001

The Army Policy Guidance for Management and Control of Invasive Species, issued by the Department of the Army Assistant Chief of Staff for Installation Management on 26 June 2001, is designed to provide policy guidance for the environmental management and control of invasive species on US Army installations. Major points of this guidance, as it applies to the 99th RSC are:

- Invasive species shall be managed within the context of the goals and objectives of an installation's Integrated Natural Resources Management Plan (INRMP) and will be integrated into other installation plans as appropriate.

- Installations, subject to legal authorities and limitations, will monitor invasive species populations and track the presence and status of invasive species over time, determine when control measures are necessary, and evaluate the effectiveness of prevention, control/eradication, and restoration measures.

- Installations will give priority to invasive species management actions, including actions to restore native species habitat conditions in ecosystems that have been invaded, that support the installation's primary military mission, and that contribute to the protection of federally listed threatened and endangered species and critical habitat. Installations should ensure that invasive species do not detract from the usefulness of military training and testing lands and will ensure that invasive species management and control practices do not result in non-permitted take or jeopardize the existence of threatened and endangered species.

- Installations are encouraged to enter into partnerships with other federal agencies, state agencies, and local agencies, tribes, and non-government organizations.

- Installations are encouraged to cooperate with state programs for controlling invasive species and will allow access to the installations for this purpose. Such access must be consistent with installation safety and security considerations. Control measures must be fully coordinated with installation stakeholders and acceptable for use on the installation.

1.3.3 DoD Pest Management Plan (DoD Instruction 4150.7)

The DoD Pest Management Plan (DoD Instruction 4150.7) applies to all Military departments and lands. Threatened and endangered species, or their corresponding habitat, cannot be jeopardized. Communication with the US Fish and Wildlife Service is required to identify

habitat areas within the target application area, and to comply with protection efforts. All personnel are required to know the impacts of pesticides on threatened and endangered species. DoD regulation also requires discussion of surface and groundwater contamination in the Integrated Pest Management Plan (IPMP). Application of pesticides to wetlands is permissible only if the chemical label allows for use in wetlands. All herbicides must be registered through the Environmental Protection Agency, under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

1.3.3.1 Certification of Pesticide Applicators

According to Army Regulation 200-1 (AR 200-1), military and civilian personnel who perform, or supervise pesticide application on Army facilities must be trained and certified according to US Department of Defense (DoD) standards. The DoD Plan for the Certification of Pesticide Applicators (DoD Plan 4150.7-P) outlines the specific components of certification. The DoD program offers certification in various EPA categories designed to meet specific pesticide needs such as, but not limited to, forest pest control, aquatic pest control, and ornamental and turf pest control. The training program focuses on areas of pest recognition, chemical components and application methods (labels, storage, disposal, equipment), safety (poison symptoms, emergency procedures), and environmental factors (groundwater and endangered species protection). Those who become certified must repeat certification training every 3 years following initial qualification.

Non-DOD personnel must be trained and certified according to the EPA-approved regulations of the State in which the facility, or property, is located. According to FIFRA, states are required to provide certification training.

1.3.4 Armed Forces Pest Management Board

The Armed Forces Pest Management Board (AFPMB) coordinates all issues related to pest management within the DoD, acting as a source of guidance, policy, and scientific/ technical information. The AFPMD provides and maintains technical information, scientific literature, and internal publications concerning the adverse effects of pests and disease vectors. The training and certification of pesticide applicators is also one of their key responsibilities. The AFPMD is an essential part of any invasive species plan within the DoD; a group whose resources of policy, regulation, and pest management information could prove to be invaluable.

Additional information or support from AFPMD can be obtained at:

Armed Forces Pest Management Board
U.S. Army Garrison - Forest Glen
2460 Linden Lane, Building 172
Silver Spring, Maryland 20910
301-295-7476
Email through website: http://www.afpmb.org/contact

CHAPTER 2 - METHODS

2.1 SPECIES DATA REVIEW AND COLLECTION

The first task was to create a master list of invasive species based on species observed during the 2003 Tetra Tech, Inc. surveys, the 8 to 17 August 2001 Planning Level Surveys (PLSs) performed by the Corps and lists maintained by the MISC. Federal and state regulated species were included along with other species that were not listed, but are known threats to the BPRF and surrounding areas. The master list of invasive species is presented in Appendix B.

The MISC provides leadership concerning invasive species and encourages efforts that prevent the introduction of, and manage the impact of, invasive species on Maryland ecosystems. MISC created a list of species of great concern, which includes species that are currently regulated by a state and/or federal law, are widely recognized by biologists and resource managers to degrade natural ecosystems or negatively affect native species, are known to have significant economic impacts on agricultural ecosystems, public infrastructure or natural resources, including impact on recreational activities, or have, or can have, deleterious effects on human health.

The MISC ranking system is as follows:

1 = Currently regulated by state and/or federal law
2 = Widely recognized by biologists and natural resource managers to degrade natural resources and/or negatively impact native species
3 = Known to have a negative economic impact on agricultural or natural resources
4 = Known or potential negative impacts on human (or animal) health

2.2 FIELD SURVEY

The Corps conducted a field survey on the BPRF from 30 April to 4 May 2012. The Corps assessed the existence of invasive plant species and suitable habitats in the subject site and verified information previously documented for the BPRF. Due to time constraints comprehensive coverage of all lands managed by the BPRF was not feasible. Areas were prioritized based on guidance provided by ALC personnel, the *BPRF Invasive Species Survey Report* from 2003 (Tetra Tech, Inc., 2003), likelihood of encountering invasive species and site access. Based on these factors, the lands with the highest priority were timber management areas, successional areas and accessible wetlands. Several areas were off-limits at the time of the survey because of the potential of encountering unexploded ordnance (UXO) and restricted access due to mission related activities.

Based on these factors the lands surveyed focused on timber management areas, successional areas and wetlands. Due to the routine mowing of fields at the BPRF they were given the least attention.

Two site visits were conducted at the BPRF by Tetra Tech, Inc. in 2003. The visits were conducted from 23 to 25 April, 2003 and 5 to 6 August, 2003 (in all, 5 days of field sampling).

A two-member crew was used to conduct both site visits and the two site visits were timed to capture most plants when they were flowering or otherwise easily identified. Three techniques – target plots, habitat plots and opportunistic plots – were used during the fieldwork to collect data (Tetra Tech, Inc., 2003).

All invasive species encountered during the survey period were recorded on a hardcopy, high resolution aerial map. The only locations where invasive species were observed and not documented were along the mapped, unimproved roads and in the clearing adjacent to the perimeter fence. Due to disturbance and edge effect invasive plant species tend to be more prevalent along wood lines and along roads. In addition, roads can act as corridors and the wind and tires of vehicles can act as seed dispersal mechanisms. In light of this and in an effort to maximize productivity in the field, the field team worked under the assumption that invasive species would be prevalent along roads and the perimeter fence line throughout Blossom Point. This assumption was validated by observations made during fieldwork throughout the week. In order to capture these areas representative transects were established along a randomly chosen segment of unimproved mapped road and along a randomly chosen length of the cleared area adjacent to the perimeter fence (transects S and BB, respectively).

Global Positioning System (GPS) technology was used to establish boundaries of occurrences if the exact location of the site could not be conclusively determined or if the site was large or the boundaries meandered thereby making them difficult to map.

Areas that were not GPS located were mapped in the field on a hardcopy of a large scale, high resolution, aerial image of Blossom Point. Occurrences of invasive species were not GPS located if they were small, easy to locate, and to map. Lastly, sites were not GPS located if the perimeter of the occurrence could not be easily accessed. Multiple areas along the Potomac River and Nanjemoy are not conducive to efficiently mapping an area with a GPS unit; in those instances field personnel hiked to the best vantage points in order to survey the extents of invasive species; however, since these areas were not surveyed by boat the presence of aquatic invasive species cannot be ruled out. Field observations were corroborated with detailed aerial imagery for non-GPS located sites. The field team also completed datasheets during the survey noting observed species, density of each species per site and management recommendations for each species (Appendix C). From this information a matrix was created to illustrate overall species observed, species densities, total occurrences and site descriptions (Appendix B).

2.3 MAP DEVELOPMENT

When GPS technology was used to establish confirmed occurrences of invasive species at the installation, the team utilized GPS equipment capable of capturing sub-meter accuracy. Occurrences of invasive species documented on the hardcopy map were digitized and integrated with the GPS located occurrences, available aerial imagery and site investigation notes in order to produce maps in GIS. The Corps created maps that depict where species were present and absent and un-surveyed areas during the 2012 survey.

GIS data was attributed to include a description of the resource captured and recommended management methods. The data is in the NAD_1983_Maryland_State Plane (Feet) Coordinate System and maintained in the SDSFIE (Spatial Data Standards for Facilities, Infrastructure and Environment) format. GIS maps are presented in Appendix D.

2.4 FIELD DATA ANALYSIS AND DEVELOPMENT OF RECOMMENDATIONS

Using all of the above information, the Corps developed management recommendations for each of the observed species. In developing the recommendations the Corps considered species locations compared to natural resources and sensitive areas, densities within those locations and across all of the BPRF and number of occurrences.

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CHAPTER 3 - FINDINGS

The Corps conducted field surveys on the BPRF from 30 April to 4 May 2012. The team surveyed approximately 1,450 acres of the approximate 1,600 acres of the BPRF. Invasive species were observed on approximately 235 acres of the surveyed area. The field team broke down the surveyed area into 41 areas of invasive species occurrence. Fourteen invasive species were identified within these areas during the surveys. The species with the most surveyed occurrences were Japanese honeysuckle (*Lonicera japonica*), Nepalese browntop (*Microstegium vimineum*) and wineberry (*Rubus phoenicolasius*). Table 3-1 provides the invasive species that were identified during the survey and their overall density on the BPRF. The locations of these species are shown on maps provided in Appendix D.

Table 3-1: Invasive Species Identified on Blossom Point

Scientific Name	Common Name	MISC Ranking*	Overall Density on BPRF
Ailanthus altissima	Tree of heaven	2, 3	Low
Alliaria officinalis	Garlic mustard	2	Low
Allium vineale	Wild garlic	1, 3	Low
Berberis thunbergii	Japanese barberry	2	Low
Cirsium vulgare	Bull thistle	1, 2, 3	Low
Elaeagnus umbellata	Autumn olive	2	Low
Hedera helix	English ivy	2	Low
Lonicera japonica	Japanese honeysuckle	2	High
Microstegium vimineum	Nepalese browntop	2	High
Paulownia tomentosa	Princess tree	**	Low
Phragmites australis	Common reed	1, 2, 3	Moderate
Rosa multiflora	Multiflora rose	2 ,3	Low
Rubus phoenicolasius	Wineberry	**	High
Sorghum halepense	Johnson grass	1, 2, 3	Low

* MISC Ranking –
1 = Currently regulated by state and/or federal law
2 = Widely recognized by biologists and natural resource managers to degrade natural resources and/or negatively impact native species
3 = Known to have a negative economic impact on agricultural or natural resources
4 = Known or potential negative impacts on human (or animal) health
**Listed as an invasives species by MISC; however, not currently given a key code

Undisturbed mature closed canopy forests at the BPRF do not provide habitat suitable for invasive species. This was particularly noticeable in forests dominated by American holly (*Ilex opaca*) and sweetgum (*Liquidambar styraciflua*). The 2003 *BPRF Invasive Species Survey Report* included both of these species in the survey, noting that both species are capable of out-competing other more desirable hardwoods. Both species are native and prevalent throughout the entirety of uplands on the BPRF. In addition to out-competing hardwoods they effectively prevent encroachment of most invasive species. Based on a discussion with the ALC personnel, it was decided that these species would not be documented or mapped. They were excluded due to their abundance throughout Blossom Point. Mapping their locations in addition to the identified invasive species would not have been feasible in the allotted time.

Based on field observation, the linear wetlands and intermittent streams on-site may provide a means of transport to invasive species. This may be a result of significant precipitation events providing flow and thereby transporting the seeds of invasive species from the headwaters further

downstream. Field personnel observed that disturbance in the headwaters of a system greatly increased the probability that invasive species such as Nepalese browntop (*Microstegium vimineum*) would be documented further downstream. Species and habitat photos are located in Appendix E.

CHAPTER 4 - MANAGEMENT RECOMMENDATIONS

4.1 PREVENTION, CONTROL AND MONITORING

The first and best method for managing invasive species is to be situationally aware and avoid introducing them to the installation. Preventive programs are implemented to keep the management area free of species that are not yet established there, but are known to be invasive in adjacent areas. Invasive species prevention is the most economical technique available for the BPRF. Prevention treatments can include outreach to neighbors, tenants and command; minimizing human-induced disturbance; and maintaining an unbroken, vertically diverse plant community canopy (Paciulli, Simmons and Associates, 2006).

If the species is so widespread or well established that prevention is not possible, then control or eradication is required; however, for two species eradication may not be practical. Japanese honeysuckle and Nepalese browntop are both widely disseminated on site. Japanese honeysuckle was introduced in the United States in the 1800s (USDA, 2012) and since has become widespread. "The species has naturalized in much of the United States except Alaska and a few states in the Northwest, northern Midwest, and Vermont (Redman, D.E., 1995). Nepalese browntop, although less widespread than Japanese honeysuckle, is also common in the eastern United States. "This species (Nepalese browntop), an annual grass native to Asia, has become naturalized widely and abundantly in the eastern and southeastern United States since it was introduced into Tennessee in 1919" (Fairbrothers and Gray, 1972). The BPRF may wish to consider the widespread nature of these species before allocating resources to manage them. It is recommended that the limited invasive species management resources be focused on detection and eradication of new or incipient species or on other species that have the potential to become widespread. If the BPRF does feel management of Japanese honeysuckle and Nepalese browntop is critical, it is recommended that the areas with the highest density of these species be prioritized in order to get the best results.

Based on the observations described in Chapter 3 above, BPRF may wish to protect the headwaters of wetlands and intermittent streams from unnecessary disturbance in order to prevent invasive species from being transported downstream by flowing water.

At the time of the fieldwork eastern gamma grass (*Tripsacum dactyloides*), a native species, was prevalent throughout the field in the southeastern portion of the BPRF. Johnson grass (*Sorghum halepense*), an aggressive invasive grass species which is extremely difficult to eradicate once established, is very similar in appearance to eastern gamma grass when inflorescences are not present. Johnson grass was identified in a swale in the southern portion of the site. The two species can be distinguished by their inflorescence and roots. It is recommended that Johnson grass be monitored to ensure it does not displace the eastern gamma grass as the dominant clumping grass species onsite.

Methods of control or eradication for invasive species vary from species to species. Generally, however, there are four methods of management: biological, chemical, manual and mechanical. Each management technique can be initiated as a standalone treatment. In some instances they can be used in conjunction with other management techniques for greater success. Additionally, the appropriate treatment may vary on a case by case basis, i.e., hand pulling Japanese

honeysuckle may be practical for a small area, and impractical for a larger area. The Nature Conservancy developed the Weed Control Methods Handbook that includes descriptions of certain herbicides used for chemical control. These descriptions are provided in Appendix F. Species specific management recommendations are provided below.

Lastly, installation-wide monitoring should be conducted at least every five years, to coincide with the update and revision of this management plan. This should consist of assessing the success of ongoing treatment efforts as well as monitoring the installation for new invasive species and new areas of previously documented invasive species. The BPRF may wish to focus monitoring efforts on areas where invasive species are likely to originate on the installation. Ground disturbing activity which removes existing vegetation provides an opening in the biological niche which invasive species are adept at exploiting. Construction sites, which often require grading and may require the transport of fill material from offsite are a common source of new invasive species or provide excellent habitat for invasive species that are already onsite.

Table 4-1 discusses species specific management recommendations broken down by chemical, manual and mechanical control methods.

Table 4-1: Species Specific Management Recommendations

Scientific Name	**Common Name**	**Chemical**	**Manual**	**Mechanical**
Ailanthus altissima	Tree of heaven	Apply Glyphosate Impazapic Triclopyr to the stump		Cut tree at ground level and apply herbicide (Glyphosate or Triclopyr) to the stump or use a stump grinder to prevent regrowth Weed wrench for smaller specimens
Alliaria officinalis	Garlic mustard	Glyphosate	Hand pulling (seedbank can last up to five years so it is important to revisit the site multiple times per year over several years)	
Allium vineale	Wild garlic	2,4-dichlorophenoxy Dicamba		
Berberis thunbergii	Japanese barberry	Glyphosate Triclopyr		Weed wrench
Cirsium vulgare	Bull thistle	2,4-dichlorophenoxy Clopyralid Dicamba + Glyphosate		Use a shovel to remove the top couple inches of the root, this will kill the plant Weed eat consistently throughout the growing season to exhaust starches in root system

Scientific Name	Common Name	Chemical	Manual	Mechanical
Elaeagnus umbellata	Autumn olive	Glyphosate Triclopyr	Hand pull	Weed wrench or chainsaw
Hedera helix	English ivy	Clopyralid Glyphosate Triclopyr Triclopyr ester	Hand pull in conjunction with mechanical treatment	Cut as low to the ground as possible, revisit and retreat remaining roots Vines in trees can be killed by severing the vine from the ground
Lonicera japonica	Japanese honeysuckle	Glyphosate Triclopyr	Hand pull	Prescribed burning in the wintertime, where feasible
Microstegium vimineum	Nepalese browntop	Glyphosate Impazapic	Hand pull	"Scalping" with a weed eater in late summer (August) prior to reseeding and repeat as necessary
Paulownia tomentosa	Princess tree	Apply Glyphosate Triclopyr to stump		Cut tree at ground level and apply herbicide (Glyphosate or Triclopyr) to the stump or use a stump grinder to prevent regrowth Weed wrench for smaller specimens
Phragmites australis	Common reed	Glyphosate (Rodeo® is preferable for use in wetlands)		Prescribed burn, where feasible
Rosa multiflora	Multiflora rose	Dicamba Glyphosate Triclopyr		Weed wrench Repeated cutting over several seasons
Rubus phoenicolasius	Wineberry	Glyphosate Metsulfuron-methyl Triclopyr	Hand pull (protective gloves are required)	Pitch fork or spade can be used to remove entire plant
Sorghum halepense	Johnson grass	Fluazifop-p-butyl (repeat application) Glyphosate (repeat application)	Hand pull in conjunction with mechanicaltreatment	Hand pulling and remove any remaining roots with a shovel or pitchfork

4.2 REQUEST ASSISTANCE IF NECESSARY

Several options are available to assist the BPRF in identifying and managing invasive species. The most useful and readily available resource is the local USDA Extension Service office. Each county in each state has an Extension Service office, which offers assistance in managing a wide variety of agricultural pests. These agricultural pests include a large number of terrestrial plants and animals that are invasive in that area. The Extension Service office may provide on-the-ground expertise in identifying plants and insects on the facility, and can assist in developing a practical management plan for those species. The Charles County Cooperative Extension System office information is provided below.

University of Maryland Extension
Charles County
9375 Chesapeake Street #119
La Plata, Maryland 20646
301-934-5403
http://charles.umd.edu

Another good source of assistance is the Maryland Natural Heritage Program (MD NHP). While this program is generally set up to track the occurrence of listed endangered or threatened species, it also is concerned with invasive species, because invasive species are often a factor in native species decline. The MD NHP may also be willing to provide experts to visit the facility and identify potential areas of concern, specific locations of invasive species (if present), and up-to-date information on management methods used statewide. These professionals may also provide information on potential endangered species at the facility, thereby allowing the BPRF to avoid chemical and mechanical methods in those areas. The MD NHP information is listed below.

Maryland Wildlife and Heritage Service Headquarters
Tawes State Office Building
E-1 580 Taylor Ave.
Annapolis, Maryland 21401
410-260-8540
http://www.dnr.state.md.us/wildlife/Plants_Wildlife/nhpintro.asp

Other sources of assistance include universities, citizens groups, and other local organizations. Some of these organizations are listed below.

Maryland Native Plant Society
P.O. Box 4877
Silver Spring, Maryland 20914
410-286-2928
www.mdflora.org

Maryland Sea Grant
University System of Maryland
4321 Hartwick Road, Suite 300
College Park, Maryland 20740
301-405-7500
http://www.mdsg.umd.edu

4.3 SPECIES IDENTIFICATION WEBSITES

Below are websites where pictures are able to be submitted and will then be identified by an expert or the general public.

University of Maryland Home and Garden Information Center (HGIC)
This program was started by a grant from the Northeast Regional Integrated Pest Management Grants Program, which is funded by the USDA. Users submit questions to HGIC's staff of experts by completing a question submission form. They then receive a personal answer to their question. If the user is trying to identify a plant or insect, a digital photo may be attached. http://www.hgic.umd.edu/faq/sendAQuestion.cfm

MyPlantID
MyPlantID is a website where a community of plant hobbyists can ask questions and answer them, submit photos of their unidentified plants and help other folks identify theirs. Users can upload a photo of their plant and add it to the MyPlantID map of unidentified plants, discuss the identification of submitted plants with other members, and help build a searchable plant identification database. Only registered members are able to post messages to this forum. Registration is free. http://www.myplantid.com

Doug Green's Beginner Gardening
This beginner gardening website's objective is to give users the information they need to have a great garden. This website will assist in plant identification. They have helpful gardeners that take the time to help users figure out what they are growing. http://www.beginner-gardening.com/plant-identification.html

Dave's Garden Plant Identification Discussion Forum
Post an image and a detailed description, and fellow gardeners will help users figure out what it is. Dave's Garden is an informational website where a large, international community of gardeners can learn from each other and find resources offered by the gardening industry. Only registered members are able to post messages to this forum. Registration is free. http://davesgarden.com/community/forums/f/plantid/all

¡Village GardenWeb Name That Plant!
GardenWeb is the largest gardening site on the Web, with garden forums, articles on gardening, directories of nurseries, gardens and gardening organizations and much more. This gallery forum allows users to upload images of plants that they are trying to identify so that others may be able to help them come up with a name. Only registered members are able to post messages to this forum. Registration is free. http://forums2.gardenweb.com/forums/namegal/#image

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CHAPTER 5 - REFERENCES

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APPENDIX A: LAWS AND GUIDANCE

DEPARTMENT OF THE ARMY
ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON DC 20310-0600

REPLY TO
ATTENTION OF

26 JUN 2001

DAIM-ED-N (200-3)

MEMORANDUM

SUBJECT: Army Policy Guidance for Management and Control of Invasive Species

1. References:

a. AR 200-3, 28 Feb 95, Natural Resources – Land, Forest, and Wildlife Management.

b. Presidential Executive Order 13112, subject: Invasive Species, 3 Feb 99 (enclosure 2).

c. DoD 4500.9-R, Part V, January 2001, Defense Transportation Regulation - DoD Customs and Border Clearance Policies and Procedures.

2. Invasive species can be a threat to natural resources, impact local economies, and present problems for the military mission. The Army Policy Guidance for Management and Control of Invasive Species (enclosure 1) will assist installations to comply with Executive Order 13112 and to manage invasive species within the framework of existing Army natural resources and conservation programs.

3. The Army Staff point of contact for invasive species can be reached at 703-693-0673.

FOR THE ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT:

2 Encls

RICHARD A. HOEFERT
Colonel, GS
Director, Environmental Programs

Army Policy Guidance
Management and Control of Invasive Species
June 2001

1. Purpose: To provide policy guidance for the environmental management and control of invasive species on US Army installations.

2. Applicability: Applicability of this policy guidance is consistent with AR 200-3 for installations in US states and territories. This policy guidance does not apply to installations in foreign nations. Invasive species are not currently addressed in the Overseas Environmental Baseline Guidance Document. Invasive species management and control at installations in foreign nations will be in accordance with the Final Governing Standards negotiated with the host nation.

3. References:

a. Endangered Species Act (ESA), 16 U.S.C. 1531, Chapter 35.

b. National Environmental Policy Act (NEPA), 42 U.S.C. 4321.1.

c. Sikes Act, as amended by the Sikes Act Improvement Act (SAIA) of 1997, 16 U.S.C. § 670a *et seq*.

d. Presidential Executive Order 13112, subject: Invasive Species, 3 Feb 99.

e. Presidential Executive Order 13148, subject: Greening the Government through Leadership in Environmental Management, 21 April 2000 (http://ceq.eh.doe.gov/nepa/regs/eos/eo13148.html).

f. DoD 4500.9-R, Part V, January 2001, Defense Transportation Regulation - DoD Customs and Border Clearance Policies and Procedures (http://public.transcom.mil/J4/j4lt/partVTOC.pdf).

g. AR 200-3, 28 Feb 95, Natural Resources - Land, Forest and Wildlife Management.

h. AR 200-5, 29 Oct 1999, Pest Management.

i. AR 40-12, Quarantine Requirements, Section 1 and 5, 24 Jan 92.

j. Policy And Guidance For Identifying U.S. Army Environmental Program Requirements Environmental Program Requirements Report, Aug 00.

k. Guidance for Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federal Landscaped Grounds (60 FR 154, 40837-40841), 10 Aug 95.

l. Memorandum, DAIM-ED-N, 21 Mar 97, Subject: Army Goals and Implementing Guidance for Natural Resources Planning Level Surveys (PLS) and the Integrated Natural Resources Management Plan (INRMP).

4. Background: Executive Order (EO) 13112 on Invasive Species outlines Federal agency duties and provides definitions that provide the foundation for this policy.

a. Federal Agency Duties: EO 13112, Section 2, Paragraph a.2, establishes duties of federal agencies to prevent the introduction of invasive species, to provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species may cause.

b. Definitions: EO 13112, Section 1 provides the following definitions pertinent to this policy:

(1) Invasive species means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

(2) Alien species means with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

(3) Native species means with respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

(4) Introduction means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.

(5) Ecosystem means the complex of a community of organisms and its environment.

5. Responsibilities:

a. The Assistant Chief of Staff for Installation Management (ACSIM), through the Office of the Director of Environmental Programs (ODEP), is the proponent and Army program manager for all environmental aspects of invasive species management.

b. Deputy Chief of Staff for Operations and Plans will ensure that all aspects of the Integrated Training Area Management Program (ITAM) are consistent with this policy.

c. Deputy Chief of Staff for Logistics is the Army liaison with the U.S. Transportation Command, who is the DOD Executive Agent for Customs and Border Clearance and proponent for the Defense Transportation Regulation (DTR) (reference 3f). The DTR provides policy in support of the movement of personnel and cargo and the relationship of DOD to the statutory requirements of the border clearance agencies to include actions to prevent the introduction of invasive species.

d. Commanders of Major Commands (MACOMs) and Director of the Army National Guard shall:

(1) provide command and technical supervision of invasives species management at installations under their command or jurisdiction.

(2) assist installations to develop and implement programs to include planning, surveys, monitoring, management (control/eradication), and restoration.

(3) review technical adequacy of the installation invasive species management efforts.

(4) assure that installations request funds, identify requirements, and allocate funds provided by the program proponent.

(5) assure integration of environmental, operations, and logistics missions.

e. Installation Commanders and The Adjutants General shall:

(1) budget, identify requirements in the Environmental Program Requirements (EPR)(reference 3j), and expend allocated funds to effectively plan and execute invasive species management on their installations in accordance with their missions, command priorities, and current environmental must fund guidance.

(2) implement this policy to minimize adverse impacts to the environment and sustain accomplishment of the installation's military mission.

(3) develop internal partnerships that will ensure that all land users and other installation organizations that may influence the introduction and spread of invasive species are aware of and comply with this policy and incorporate it into their procedures.

6. Policy Guidance:

a. The Department of Army will comply with Executive Order 13112 (EO) as it applies to U.S. Army activities.

b. Invasive species shall be managed within the context of the goals and objectives of an installation's Integrated Natural Resources Management Plan (INRMP) (references 3c, 3g, and 3l) and will be integrated into other installation plans as appropriate. Implementation of projects for the control/eradication or response to new introductions of invasive species shall meet the goals and objectives of an approved and current INRMP.

(1) Specific inclusion of invasive species in an INRMP shall not impede progress to complete the INRMP by 18 November 2001 as legally mandated in the SAIA (reference 3c). Invasive species do not need to be addressed specifically or immediately in an installation's INRMP to qualify as an environmental requirement (see paragraph 6b(3) below).

(2) At installations where an INRMP is not required, the Installation Pest Management Plan (reference 3h) or another existing installation plan, as most appropriate, shall address the goals and objectives for invasive species management.

(3) The Management Decision Package (MDEP) for conservation projects involving invasive species management is VENN. Invasive species projects do not need to be specifically identified in the INRMP, or other installation management plans per paragraph 5.b (1) and (2) of this policy, to qualify as an environmental requirement. They only need to be projects that are required to meet the goals and objectives of the plan. If more specific descriptions of installation invasive species programs are desired, they should be addressed during a future review cycle of the INRMP. Requirements for implementing invasive species management shall be identified in the U.S. Army Environmental Program Requirements (reference 3j) under the law/regulation SIKE, ESA, or CWA. Projects to support the management objectives in an approved INRMP or, where an INRMP is not required, to support natural resources stewardship requirements, should be addressed under SIKE. Projects for protecting and managing listed species and critical habitat that involve invasive species should be addressed under the law/regulation ESA. Invasive species projects that involve erosion control and wetlands should be addressed under the law/regulation CWA.

c. Installations, subject to legal authorities and limitations, will monitor invasive species populations, and track the presence and status of invasive species over time to determine when control measures are necessary and to evaluate the effectiveness of prevention, control/eradication, and restoration measures.

d. Installations will give priority to invasive species management actions, including actions to restore native species habitat conditions in ecosystems that have been invaded, that support the installation's primary military mission and contribute to the protection of Federally listed threatened and endangered species and critical

habitat. Installations should ensure that invasive species do not detract from the usefulness of military training and testing lands and will ensure that invasive species management and control practices do not result in non-permitted take or jeopardize the existence of threatened and endangered species (reference 3a).

e. Where applicable, invasive species management practices shall be synchronized with objectives of the installations ITAM program. The ITAM program integrates training and mission requirements with sound land management practices.

(1) Land Condition Trend Analysis (LCTA) data can provide valuable information for, and shall be shared with, installation natural resources managers.

(2) Land Rehabilitation and Maintenance projects will not include the use of invasive species unless that use is consistent with this policy.

(3) Where appropriate, ITAM Environmental Awareness materials can be used effectively to present invasive species issues.

f. Where available, installations should use Flora and Fauna Planning Level Surveys (PLS) and LCTA to detect and identify invasive species. As existing PLSs are updated they should include invasive species information if it is not currently included.

g. Planned actions to address invasive species should be consistent with management objectives in updated INRMPs and undertaken only after appropriate review under NEPA as implemented by AR 200-2. Actions should also be reviewed under the provisions of the ESA where federally listed species or their habitats are present.

o. Actions that are likely to cause or promote the introduction or spread of invasive species will not be funded.

p. Consistent with references 3e and 3k, invasive species will not be used in installation landscaping. In addition, landscaping practices should incorporate management practices that control invasive species wherever necessary.

j. Installations are encouraged to enter into partnerships with other federal agencies, state agencies, and local agencies, tribes, and non-government organizations:

(1) to share information and address invasive species issues impacting critical missions on installations.

(2) to provide public education on invasive species management.

(3) to achieve local goals for controlling invasive species both on and off the installation.

k. Installations are encouraged to cooperate with state programs for controlling invasive species and will allow access to the installations for this purpose. Such access must be consistent with installation safety and security considerations. Control measures must be fully coordinated with installation stakeholders and acceptable for use on the installation.

l. ITAM funding will be used for invasive species management only when identified as validated projects in an approved ITAM annual work plan and is consistent with the goals and objectives of the installation's approved INRMP. These projects must have a direct tie to military training and testing activities.

m. Installation and Unit Commanders are required to follow federal laws enforced by the U.S. Department of Agriculture Animal Plant and Health Inspection Service. The Department of Defense accomplishes this through DoD 4500.9-R, Part V (reference 3f). This regulation provides direction for the routine maintenance and washing of vehicles and equipment after field operations to remove mud/particulate matter, which prevents introduction of invasive or exotic species. The regulation requires conformance to customs requirements for international transport. Environmental funds will not be used to comply with DoD 4500.9-R, Part V, January 2001, Defense Transportation Regulation - DoD Customs and Border Clearance Policies and Procedures.

n. Installations shall comply with AR 200-5 when using pesticides to control invasive species.

o. Reduction of pesticides use must be considered in invasives species control strategies. However, pesticide reduction should not be the sole consideration in choosing a method to control invasive species. Informed decisions should be made based on the most effective and environmentally sound approach for controlling invasive species to include the use of pesticides.

p. Alternatives for control of invasive species will be reviewed in accordance with NEPA (reference 3b) as implemented by AR 200-2. If the alternative includes biological control of invasive species, the species used for biological control will not be introduced into any natural ecosystem, unless there is prior consultation with local, state and federal agencies to determine that such introduction will not have an adverse effect on those ecosystems or protected species. The requirements of AR 200-3, paragraph 11-2c(1) shall be followed when species listed or proposed for listing under the ESA are present in the area where biological control is being considered.

Department of Defense

INSTRUCTION

NUMBER 4150.07
May 29, 2008

USD(AT&L)

SUBJECT: DoD Pest Management Program

References: (a) DoD Instruction 4150.7, "DoD Pest Management Program," April 22, 1996 (hereby canceled)
(b) DoD Directive 4715.1E, "Environment, Safety, and Occupational Health (ESOH)," March 19, 2005
(c) DoD Directive 5134.01, "Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L))," December 9, 2005
(d) Sections 10 and 136 of title 7, United States Code
(e) through (ar), see Enclosure 1

1. PURPOSE

This Instruction:

1.1. Reissues Reference (a) according to the guidance in Reference (b) and the authority in Reference (c).

1.2. Implements policy, assigns responsibilities, and prescribes procedures for the DoD Integrated Pest Management (IPM) Program pursuant to Reference (b); section 136 of title 7, United States Code (U.S.C.) (Reference (d)); section 125 of title 10, U.S.C. (Reference (e)); and Army Regulation (AR) 10-64/Chief of Naval Operations Instruction 6700.2/Air Force Regulation (AFR) 160-29/Marine Corps Order 5420.18A (Reference (f)).

1.3. Continues to authorize the publication of DoD 4150.7-P (Reference (g)) and DoD 4150.7-M (Reference (h)), pursuant to DoD Instruction 5025.01 (Reference (i)).

1.4. Designates the Secretary of the Army as the Support Agent for the Armed Forces Pest Management Board (AFPMB) pursuant to Reference (b).

2. APPLICABILITY AND SCOPE

This Instruction:

2.1. Applies to the Office of the Secretary of Defense, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, and the DoD Field Activities (hereafter referred to collectively as the "DoD Components"). The term "Military Services," as used herein, refers to the Army, the Navy, the Air Force, and the Marine Corps.

2.2. Applies to all DoD operations, activities, and installations worldwide, including appropriated fund activities, non-appropriated fund activities, contracted activities, and Government-owned, contractor-operated facilities and housing.

2.3. Applies to all DoD buildings, structures, property (under DoD control by ownership, permit, lease, license, or other land or facility-use agreement), public works, equipment, aircraft, vessels, and vehicles.

2.4. Applies to all DoD vector control and pest management operations performed worldwide during peacetime, wartime, and military deployments, including those performed under formal or informal contract and those procured using the Government Purchase Card (GPC).

2.5. Applies to all Army National Guard and Air National Guard units on property supported with Federally appropriated funds under a cooperative agreement and who are performing training subject to Federal approval under section 113, chapter 1 of title 32, U.S.C. (Reference (j)).

2.6. Outside the continental United States (OCONUS), applies where consistent with applicable international agreements, status of forces agreements, final governing standards (FGS) issued for the host nations, or, where no such FGS have been issued, the criteria in the Overseas Environmental Baseline Guidance document (Reference (k)).

2.7. Does not apply to:

2.7.1. Civil works activities of the U.S. Army Corps of Engineers.

2.7.2. Facilities used by the Army National Guard or Air National Guard that are both State-owned and State-funded (armories).

2.7.3. Facilities occupied by Military Services and the Defense Logistics Agency (DLA) when real property control is not under the Department of Defense.

2.7.4. Privatized housing, which must comply only with State and local laws and regulations.

3. DEFINITIONS

Terms used in this Instruction are defined in Enclosure 2.

4. POLICY

It is DoD policy, pursuant to References (b) and (d), to:

4.1. Use IPM techniques in carrying out pest management activities and promote IPM through procurement and regulatory policies, and other activities.

4.2. Use IPM to prevent or control pests and disease vectors that may adversely impact readiness or military operations by affecting the health of personnel, or by damaging structures, materiel, or property.

4.3. Comply with all Executive orders and Federal, State, and local statutory and regulatory requirements that apply to IPM. Although Federal agencies maintain sovereignty under section 136 of Reference (d), the Department of Defense voluntarily complies with the substantive portions of State pesticide and pest management laws and regulations when such compliance does not adversely impact DoD missions.

4.4. Incorporate sustainable IPM philosophy, strategies, and techniques in all aspects of DoD vector control and pest management planning, training, and operations, including in installation pest management plans and other written guidance, to reduce pesticide risk and prevent pollution.

5. RESPONSIBILITIES

5.1. The Assistant Deputy Under Secretary of Defense (Environment, Safety, and Occupational Health) (ADUSD(ESOH)), under the authority, direction, and control of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), shall:

5.1.1. Oversee the implementation of this Instruction and represent the Secretary of Defense for both internal and interagency matters regarding the DoD Pest Management Program.

5.1.2. Provide operational direction and supervision to the AFPMB.

5.1.3. Coordinate pest management actions that affect human health with the Assistant Secretary of Defense for Health Affairs (ASD(HA)).

5.2. The Director for Defense Research and Engineering, under the authority, direction, and control of the USD(AT&L), shall, in coordination with ADUSD(ESOH), promote and support research, development, and technology transfer for the DoD IPM program.

5.3. The Director of the AFPMB shall:

5.3.1. Monitor compliance with this Instruction, including Military Service use of the DoD Environmental Security Measures of Merit for Pest Management. (See Enclosure 3.)

5.3.2. Maintain and enforce References (g) and (h).

5.3.3. Recommend policy, provide scientific advice, and enhance coordination among the Military Services on all matters related to disease vector and pest management.

5.3.4. Serve as the coordinating office for the DoD Undesirable Plant Management Program required by section 10 of Reference (d).

5.3.5. Review and update DoD Installations and Environmental Measures of Merit for Pest Management, as outlined in Enclosure 3.

5.3.6. Periodically review and update AFPMB Technical Guides 11, 14, 15 through 18, 20 and 21, 24, 26 and 27, 29, 36, and 39 (References (l) through (y), respectively).

5.3.7. Review and approve DoD Components' recommendations for pest management consultants.

5.4. The Secretaries of the Military Departments and the Director, DLA, shall:

5.4.1. Designate senior pest management consultants as the primary points of contact for the Military Services' and DLA's pest management program and for membership on the AFPMB in support of the Defense Environmental Security Council. Inform the Director of AFPMB, in writing, of these designated consultants for review and approval.

5.4.1.1. Each Military Service's senior pest management consultants shall nominate, in writing, pest management consultants to serve as certifying officials to certify competency of the Military Service's pesticide applicators.

5.4.1.2. Each Military Service nominee's qualifications shall be formally reviewed and, if qualified, approved and acknowledged by the Director of the AFPMB.

5.4.2. Establish and maintain programs that conform to the policy, procedures, and requirements in this Instruction.

5.4.3. Resource and fund IPM programs in ways that protect the health of military personnel, civilians, and dependents; protect real property and natural resources from damage from insects, weeds, and other pests; and promote training and mission readiness with minimum risk to the environment.

5.4.4. Oversee and review IPM programs at the major command and headquarters levels.

5.4.5. Record and permanently archive records of pest management operations and pesticide use on DoD permanent installations using the DoD Integrated Pest Management Information System (IPMIS) or other computer-generated equivalent approved by the designated pest management consultant.

5.4.6. Record and permanently archive all pesticide applications, except skin and clothing arthropod repellents, performed during military deployments using the DoD IPMIS or other computer-generated equivalent approved by the designated pest management consultant. The U.S. Army Center for Health Promotion and Preventive Medicine shall provide program administration and data support services, including permanent archiving for all Military Services, in accordance with DoD Instruction 6490.03 (Reference (z)).

5.4.7. Ensure that actions taken under the policy in section 4 of this Instruction are consistent with Reference (b).

5.4.8. Comply with applicable Federal, State, and local statutory and regulatory requirements for pest management when conducting environmental compliance audits and staff assistance visits.

5.4.9. Incorporate IPM practices and techniques in all disease vector and pest management programs, plans, operations, regulations, publications, pest control contracts, and training programs for installation pest control coordinators, pesticide applicators, pest control contract inspectors, and military personnel who apply pesticides.

5.4.10. Coordinate pest management actions affecting human health with appropriate agencies and officials, including the ASD(HA) and State, local, and host-nation governments.

5.4.11. Ensure a pest management consultant currently certified in the appropriate DoD categories (References (g) or (h)) reviews installation IPM programs on-site every 3 years, and annually reviews and technically approves installation IPM plans, including installation pesticide use proposals for the upcoming year. Environmental compliance on-site external reviews may be substituted for on-site reviews to meet DoD program requirements.

5.4.12. Ensure a pest management consultant currently certified in DoD category 11 (Reference (g)) reviews and approves any aerial application of pesticides on DoD installations.

5.4.13. Implement pest management Measures of Merit (see Enclosure 3) and answer data calls for the Measures of Merit from the ADUSD(ESOH). Answer data calls for information required by the Environmental Protection Agency (EPA) pertaining to DoD pesticide applicators.

5.4.14. Monitor pesticides proposed for sale in Defense commissaries and Armed Service Exchanges to ensure they are compatible with the DoD IPM Program and comply with applicable Federal, State, local, and host-nation laws.

5.4.15. Cooperate with State and local government agencies on issues involving pest management and pesticide regulation.

5.4.16. Provide management support, resources, and a professionally qualified pest management staff sufficient to ensure effective implementation of IPM programs at all organizational levels.

5.4.17. Survey potential adverse environmental or public health effects from pesticide use; monitor the health and safety of persons who apply pesticides; ensure workplaces are evaluated to determine personal protective equipment (PPE) requirements by qualified safety and health personnel; and ensure that PPE used conforms to Occupational Safety and Health standards (e.g., DoD, the National Institute for Occupational Safety and Health, or national consensus standards, including any certification and specification requirements) and that personnel required to wear PPE are properly trained. (See DoD Instruction 6055.1 (Reference (aa)).

5.4.18. Ensure commanders of deployed forces use all appropriate personal protection measures, including arthropod skin and clothing repellents, and bed nets, to protect Service members from vector-borne diseases and other arthropod-related health threats. Specific guidance on personal protection measures is found in Reference (x).

5.4.19. Ensure excess pesticides are disposed of in accordance with EPA and Service requirements.

5.4.20. Ensure that installations:

5.4.20.1. Annually update and coordinate the review and approval of their IPM plans; plan the funding for initial and 5-year revisions of IPM plans as necessary, consistent with the program elements in Enclosure 5 and Reference (q).

5.4.20.2. Implement IPM plans approved by designated pest management consultants using trained personnel and certified pesticide applicators, in accordance with the IPM plan written for each installation.

5.4.20.3. Designate in writing an IPM coordinator to oversee all aspects of the installation IPM plan, including in-house, formally contracted, and GPC-contracted operations; housing, engineer, and medical department operations; and pesticide applications for grounds operations, out-leasing, golf course operations, wood preservation, natural resources, forestry operations, self-help, and pesticide sales. Enclosure 4 contains details on the qualifications, training, and responsibilities of IPM coordinators.

5.4.20.4. Establish pest management self-help programs for non-privatized military housing when cost effective and when IPM monitoring justifies a requirement.

5.4.20.5. Require that all pesticide applications on DoD installations be made only by personnel trained and certified in accordance with References (g) or (h) or by State-certified

applicators with equivalent DoD categories for work being performed. State-equivalent certification categories for personnel who require certification as pesticide applicators can be found at http://aec.army.mil/usaec/pest/pest05.html.

5.4.20.6. Procure pesticides from the Federal Supply System or commercial sources that are: approved by a pest management consultant who is currently certified in the appropriate DoD categories (see References (g) or (h)); documented in the pest management plan; and comply with applicable Federal, State, local, and host-nation requirements.

5.4.20.7. Record and permanently archive pesticide application records as required by section 136 of Reference (d) and host-nation agreements.

5.4.20.8. Use DD Form 1532-1, "Pest Management Maintenance Record," or a computer-generated equivalent such as IPMIS, to produce daily records of all in-house, formally contracted and government GPC-procured pest control activities conducted anywhere on the installation, to include such sites as out-leased land, golf courses, and natural resources. Installation commanders shall ensure these records are archived after 2 years for permanent retention. DD Form 1532-1s may be downloaded at http://www.dtic.mil/whs/directives/infomgt/forms/forminfo/forminfopage2129.html

5.4.20.9. Use pest management contracts when more cost effective than in-house services. All pest management contractors must use IPM and comply with the certification, licensing, and registration requirements of the State or country where the work is performed. Ensure that the technical portions of contracts involving pest management reflect IPM methodology and that, prior to solicitation, these documents are reviewed and approved by a pest management consultant currently certified in the appropriate DoD categories (References (g) or (h)). Follow guidance from the Military Department Heads when GPCs are used to procure limited pest control services in lieu of formal proposals.

5.4.20.10. Inspect contract pest management operations and pesticide applications using DoD Pest Management Quality Assurance Evaluators (PMQAEs) or Pest Management Performance Assessment Representatives (PMPARs) trained in pest management at DoD-sponsored courses.

5.4.20.11. Institute procedures to prevent terrorists from acquiring DoD pesticide dispersal equipment or pesticides. Upon any suspicious theft of pest control equipment, notify the Federal Bureau of Investigation. Ensure that the identity of personnel and pesticide formulations provided by contractors is known and approved by trained PMQAEs and PMPARs or DoD certified pesticide applicators.

5.4.20.12. Implement appropriate portions of the IPM plan in accordance with goals and objectives of the Integrated Natural Resources Management Plan (INRMP) or Integrated Cultural Resources Management Plan (ICRMP) (see DoD Instruction 4715.3 (Reference (ab))), master plan, training and test range management plan, and other support plans, programs, and projects.

5.5. The Secretary of the Air Force, in addition to the responsibilities in paragraph 5.4., shall maintain a large-area, fixed-wing, aerial pesticide application capability, including specially trained air and ground crews, to control disease vectors, pest organisms, and vegetation, and to treat oil spills in combat areas, on DoD installations, or in response to declared emergencies.

5.6. The Secretary of the Army, in addition to the responsibilities in paragraph 5.4 and as Support Agent for the AFPMB, shall provide administrative and logistic support, through the Surgeon General of the Army, for operation of the AFPMB.

5.7. The Surgeon General of the Army, under the Secretary of the Army, shall provide three field grade military entomologists to the AFPMB staff.

5.8. The Surgeon General of the Navy shall:

5.8.1. Provide two field grade military entomologists to the AFPMB staff.

5.8.2. Evaluate the efficacy and military applicability of commercially available equipment.

5.9. The Surgeon General of the Air Force shall provide two field grade military entomologists to the AFPMB staff.

6. PROCEDURES

6.1. The Military Services' and DLA IPM programs shall include the elements in Enclosures 3, 4, 5, and 7.

6.2. The AFPMB, established by Reference (b) and consisting of a council and committee structure, directorate, and Defense Pest Management Information Analysis Center (DPMIAC), shall operate as described in Enclosure 6.

7. INFORMATION REQUIREMENTS

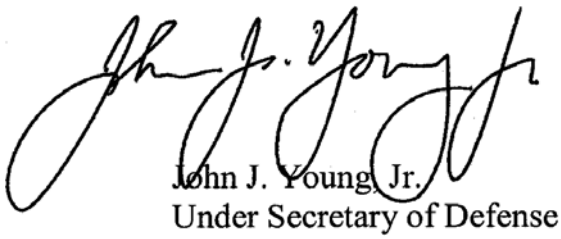
Report Control Symbol DD-A&T(A&AR)1080 prescribes record-keeping and reporting requirements. Existing data elements shall be used in reporting requirements whenever possible.

8. RELEASABILITY

UNLIMITED. This Instruction is approved for public release. Copies may be obtained through the Internet from the DoD Issuances Web Site at http://www.dtic.mil/whs/directives.

9. EFFECTIVE DATE

This Instruction is effective immediately.



John J. Young, Jr.
Under Secretary of Defense
for Acquisition, Technology and Logistics

Enclosures - 7

E1. References, continued
E2. Definitions
E3. DoD Environmental Security Measures of Merit for Pest Management
E4. DoD IPM Program Elements
E5. Content of IPM Plans, Suggested Format
E6. AFPMB Functions, Organizations, and Management
E7. Procedures for the Acquisition of Pest Management Materiel (Equipment and Pesticides)

E1. ENCLOSURE 1

REFERENCES, continued

(e) Section 125 of title 10, United States Code
(f) Army Regulation 10-64/Chief of Naval Operations Instruction 6700.2/Air Force Regulation 160-29/Marine Corps Order 5420.18A, "Joint Field Operating Agencies of the Office of The Surgeon General of the Army," August 16, 1988
(g) DoD 4150.7-P, "DoD Plan for the Certification of Pesticide Applicators," September 30, 1996
(h) DoD 4150.7-M, "DoD Pest Management Training and Certification," April 24, 1997
(i) DoD Instruction 5025.01, "DoD Directives System," October 28, 2007
(j) Section 113, Chapter 1, of title 32, United States Code
(k) DoD 4715.5G, Overseas Environmental Baseline Guidance Document, 1 May 2007
(l) AFPMB Technical Guide 11, "Hydrogen Phosphide Fumigation with Aluminum Phosphide," current edition[1]
(m) AFPMB Technical Guide 14, "Personal Protective Equipment for Pest Management Personnel," current edition
(n) AFPMB Technical Guide 15, "Pesticide Spill Prevention and Management," current edition
(o) AFPMB Technical Guide 16, "Pesticide Fires -- Prevention, Control, and Cleanup," current edition
(p) AFPMB Technical Guide 17, "Military Handbook, Design of Pest Management Facilities," November 1, 1991
(q) AFPMB Technical Guide 18, "Installation Pest Management Program Guide," March 11, 2003
(r) AFPMB Technical Guide 20, "Pest Management Operations in Medical Treatment Facilities," current edition
(s) AFPMB Technical Guide 21, "Pesticide Disposal Guide for Pest Control Shops," current edition
(t) AFPMB Technical Guide 24, "Contingency Pest Management Guide," current edition
(u) AFPMB Technical Guide 26, "Tick-borne Diseases: Vector Surveillance and Control," current edition
(v) AFPMB Technical Guide 27, "Stored-Product Pest Monitoring Methods," current edition
(w) AFPMB Technical Guide 29, "Integrated Pest Management (IPM) in and Around Buildings," current edition
(x) AFPMB Technical Guide 36, "Personal Protective Measures Against Insects and Other Arthropods of Military Significance," current edition
(y) AFPMB Technical Guide 39, "Guidelines for Preparing DoD Pest Control Contracts Using Integrated Pest Management," current edition
(z) DoD Instruction 6490.03, "Deployment Health," August 11, 2006
(aa) DoD Instruction 6055.1, "DoD Safety and Occupational Health (SOH) Program," August 19, 1998
(ab) DoD Instruction 4715.3, "Environmental Conservation Program," May 3, 1996

[1] All AFPMB Technical Guides are available at www.afpmb.org/pubs/tims/tims.htm

(ac) Parts 1500-1508 of title 40, Code of Federal Regulations
(ad) Sections 4321 through 4370a of title 42, United States Code
(ae) Army Regulation 40-12/Secretary of the Navy Instruction 6210.2A/Air Force Regulation 161-4, "Quarantine Regulations of the Armed Forces," January 24, 1992
(af) DoD Foreign Clearance Guide, current edition
(ag) Memorandum of Agreement between the United States Department of Agriculture and the Department of Defense for Conduct of Forest Insect and Disease Suppression on Lands Administered by the U.S. Department of Defense, December 1990[2]
(ah) Executive Order 13112, "Invasive Species," February 3, 1999
(ai) DoD 4500.9-R, "Defense Transportation Regulation (DTR)," Part V, "Department of Defense Customs and Border Clearance Policies and Procedures," September 2007
(aj) DLA Regulation 4145.31, "Integrated Stored Products Pest Management," June 20, 2002[3]
(ak) Department of Defense-Legacy Resource Management Program, "The Green Book - Environmental Guidebook for Military Golf Courses," current edition[4]
(al) Department of Defense-United States Department of Agriculture/Animal and Plant Health Inspection Service/Animal Damage Control Memorandum of Agreement on Animal Damage Control, April 1990[5]
(am) Army Regulation 40-905/Secretary of the Navy Instruction 6401.1A/Air Force Instruction 48-131, "Veterinary Health Services," 29 August 2006
(an) Section 1001 et seq. and section 1531 et seq. of title 16, United States Code
(ao) Executive Order 11850, "Renunciation of Certain Uses in War of Chemical Herbicides and Riot Control Agents," April 8, 1975
(ap) Unified Facilities Guide Specifications 31 31 16, "Soil Treatment for Subterranean Termite Control," April 2006[6]
(aq) DoD Directive 5105.18, "DoD Committee Management Program," February 8, 1999
(ar) Defense Federal Acquisition Regulation Supplement, Subpart 208.7003-1, "Assignments under integrated materiel management (IMM)," current edition

[2] Available at http://www.afpmb.org/pubs/dir_inst/Forest%20Pest%20Suppression%20Pkg.pdf
[3] Available at https://www.dscp.dla.mil/subs/support/qapubs/instructions/4145-31.pdf
[4] Available at https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/PlanningToolsHandbooksGuidelines/TheGreenBook
[5] Available at http://www.afpmb.org/pubs/dir_inst/Animal%20Damage%20Assessment%20and%20Control%20Memo.pdf
[6] Available at http://www.wbdg.org/ccb/DOD/UFGS/UFGS%2031%2031%2016.pdf

E2. ENCLOSURE 2

DEFINITIONS

Unless otherwise noted, the following terms and their definitions are for the purposes of this Instruction only.

E2.1. Certified DoD Pesticide Dispersal Equipment Trainer. A certified DoD pesticide applicator authorized by a Military Service training center to provide hands-on pesticide dispersal equipment training in partial fulfillment of DoD pesticide applicator recertification competency requirements.

E2.2. Certifying Officials. Pest management consultants who certify the competency of DoD pesticide applicators per References (g) or (h). The senior pest management consultants nominate certifying officials in writing to the AFPMB Director for review and approval.

E2.3. Direct Supervision. Supervision that includes being at the specific location where pesticide application is conducted; providing instruction and control; and maintaining a line-of-sight view of the work performed. Certain circumstances may temporarily remove the line-of-sight view. Under these temporary circumstances, the supervisor shall be responsible for the actions of the pesticide applicators. (See paragraph E2.16.4.) Direct supervision is only permitted for DoD applicators who are in training; it is not permitted for contractor applicators.

E2.4. Disease Vector. Any animal capable of transmitting the causative agent of a human disease; serving as an intermediate or reservoir host of a pathogenic organism; or producing human discomfort or injury, including (but not limited to) mosquitoes, flies, ticks, mites, snails, and rodents.

E2.5. Disinsection. The procedure of killing or removing insects from ships or aircraft to prevent their importation into another port or country.

E2.6. DoD Employee. Federal employees of the Department of Defense, to include title 5, U.S.C. civilians, Active Duty military members, Active Guard Reserve (AGR) military members, National Guard and Reserve military members while on unit training assemblies, and Federal technicians. This term does not include employees involved in civil work functions of the Army Corps of Engineers, National Guard military members who are not on AGR (i.e., do not perform 180 days of continuous active service), or state civilians for whom the Federal government pays salaries through cooperative agreements.

E2.7. DoD Integrated Pest Management Program. A single, comprehensive program that encompasses all pest management activities of the Department of Defense.

E2.8. DoD Property. A DoD installation, site, or activity on property that is under control of the Department of Defense by ownership, permit, lease, license, or other land or facility-use agreement.

E2.9. IPM. Pursuant to section 136 of Reference (d), a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks.

E2.10. IPM Plan. A long-range, well-defined planning and operational document that describes the IPM program. Written pest management plans are required as a means of establishing and implementing IPM.

E2.11. Installation IPM Coordinator. A DoD employee or contractor officially designated by the installation commander to coordinate and oversee the installation IPM program.

E2.12. Invasive Species. A non-native species whose introduction does or is likely to cause economic harm or harm to human health.

E2.13. Monitoring. Thorough inspections or surveys conducted on a regular basis to determine the presence and abundance of pests or disease vectors.

E2.14. Nuisance Pests. Insects, other arthropods, and other organisms that do not cause economic damage or adversely affect human health but that cause annoyance.

E2.15. Personal Relief. Pest control efforts made by DoD personnel or their family members at their own expense for control of pests consistent with DoD and Military Service pest management policy.

E2.16. Pesticide. Any substance or mixture of substances, including biological control agents, that may prevent, destroy, repel, or mitigate pests and is specifically labeled for use by the EPA. Also, any substance or mixture of substances used as a plant regulator, defoliant, desiccant, disinfectant, or biocide. The AFPMB does not review or approve disinfectants or biocides.

E2.16.1. Certified Pesticide Applicator. Any individual who applies pesticides or, in the case of DoD employees, supervises the use of pesticides during apprenticeship training. A certified applicator has successfully completed an EPA-approved training program that includes written examinations in core and specific application categories. Certification may be by the Department of Defense, a State, or for OCONUS by the provisions of paragraph 2.5. of this Instruction.

E2.16.2. DoD-Certified Applicator. A DoD military or DoD civilian employee, certified in accordance with References (g) or (h), who applies pesticides on DoD installations and property.

E2.16.3. Contractor Applicator. A contract employee, certified by a State or host nation, who applies pesticides on DoD installations and property. The contractor shall be required to provide evidence of certification of applicators in all appropriate pest management categories for which the work is to be done at the time the contract is let.

E2.16.4. Uncertified DoD Applicator. A DoD employee who is not certified and can only apply pesticides under the direct supervision of a DoD-certified applicator during an apprenticeship period not exceeding 2 years.

E2.17. Pest Management. The prevention and control of disease vectors and pests that may adversely affect the DoD mission or military operations; the health and well-being of people; or structures, materiel, or property.

E2.18. Pest Management Consultant. A DoD employee pest management professional who provides technical and management guidance on using IPM to prevent and control pests and disease vectors. The AFPMB Director approves some pest management consultants as certifying officials of pesticide applicators.

E2.19. Pest Management Materiel. Equipment or pesticides used to monitor, prevent, or control pests and disease vectors. Equipment items include, but are not limited to, all pesticide dispersal equipment, traps, nets, and pest-attracting or pest-repelling devices.

E2.20. Pest Management Professional (PMP). A DoD military officer commissioned in the Medical Service or Biomedical Sciences Corps or DoD civilian employee with a college degree in biological, physical, or agricultural sciences whose current job includes pest management responsibilities. A DoD civilian employee must also meet Office of Personnel Management qualification standards. Based on assignment, some pest management professionals are pest management consultants.

E2.21. Pest Management Quality Assurance Evaluator (PMQAE) or Pest Management Performance Assessment Representative (PMPAR). A DoD employee trained in pest management at DoD sponsored courses, who protects the Government's interest through on-site performance evaluation of commercial pest management contracts or other contracts that involve the use of pesticides.

E2.22. Pests. Arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds, and other organisms (except for human or animal disease-causing organisms) that adversely affect readiness, military operations, or the well-being of personnel and animals; attack or damage real property, supplies, equipment, or vegetation; or are otherwise undesirable.

E2.23. Senior Pest Management Consultants. Pest management consultants who are the primary points of contact for their respective IPM programs, providing technical guidance, management oversight, and information requirements. The Military Services designate a senior pest management consultant in writing to the AFPMB Director for review and approval.

E2.24. State. Any one of the 50 United States of America; the District of Columbia; the Commonwealths of Puerto Rico, the Northern Marianas, the Virgin Islands; and the Territories of Guam and American Samoa.

E2.25. Surveillance. Thorough inspections or surveys made before or after pest management treatments to determine the presence and abundance of pests or disease vectors.

E2.26. Technical Guides. Guides (formerly called Technical Information Memoranda) prepared by the AFPMB on specific pest management and disease vector control topics. Technical Guides are available on the AFPMB web site, http://www.afpmb.org.

E2.27. Training. Formal or informal instruction in one or more subject areas of IPM and disease vector control to increase the expertise and measurable competence of pest management personnel in performance of specific IPM and disease vector control skills. Training methods include workshops, seminars, conferences, symposia, training courses, apprenticeships, interactive models, distance learning including satellite and video tele-training, correspondence courses, training support packages including video-based products, and other distributive learning products or materials.

E3. ENCLOSURE 3

DoD MEASURES OF MERIT FOR PEST MANAGEMENT

E3.1. MEASURE OF MERIT 1: IPM PLANNING

Through the end of Fiscal Year (FY) 2010, 100 percent of DoD installations will maintain IPM plans that are reviewed and approved by a DoD-certified pest management consultant and annually updated by the installation pest management coordinator.

E3.2. MEASURE OF MERIT 2: PESTICIDE USE REDUCTION

Through the end of FY 2010, the Department of Defense will maintain the reduction goal in annual pesticide use by both government and contractor pesticide applicators on DoD installations. This reduction goal is set at an average of the FY 2002 and 2003 usage, which is 389,000 pounds of active ingredient (45 percent of the original 1993 baseline – a 55 percent reduction).

E3.3. MEASURE OF MERIT 3: PESTICIDE APPLICATOR CERTIFICATION

Through the end of FY 2010, 100 percent of DoD pesticide applicators will be certified. Direct hire employees, certified in accordance with References (g) or (h), have a maximum of 2 years to become certified after initial employment. Contracted employees shall have appropriate State or host-nation certification in the appropriate categories at the time the contract is let.

E4. ENCLOSURE 4

DoD IPM PROGRAM ELEMENTS

E4.1. DoD IPM PROGRAMS. These programs shall include the following elements described in this enclosure:

E4.1.1. Integrated Pest Management Plans

E4.1.2. Installation Consultative Support, IPM Program Reviews, and Audits

E4.1.3. Training and Certification of Pest Management Personnel

E4.1.4. Pesticide Storage, Handling, and Disposal

E4.1.5. Contracting for Commercial Pest Management Services

E4.1.6. Specific Pest Management Operations

E4.1.7. Pest Management in Sensitive Areas

E4.1.8. Pest Management and Disease Vector Control in Military Contingency Operations

E4.1.9. Prohibited Pest Management Practices

E4.1.10. Reports and Records

E4.2. IPM PLANS. Each installation shall have an IPM plan as described in Enclosure 5. The plan shall list all program objectives according to potential or actual impact on mission and readiness. Upon approval by a DoD-certified pest management consultant, an installation's plan may be included within the scope of another installation or a larger command IPM plan. A pest management consultant shall review and technically approve these plans. IPM coordinators shall ensure compliance with plans.

E4.2.1. Military Departments' and DLA's Role. Major commands and headquarters shall ensure that installations have IPM plans and programs maintained by the appropriate pest management consultants through technical assistance, program review, and program oversight. Installation commanders or other appropriate government authorities shall:

E4.2.1.1. Plan and budget for the development and maintenance of the IPM plan.

E4.2.1.2. Direct qualified personnel to develop and update the IPM plan annually.

E4.2.1.3. Designate in writing an IPM coordinator to oversee the plan.

E4.2.1.4. Direct the IPM coordinator to formally coordinate, as appropriate, portions of the IPM plan as listed in Enclosure 5 and to sign the cover sheet of the IPM plan.

E4.2.1.5. Direct the natural resource program manager to review and cross-reference appropriate portions of the IPM plan for consistency with the goals and objectives of current and planned installation programs, plans, and projects (e.g., INRMP or ICRMP, Reference (ab)); training and test range management, master, endangered species recovery, bird airstrike hazard, golf course management, and grounds maintenance plans; facilities construction site approvals; and other plans, programs, and projects.

E4.2.1.6. Direct the IPM coordinator to forward the IPM plan to the designated pest management consultant for review and technical approval.

E4.2.1.7. Approve, sign, and implement the IPM plan.

E4.2.1.8. Ensure that all pest management operations performed on the installation, except those for personal relief, are recorded, and that all records are properly maintained and reported as defined by the designated pest management consultant.

E4.2.1.9 Ensure that the IPM plan is in compliance with the National Environmental Policy Act (NEPA) as verified by the installation site approval process or special NEPA review pursuant to parts 1500-1508 of title 40, Code of Federal Regulations (Reference (ac)).

E4.2.2. Content. IPM plans shall be well-defined, long-range, narrative documents, as outlined in Enclosure 5, and shall:

E4.2.2.1. As part of the annual IPM plan update, list pesticides for approval. Include EPA registration numbers, target pests, and sites that were approved by a certified pest management consultant for use in the IPM program.

E4.2.2.2. Prior to conducting operations, describe all health and safety measures, including posting and notification, that will be taken to protect both pest management personnel and others from pesticide exposure.

E4.2.2.3. Describe any pest management operation with special environmental considerations, such as those that may adversely affect water, endangered or other protected species or their habitats, or involve the aerial application of pesticides.

E4.2.2.4. Identify vector-borne disease threats and describe medical department collaboration with local and State agencies or host nations for vector surveillance and control.

E4.2.2.5. Include golf course pest management operations where applicable.

E4.3. INSTALLATION CONSULTATIVE SUPPORT, IPM PROGRAM REVIEWS, AND AUDITS

E4.3.1. Pest management professionals are available on request to provide technical assistance for the pesticide portion of environmental audits, to provide follow-up assistance to audits, or to further evaluate audit findings.

E4.3.2. Installations shall notify the appropriate pest management consultant whenever Federal, State, or local regulators ask to observe pest management operations. Pest management consultants shall ensure that such visits are consistent with Chapter 2, section E of Reference (g).

E4.4. TRAINING AND CERTIFICATION OF PEST MANAGEMENT PERSONNEL

E4.4.1. Personnel Qualifications. The IPM coordinator shall have the educational background, technical knowledge, and management skills to implement and oversee the pest management program. IPM coordinators shall be trained in accordance with Military Services implementing instructions.

E4.4.2. Training and Certification. All DoD personnel who apply or supervise the application of pesticides shall be trained and certified within 2 years of employment in accordance with References (g) or (h). DoD personnel who are undergoing apprenticeship training but are not yet certified shall apply pesticides only under the direct supervision of a DoD-certified pesticide applicator. Initial certification is valid for up to 3 years. This does not apply to applicators, who must all be certified at the time the contract is let.

E4.4.2.1. In accordance with References (g) or (h), DoD-certified pesticide applicators shall be recertified every 3 years. The recertification interval for State-certified contractor applicators varies from 1 to 5 years, depending on the State. References (g) and (h) permit DoD certifying officials to administratively extend the certifications of DoD civilian applicators for up to 6 months for cause. For military personnel, certification may be extended on a one-time basis only for a period of not more than 12 months.

E4.4.2.2. Contractor employees performing pest management work on a DoD installation shall be certified prior to the beginning of the contract under a State plan accepted in the State in which the work is performed. Additionally, the contractor shall provide evidence of training and experience equivalent to that determined by the Military Services as necessary to satisfy the performance requirements for the particular pest management function to be contracted. Successful bidders for contracts shall be afforded the opportunity to receive initial DoD pest management training on a space-available basis at the contractor's expense.

E4.4.2.3. PMQAEs or PMPARs shall monitor and evaluate contractor performance of pest management services. DoD employees certified in accordance with References (g) or (h) may be available to assist the PMQAE or PMPAR. Small installations requiring minor pest control contracts shall notify the designated pest management consultant prior to award. If an

installation's pest management contract efforts are less than 0.25 work-years, the presence of a trained PMQAE at the installation is recommended, but is not mandatory.

E4.4.2.4. The Military Services shall encourage all pest management professionals to obtain appropriate certification in accordance with References (g) or (h) . Pest management professionals shall be currently certified in the appropriate applicator categories if they:

E4.4.2.4.1. Work as pest management consultants and make recommendations for the use of pesticides or approve annual pesticide use proposals.

E4.4.2.4.2. Approve the aerial application of pesticides on DoD installations.

E4.4.2.4.3. Apply pesticides or directly supervise the application of pesticides.

E4.4.2.4.4. Conduct demonstrations on the proper use and techniques of pesticide application or supervise such demonstrations.

E4.4.2.4.5. Conduct field research that includes using or supervising the use of pesticides.

E4.4.2.5. DoD personnel and family members who apply pesticides under DoD installation self-help programs or for their own relief are exempted from the certification requirement. Requirements for operational and deployable military personnel are described in section E4.7 of this enclosure. DoD certification training requirements are exempted (waived) under the following circumstances:

E4.4.2.5.1. For use of pest control products distributed under installation self-help programs.

E4.4.2.5.2. For pesticides procured and used by residents at government quarters assigned to them.

E4.5. PESTICIDE STORAGE, HANDLING, AND DISPOSAL

E4.5.1. Pesticide Storage Facilities. The design of pesticide storage facilities shall comply with standards described in Reference (p). Existing facilities shall comply with all applicable regulatory standards and shall, where feasible, be modified to meet the minimum standards for new pesticide storage facilities.

E4.5.2. Pesticide Disposal. The IPM coordinator ensures that excess EPA-registered pesticides are either returned to the DLA Materials Return Program or transferred to the servicing Defense Reutilization and Marketing Office. The designated pest management consultants provide assistance in identifying installations where serviceable excess pesticides can be used. When the EPA publishes a proposed pesticide regulatory action involving pesticide label suspension or cancellation that affects the Department of Defense, the Military Services

and installations comply with administrative procedures developed between the DLA and AFPMB. The Military Services can use Reference (s) for guidance on pesticide disposal.

E4.5.3. Pesticide Safety. To ensure the safe use of pesticides, DoD personnel shall handle and apply pesticides in accordance with the product's label directions and the guidance in References (m), (n), (o), and (s), respectively. To prevent accidental contamination of ducts with termiticides, DoD policy prohibits new construction of buildings with heating, ventilation, and air conditioning (HVAC) ducts located in and below the floor. Similarly, DoD policy prohibits post-construction treatment of existing structures with in-slab HVAC ducts without a waiver from the appropriate pest management consultant.

E4.6. CONTRACTING FOR COMMERCIAL PEST MANAGEMENT SERVICES

E4.6.1. Background. The Department of Defense shall use pest management contracts when cost-effective or when advantageous for non-routine, large-scale, or emergency services, especially when specialized equipment or expertise is needed. Contractors shall comply with State regulatory requirements in the State where the work is performed. All contractor personnel who apply pesticides on DoD property shall be certified in that State. This requirement applies even if the State in which the DoD property is located permits uncertified personnel to work under the supervision of a certified person on non-DoD property in that State. Outside the United States, contractors shall comply with paragraph 2.6. of this Instruction.

E4.6.2. Review and Approval. Pest management consultants shall review and technically approve contract documents for pest management operations, including augmentation contracts, to ensure that appropriate pest management standards and IPM are specified. The Military Services shall encourage installations that lack expertise in pest management to request the services of a DoD pest management consultant to develop the technical portions of pest management contracts in accordance with Reference (y). Pest management consultants can act as technical consultants during the performance of contracted work.

E4.6.3. Credit Card Use. GPC and all other forms of procurement for contracts, pesticides, and pesticide equipment must first be reviewed and approved by the Military Services and DLA pest management consultants. Pesticide applications made as the result of GPC procurement shall be reported to the IPM coordinator for inclusion in the monthly pest control report and for documentation, if recurring, in the IPM plan.

E4.6.4. Quality Assurance for Pest Management Contracts

E4.6.4.1. The Military Services shall ensure that PMQAEs who inspect the performance of contractor-provided pest management services are DoD PMQAE-trained or hold DoD certification.

E4.6.4.2. Installation commanders shall base PMQAE staffing decisions on the following criteria:

E4.6.4.2.1. The number of pest management operations requiring 100 percent inspection.

E4.6.4.2.2. The number of different functions being performed simultaneously.

E4.6.4.2.3. The scope of the contract, including required productive work-years.

E4.6.4.2.4. The level of monitoring or surveillance required for each operation.

E4.7. SPECIFIC PEST MANAGEMENT OPERATIONS

E4.7.1. Aerial Application of Pesticides. Documentation for aerial application projects shall be in accordance with DoD and Military Service environmental requirements, including compliance with sections 4321 through 4370a of title 42, U.S.C. (Reference (ad)). The DoD Military Service shall ensure that a pest management consultant who is certified in the aerial application category validates and approves all proposed aerial applications. Approval shall be obtained before aerial application operations commence. Pest management consultants shall collaborate with the 910th Airlift Wing (910AW) during the review and approval process for aerial spray projects involving the 910AW. IPM coordinators should update project documentation, particularly the associated environmental assessment, if subsequent aerial application operations are planned.

E4.7.2. Disinsection of Military Aircraft. DoD personnel shall disinsect military aircraft for disease vectors and agricultural pests only when:

E4.7.2.1. Required by a foreign nation as a prerequisite to entry as specified in AR 40-12/Secretary of the Navy Instruction (SECNAVINST) 6210.2A/AFR 161-4 (Reference (ae)).

E4.7.2.2. Mandated by the U.S. Department of Health and Human Services or the U.S. Department of Agriculture.

E4.7.2.3. Directed by a command-level or higher authority who, consistent with Reference (ae), has determined that the point of embarkation has active vector-borne disease.

E4.7.2.4. No passengers are on board except when mandated by the DoD Foreign Clearance Guide (Reference (af)).

E4.7.3. Forest Pests. In accordance with the U.S. Department of Agriculture (USDA)/DoD Memorandum of Agreement (MOA) (Reference (ag)), the Military Services shall cooperate with the USDA Forest Service on applicable pest management programs. These include annual USDA funding for forest insect and disease suppression projects on DoD-controlled land.

E4.7.4. Medically Important Pests. The DoD Military Services shall ensure that responsibilities for surveillance and control of medically important pests, including insects and other arthropods, are clearly delineated in installation pest management plans and operational

plans. Specific guidance on the surveillance and control of tick disease vectors is found in Reference (u).

E4.7.5. Nuisance Pests. Installation pest management personnel shall not apply pesticides or perform other control procedures for nuisance pests unless such measures have been approved by the appropriate pest management consultant.

E4.7.6. Invasive Species Management. The Military Services shall comply with regulations, including Executive Order 13112 (Reference (ah)), requiring Federal agencies subject to the availability of appropriations to use relevant programs and authorities to:

E4.7.6.1. Prevent the introduction of invasive species.

E4.7.6.2. Detect and respond rapidly to and control populations of such species using IPM techniques.

E4.7.6.3. Monitor invasive species populations accurately and reliably.

E4.7.6.4. Restore native species and habitat conditions in ecosystems that have been invaded.

E4.7.6.5. Conduct research on invasive species, develop technologies to prevent introduction, and provide the latest IPM techniques for their control.

E4.7.6.6. Promote public education on invasive species.

E4.7.7. Pest Management in Military Quarters and Housing

E4.7.7.1. Background. Installation commanders shall ensure that residents of military quarters and housing practice good sanitation and correct minor nuisance pest problems. Quarters and housing occupants are responsible for controlling pests, such as cockroaches, household infesting ants, and mice not originating in other quarters. Housing occupants shall not be responsible for controlling medically important pests, including venomous arthropods, and structural pests that could damage property. All pest control measures used in housing privatization projects must comply only with State and local laws and regulations.

E4.7.7.2. Installation Role. Installation Commanders shall ensure that installation pest management services are provided in military housing only when the pest threatens Government property or the occupants' health, and the occupants have been unable to control the pests through self-help efforts. Exceptions shall only be made with the concurrence of the appropriate pest management consultant. All pest control measures used in housing privatization projects must comply only with State and local laws and regulations.

E4.7.7.3. Self-Help Program

E4.7.7.3.1. The Military Services shall establish installation self-help pest management for military housing when cost-effective, when IPM monitoring indicates the need for control, and when these facilities are not part of the housing privatization program. The senior pest management consultant may recommend that self-help pest management materials be issued to occupants, including cockroach and ant baits and/or traps, mouse traps, glue boards, and ready-to-use aerosol pesticides. The office designated to manage the installation's self-help program should coordinate procurement and storage of pest management materials with the installation pest management shop, hazardous material manager, and the DLA Supply Center.

E4.7.7.3.2. Installation commanders shall ensure that self-help personnel provide written instructions and appropriate precautions, beyond those on pesticide labels, to qualified military quarters, housing occupants, and building managers to ensure proper pesticide application and safety.

E4.7.7.3.3. If pesticides are issued to occupants, records must be maintained as described in subparagraph 5.4.20.7 of this Instruction. These records should enable installation self-help personnel to validate the occupants' attempts to control target pests before providing installation pest management services. Pest management consultants should review these records during annual reviews to evaluate the efficiency of the installation's self-help program.

E4.7.7.3.4. Pest management consultants may develop non-housing self-help programs by implementing Military Service instructions as documented in IPM plans. For example, programs may be developed for small, detached facilities or for shop personnel at large facilities where frequent wasp problems interfere with operations. Such programs must be documented in pest management plans and must feature ready-to-use, low toxicity pesticides selected by the pest management consultant, as well as training, proper storage, accountability for materials, and reporting.

E4.7.8. Pest Management at Closing Installations. Because pests may cause serious damage to unused facilities, the Military Services shall ensure that pest management consultants provide guidance as needed to protect all closing or closed facilities from pests from the beginning of deactivation until property disposal.

E4.7.9. Quarantinable Pests. Reference (af) contains quarantine policy oriented toward medical pests. Reference (ab) establishes policy and responsibilities for administrating the USDA Agriculture Pre-Clearance Program as part of the Defense Transportation Regulation (Reference (ai)).

E4.7.10. Stored Products Pests. The Military Services shall implement measures to minimize insect and vertebrate pest damage to subsistence, clothing and textiles, medical, and other infestible stored materiel according to References (l) and (v). Reference (l) provides guidance on fumigating subsistence stocks. Guidance for protecting meal, ready-to-eat rations is available from Military Service pest management consultants. DLA Regulation 4145.31 (Reference (aj)) provides pest management guidance on infestible stored products.

E4.7.11. Turf and Ornamental Pests. Installation commanders shall implement measures to prevent unacceptable damage to shade trees, ornamental plantings, and turf by insects, diseases, and weeds. The pest management plan shall identify recurring infestations. Installation commanders shall ensure the IPM plan describes the use of IPM for turf and ornamental pests as well as environmentally and economically beneficial land management practices, such as the use of native plants, to reduce pesticide use. For information regarding pest management on military golf courses consult the Green Book (Reference (ak)).

E4.7.12. Undesirable Plants. The Military Services shall develop programs to comply with section 10 of Reference (d) and the National Invasive Species Management Plan. The Military Services shall:

E4.7.12.1. Designate an office or person adequately trained in the management of undesirable plant species to develop and coordinate the Military Services' undesirable plant management program.

E4.7.12.2. Plan, program, and budget to achieve, maintain, and monitor compliance with section 10 of Reference (d).

E4.7.12.3. Ensure that installations complete and carry out cooperative agreements with State agencies regarding the management of undesirable plant species on installations.

E4.7.12.4. Establish integrated management systems to control or contain undesirable plant species targeted under cooperative agreements. Section 10 of Reference (d) does not require the Military Services to carry out programs on installations unless similar programs are being implemented on State or private lands in the vicinity of the installation.

E4.7.13. Vertebrate Pests. The Military Services shall manage vertebrate pests in accordance with the DoD-USDA/Animal and Plant Health Inspection Service/Animal Damage Control MOA (Reference (al)), and shall:

E4.7.13.1. Implement vertebrate pest management programs, including wildlife aircraft strike hazard reduction programs, to prevent vertebrate pest interference with operations, destruction of real property, and adverse impacts on health and morale.

E4.7.13.2. Cooperate with Federal, State, and local agencies that have implemented animal damage control programs on adjacent public and private lands.

E4.7.13.3. Identify the potential for secondary and non-target effects to other organisms and design programs to preclude or minimize the risks.

E4.7.13.4. Obtain all applicable Federal, State, and local permits.

E4.7.13.5. Use guidance in AR 40-905/SECNAVINST 6401.1A/AFR 48-131 (Reference (an)) for managing feral animal problems.

E4.7.14. Weed Control. Installation commanders shall ensure that weed control is performed according to section 1001 et seq. of title 16, U.S.C. (Reference (an)) on DoD installations. Herbicides will not be used in war except as provided for in Executive Order 11850 (Reference (ao)).

E4.7.15. Wood-Destroying Organisms. The Military Services shall ensure that:

E4.7.15.1. Pest management consultants review contract specifications for construction or repair of wooden structures and for termite control. The purpose is to protect wood where wood-destroying fungi and insects are present and to specify that termiticides, when needed, are applied at the highest EPA-labeled concentration and application rate. Soil treatment for termite prevention will be conducted during building construction in accordance with Unified Facilities Guide Specifications 31 31 16 (Reference (ap)).

E4.7.15.2. DoD-certified pesticide applicators or PMQAEs or PMPARs trained in pest control inspect applications of pesticides by contractors to control termites and other wood-destroying organisms.

E4.7.15.3. Trained personnel inspect wooden buildings and structures at frequencies recommended by the designated pest management professional. Installation commanders shall follow the inspection guidance provided in Reference (x).

E4.8. PEST MANAGEMENT IN SENSITIVE AREAS

E4.8.1. Pesticide Applications in the Range of Endangered Species. The Military Services and their facilities shall comply with section 1531 et seq. of Reference (an) (the Endangered Species Act (ESA)) and appropriate sections of Service regulations. This includes the requirement to consult or confer with Fish and Wildlife Service (FWS) or National Marine Fisheries Service (NMFS) on any activities that may affect species that are proposed for listing or listed as threatened or endangered (ESA Section 7(a)(2)). Examples of activities on a military facility that would require consultation with FWS or NMFS are development of installation pest management plans and the application of pesticides in listed species habitat. Label restrictions designed to protect listed species (e.g., regarding application of pesticides adjacent to aquatic habitats) shall be followed. PMPs will coordinate all activities that may affect listed species with the facilities' natural resource management professionals. Installation commanders shall ensure that their installation pest management plans identify areas within their installations that contain ETS, and that personnel using pesticides on the installation understand the potential impact that pesticide applications could have on ETS. OCONUS installations shall comply with paragraph 2.6 of this Instruction.

E4.8.2. Pests in Health Care Facilities. The Military Services shall ensure that pest management in health care facilities is conducted pursuant to Reference (r).

E4.8.3. Pest Management in Child Care and Food Service Facilities. The Military Services shall ensure that responsibilities for surveillance and control of rodents, insects, and other

arthropods in schools, child care, food service, and other sensitive areas are clearly delineated in installation pest management plans and operations.

E4.8.4. Cultural Resources. Installation commanders shall ensure that their installation pest management plans identify areas within their installations that are considered historic properties or cultural sites, and that personnel using pesticides on the installation understand the potential impact that pesticide applications could have on historic properties and cultural sites. DoD pest management plans shall be coordinated with the ICRMP on the limitation of pesticide usage.

E4.9. PEST MANAGEMENT AND DISEASE VECTOR CONTROL IN MILITARY CONTINGENCY OPERATIONS

E4.9.1. Military personnel and contractors responsible for pest management and disease vector control during military contingency operations, readiness training exercises, and deployments shall apply pesticides and conduct operations consistent with the policies and procedures in this Instruction and the guidance in Reference (t).

E4.9.2. The application of pesticides for pest management and disease vector control during military contingency operations, readiness training exercises, and deployments shall be under the overall direction of personnel certified in accordance with References (g) or (h). Individuals who apply pesticides in these situations shall be certified in accordance with References (g) or (h) or shall be under the direct or on-site supervision of individuals certified in accordance with References (g) or (h). Shipboard independent duty corpsmen and other military personnel who have received special training for limited site application of pre-selected pesticides during military operations or deployments are exempt from the certification requirement. However, these individuals shall be fully trained, including hands-on training for these specific applications. The Military Services shall develop specific site training programs for these individuals and a means to document training received. At a minimum, the training shall include the safe use and proper application of the limited, pre-selected pesticides for the specific site for which these individuals are trained in accordance with Reference (h).

E4.9.3. Contract specifications shall be in compliance with the policy in paragraph 2.5 of this Instruction.

E4.9.4. The Military Services shall ensure that pesticide use in these situations is recorded as stated in subparagraph 5.4.5 of this Instruction.

E4.10. PROHIBITED PEST MANAGEMENT PRACTICES

E4.10.1. Electrically Operated Devices. Electromagnetic exclusion or control devices, ultrasonic repellent or control devices, and outdoor devices for electrocuting flying insects are not approved for use on DoD installations. However, indoor devices for electrocuting flying insects can be used when selected, purchased, located, and used in accordance with Reference

(x). Pest surveillance traps and monitoring equipment, such as non-electrocuting mosquito light traps, are integral tools for IPM programs.

E4.10.2. Paints and Coatings Containing Pesticides and Other Biocides. Paints containing insecticides are not approved for use on DoD property. This guidance applies to interior and exterior pesticide-containing paints intended for application to structural surfaces, such as walls, ceilings, and siding. It also applies to insecticides formulated and labeled for use as paint additives. Paints containing fungicides as mildew inhibitors may be used when application directions specify no special restrictions due to the fungicide. Approved marine anti-fouling compounds or coatings may be applied to protect surfaces of watercraft.

E4.10.3. Preventive or Scheduled Pesticide Treatments. Regularly scheduled, periodic pesticide applications are not approved for DoD property except in situations where the IPM plan clearly documents that no other technology or approach is available to protect personnel or property of high value. Installations shall not use preventive pesticide treatments, to include automated misting devices, unless the appropriate pest management consultant has given approval based upon current surveillance information or records documenting past disease vector or pest problems that require this approach.

E4.11. REPORTS AND RECORDS

E4.11.1. The Military Services shall ensure that all DoD installations maintain complete daily records of pesticide applications, inspections, and non-chemical pest management operations using IPMIS or a computer-generated equivalent as stated in subparagraph 5.4.20.8 of this Instruction. These records shall account for all pest control operations and shall provide a historical record of pest management operations and pesticide applications for each building, structure, or outdoor site.

E4.11.1.1. Records shall include information on the kinds, amounts, uses, dates, and places of pesticide applications as well as applicators' names and certification numbers.

E4.11.1.2. The record shall include all in-house, housing, formally contracted, and Government purchase card-procured pesticide applications performed on the installation, including work done on golf courses, by non-appropriated fund activities, by contract services, and as part of outleases and land management and forestry programs, as well as work performed by installation pest management shops.

E4.11.2. DD Form 1532 , "Pest Management Report," or an equivalent computer product, shall be produced monthly using DD Form 1532-1, "Pest Management Maintenance Record," archived at the installation and distributed to the designated pest management consultant in accordance with Military Service procedures. DD 1532s may be downloaded at http://www.dtic.mil/whs/directives/infomgt/forms/forminfo/forminfopage2130.html.

E4.11.3. Pest management consultants shall use these data to evaluate the efficiency of the overall installation pest management program and pest management operations.

E4.11.4. Pesticides applied by installation personnel for their own relief are excluded from the record-keeping requirement.

E5. ENCLOSURE 5

CONTENT OF IPM PLANS, SUGGESTED FORMAT

E5.1. IPM PLAN ELEMENTS: GENERAL

IPM plans may include the following elements as appropriate for installation:

E5.1.1. Cover and Signature Pages

E5.1.1.1. Title

E5.1.1.2. Installation Name or Unit Identification Code

E5.1.1.3. Approval and Technical Review

E5.1.1.3.1. Signatures From:

E5.1.1.3.1.1. IPM Coordinator

E5.1.1.3.1.2. Installation Environmental Coordinator

E5.1.1.3.1.3. Installation Medical Officer

E5.1.1.3.1.4. Senior Installation Engineer

E5.1.1.3.1.5. Pest Management Consultant

E5.1.1.3.1.6. Supply Officer (if responsible for Government purchase card procurement of pest control services)

E5.1.1.3.1.7. Natural Resources Program Manager

E5.1.1.3.1.8. Cultural Resource Manager

E5.1.1.3.1.9. Installation Commander or Appropriate Government Authority

E5.1.1.3.2. Dates of Last Annual Review and Technical Approval

E5.1.2. Executive Summary

E5.1.3. Background

E5.1.3.1. Purpose

E5.1.3.2. Authority (include installation instruction, standard operating procedure, etc.), if applicable

E5.1.3.3. Plan Maintenance

E5.1.4. Responsibilities

E5.1.4.1. Commander's Representative

E5.1.4.2. IPM Coordinator

E5.1.4.3. Pest Management Personnel or Contractors

E5.1.5. Integrated Pest Management

E5.1.5.1. Legal Mandate

E5.1.5.2. IPM Operations

E5.1.6. Priority of Pest Management Work

E5.1.6.1. Public Health Pests

E5.1.6.2. Pests Found in and Around Buildings

E5.1.6.3. Structural Pests

E5.1.6.4. Noxious or Invasive Plants and Animals

E5.1.6.5. Undesirable Vegetation

E5.1.6.6. Golf Course Pests

E5.1.6.7. Quarantine and Regulated Pests

E5.1.6.8. Vertebrate Pests

E5.1.7. Health and Safety

E5.1.7.1. Medical Surveillance of Pest Management Personnel

E5.1.7.2. Hazard Communication

E5.1.7.3. Personnel Protective Equipment

E5.1.7.4. Fire Protection

E5.1.7.5. Pest Management Vehicle(s)

E5.1.7.6. Protection of the Public

E5.1.7.7. Pesticide Shop Health, Safety, and Hazard Surveys (including air sampling and ventilation systems)

E5.1.8. Environmental Considerations

E5.1.8.1. Sensitive Areas

E5.1.8.2. Endangered or Protected Species and Critical Habitats

E5.1.8.3. Cultural and Historical Sites

E5.1.8.4. Environmental Documentation

E5.1.8.5. Pesticide Spills and Remediation

E5.1.9. Program Administration

E5.1.9.1. Pest Management Operations

E5.1.9.2. Contracts or Quality Assurance

E5.1.9.3. Outleases (agricultural and housing)

E5.1.9.4. Interservice Support Agreements

E5.1.9.5. Reports and Records

E5.1.9.6. Training and Certification

E5.1.9.7. Pesticide Security

E5.1.9.8. Emergency Disease Vector Surveillance and Control

E5.1.9.9. Coordination (DoD, other Federal, State, and local)

E5.1.10. Sale and Distribution of Pesticides

E5.1.11. IPM References and Links

E5.1.12. Annexes

E5.1.12.1. IPM Outlines

E5.1.12.2. Annual Pesticide Use Proposal

E5.1.12.3. Points of Contact

E5.1.12.4. Certificates of Training or Competency

E5.2. IPM OUTLINE ELEMENTS

E5.2.1. Outline Number, Installation, and Date

E5.2.2. Target Pest or Disease Vector

E5.2.3. Site

E5.2.4. Surveillance

E5.2.4.1. Responsible organization

E5.2.4.2. Methods

E5.2.4.3. Frequency

E5.2.5. Non-chemical Techniques

E5.2.5.1. Responsible organization

E5.2.5.2. Type (biological, cultural, mechanical, etc.)

E5.2.5.3. Methods

E5.2.6. Chemical Techniques

E5.2.6.1. Responsible organization

E5.2.6.2. Basis for treatment

E5.2.6.3. Control standard

E5.2.6.4. EPA registration number(s) or refer to pesticide use proposal

E5.2.7. Remarks

E5.2.7.1. Sensitive areas

E5.2.7.2. Prohibited practices

E5.2.7.3. Environmental concerns

E5.2.8. Additional Comments (if necessary)

E6. ENCLOSURE 6

AFPMB FUNCTIONS, ORGANIZATION, AND MANAGEMENT

E6.1. FUNCTIONS

The AFPMB, under the authority, direction, and control of the ADUSD(ESOH), shall:

E6.1.1. Develop guidance and recommend policy to the Deputy Under Secretary of Defense for Installations and Environment (DUSD(I&E)) for the DoD IPM Program.

E6.1.2. Coordinate pest management activities throughout the Department of Defense.

E6.1.3. Develop, issue, and maintain manuals and other guidance necessary to implement the technical requirements of section 136 of Reference (d).

E6.1.4. Implement References (g) and (h) and develop comprehensive training guidance for DoD pest management personnel.

E6.1.5. Coordinate DoD contingency disease vector and pest management with the Chairman of the Joint Chiefs of Staff; the Combatant Commands, through the Chairman of the Joint Chiefs of Staff; and other contingency planning organizations.

E6.1.6. Serve as an advisory body to the Military Services and provide timely scientific and professional pest management advice.

E6.1.7. Develop and electronically distribute technical information and guidance on pest management to the Military Services by means of AFPMB Technical Guides, Disease Vector Ecology Profiles, and similar publications, available at www.afpmb.org.

E6.1.8. Review and approve introduction, stockage, and deletion of pest management materiel by the DLA in the DoD supply system. The AFPMB does not review or approve disinfectants or biocides.

E6.1.9. Operate the DPMIAC.

E6.1.10. Coordinate and develop requirements for pest management research, development, and testing in the Department of Defense.

E6.1.10.1. Provide technical coordination for the annual review of USDA pest management research of interest to the Department of Defense.

E6.1.10.2. Provide research requirements and recommendations to the Director of Defense Research Engineering, or his or her designee, and to other organizations performing pest management research, development, and testing for the Department of Defense.

E6.1.11. Establish committees that shall function in accordance with DoD Directive 5105.18 (Reference (aq)) to facilitate the performance of AFPMB functions.

E6.1.12. Support the Defense Environmental Security Council and the Environmental Safety and Occupational Health Policy Board in the area of pest management.

E6.1.13. Perform other functions as assigned.

E6.2. ORGANIZATION AND MANAGEMENT

The AFPMB, a joint DoD activity consisting of the Council and Committee structure, the Directorate, and the DPMIAC, shall be organized and managed as follows:

E6.2.1. The Council, a part-time approval, coordination, and advisory body of the AFPMB, shall be composed of 13 voting members appointed from the Military Services and DLA. The Army, Navy, and Air Force may each appoint up to four members. The DLA may appoint one member. Federal agencies may be invited by the Council to participate in Council meetings when matters of common interest are under consideration; however, invited participants may not vote.

E6.2.1.1. The Council shall elect from among its membership a Chair of the AFPMB and a Vice Chair who will serve in the absence of the Chair. They shall serve 2-year terms that may be extended once by reelection. The Chair shall preside over meetings of the Council and the Board; establish standing and ad hoc committees and task groups to assist the Council in performing its functions; and call at least two meetings annually to carry out the mission of the Board.

E6.2.1.2. The Council may develop procedural rules as necessary to accomplish its mission.

E6.2.2. The Directorate shall be the full-time administrative and operational body of the Board. It shall be composed of a Director; a Deputy Director; a Contingency Liaison Officer (CLO); a Research Liaison Officer (RLO); the Chief, Defense Pest Management Information Analysis Center; and any professional, technical, and clerical personnel necessary for its operation and administration.

E6.2.2.1. The Director shall be an active duty military medical entomology officer, preferably in the grade O-6, nominated by the respective Surgeon General of the Military Service, and appointed by the DUSD(I&E) for a period of 4 years. When practical, appointees shall rotate in the order of the Army, Navy, and Air Force. The Director shall supervise the Directorate, provide assistance to the Council as required, and perform other tasks the DUSD(I&E) may assign. The Director shall also serve as the Director of Defense Pest Management, Office of the DUSD(I&E).

E6.2.2.2. The Deputy Director shall be an active duty military medical entomology officer, in the minimum grade of O-5. Length of tour, nomination, and appointment procedures shall be the same as for the Director. The Deputy Director shall serve in the absence of the Director.

E6.2.2.3. The CLO shall be an appropriately trained active duty medical entomology officer, with a minimum grade of O-5 and extensive field and staff experience. Length of tour, nomination, and appointment procedures shall be the same as for the Director. The CLO shall serve as the principal contact between the AFPMB and the Chairman of the Joint Chiefs of Staff; the Combatant Commands, through the Chairman of the Joint Chiefs of Staff; and Military Service organizations lacking a staff medical entomologist. The CLO shall support the contingency, readiness, and deployment functions of the AFPMB. The CLO shall provide updated information on specific vector-borne disease threats in any country in the world in coordination with the DPMIAC, shall assist in the development of appropriate sections of operational plan medical annexes, and shall identify resources for surveillance and control of disease vectors for specific operations.

E6.2.2.4. The RLO shall be an active duty military medical entomology officer, with a minimum grade of O-5, with experience in both research and administration. The length of tour, nomination, and appointment procedures shall be the same as for the Director. The RLO shall coordinate the research and evaluation function of the AFPMB and shall serve as the principal contact between the AFPMB and other Federal agencies' pest management research offices.

E6.2.2.5. The DPMIAC shall be the center for collection and analysis of IPM scientific and technical information, including images pertaining to IPM and disease vectors. It shall, upon request, distribute this information to the Military Services, the Chairman of the Joint Chiefs of Staff, and Combatant Commands. It shall also assist committees, task groups, and the AFPMB Council; provide resource material; and develop pest management Technical Guides, bulletins, and other guidance for the Military Services, the Chairman of the Joint Chiefs of Staff, and Combatant Commands. Each of the Military Services shall provide one medical entomology field grade officer to the staff of the DPMIAC. The Army, Navy and Air Force's medical entomology consultants shall nominate personnel for approval by the Director.

E7. ENCLOSURE 7

PROCEDURES FOR THE ACQUISTION OF PEST MANAGEMENT MATERIEL (EQUIPMENT AND PESTICIDES)

E7.1. DoD installations may purchase pest management materiel from the Federal Supply System (FSS) or from local sources when local purchase is in the best interest of the Government pursuant to Subpart 208.7003-1 of the Defense Federal Acquisition Regulation Supplement (Reference (ar)).

E7.2. DoD pest management consultants approve the procurement and use of all pesticides on DoD installations. This is normally done during the annual review of the installation's IPM plan.

E7.2.1. The AFPMB reviews and approves the stockage or deletion of pest management materiel into the FSS by the DLA.

E7.2.2. The DLA submits cataloging actions only for pest management materiel that has been approved by the AFPMB. Unapproved materiel shall be referred to the AFPMB for consideration.

E7.2.3. The Services request approval of stocking of pest management materiel through command channels to the AFPMB. Once approved, the AFPMB forwards the request to the DLA for cataloging action. Proposals from the Services recommending revision or deletion of pest management materiel from the supply system are submitted to the AFPMB in the same manner.

E7.2.4. National Stock Numbers (NSNs) are only assigned to pest management materiel for DoD use that has been approved by the AFPMB.

E7.1.5. When approved by the certified pest management consultant concerned, pest management materiel may be procured locally if needed for an emergency, required due to unique local situations, or used in quantities so small that assignment of an NSN is not feasible. Installations shall make every effort to use pest management materiel in the DoD Supply System before requesting local purchase authority. In answer to AFPMB data calls, the Military Services shall provide the AFPMB with memorandums listing all locally procured pest management materiel they have approved. The listings shall include the amount purchased, the proposed use, and any other information needed by the AFPMB. The AFPMB shall monitor the appropriateness of locally procured pest management materiel for use in the Department of Defense. When justified, the AFPMB shall request that an NSN be assigned to pest management materiel.

E7.1.6. The AFPMB's decision to stock pest management materiel will use data from all available government and commercial sources. When additional testing and evaluation is

needed, the U.S. Navy Bureau of Medicine and Surgery will evaluate the efficacy, military applicability, and durability of commercially available equipment.

E7.1.7. During deployment operations, pesticides may be locally procured according to the following instructions:

E7.1.7.1. Only those pesticides listed in the DoD Contingency Pesticide List can be used during contingency operations except where an emergency exists, as determined by the task force commander. During emergency conditions, pesticides may be procured locally with the proper approval. The DoD Contingency Pesticide List is available at http://www.afpmb.org/pubs/standardlists/dod%20contingency%20pesticides%20list.pdf.

E7.1.7.2. Individuals designated as PMPs by the task force surgeon approve in writing any local procurement of EPA-registered pesticides.

E7.1.7.3. Obtain approval from the AFPMB, PMPs, and the task force surgeon for local procurement of any pesticides that are not EPA-registered, but that have active ingredients and formulations listed in the DoD Contingency Pesticide List.

E7.1.7.4. Requests for local procurement of pesticides that are not EPA-registered and have active ingredients or formulations that are not listed in the DoD Contingency Pesticide List are forwarded for approval to the AFPMB (CLO), Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307. Requests may also be made to http://www.afpmb.org/forums/sendmessage.php. Such requests should be forwarded by professional pest management personnel and the task force surgeon.

E7.1.7.5. Under no circumstances will pesticides be procured that contain active ingredients that are not registered by the EPA for use in the United States.

Presidential Documents

Executive Order 13112 of February 3, 1999

Invasive Species

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*), Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C. 4701 *et seq.*), Lacey Act, as amended (18 U.S.C. 42), Federal Plant Pest Act (7 U.S.C. 150aa *et seq.*), Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2801 *et seq.*), Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), and other pertinent statutes, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause, it is ordered as follows:

Section 1. *Definitions.*

(a) ''Alien species'' means, with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

(b) ''Control'' means, as appropriate, eradicating, suppressing, reducing, or managing invasive species populations, preventing spread of invasive species from areas where they are present, and taking steps such as restoration of native species and habitats to reduce the effects of invasive species and to prevent further invasions.

(c) ''Ecosystem'' means the complex of a community of organisms and its environment.

(d) ''Federal agency'' means an executive department or agency, but does not include independent establishments as defined by 5 U.S.C. 104.

(e) ''Introduction'' means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.

(f) ''Invasive species'' means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

(g) ''Native species'' means, with respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

(h) ''Species'' means a group of organisms all of which have a high degree of physical and genetic similarity, generally interbreed only among themselves, and show persistent differences from members of allied groups of organisms.

(i) ''Stakeholders'' means, but is not limited to, State, tribal, and local government agencies, academic institutions, the scientific community, non-governmental entities including environmental, agricultural, and conservation organizations, trade groups, commercial interests, and private landowners.

(j) ''United States'' means the 50 States, the District of Columbia, Puerto Rico, Guam, and all possessions, territories, and the territorial sea of the United States.

Sec. 2. *Federal Agency Duties*. (a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

(1) identify such actions;

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

Sec. 3. *Invasive Species Council*. (a) An Invasive Species Council (Council) is hereby established whose members shall include the Secretary of State, the Secretary of the Treasury, the Secretary of Defense, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Transportation, and the Administrator of the Environmental Protection Agency. The Council shall be Co-Chaired by the Secretary of the Interior, the Secretary of Agriculture, and the Secretary of Commerce. The Council may invite additional Federal agency representatives to be members, including representatives from subcabinet bureaus or offices with significant responsibilities concerning invasive species, and may prescribe special procedures for their participation. The Secretary of the Interior shall, with concurrence of the Co-Chairs, appoint an Executive Director of the Council and shall provide the staff and administrative support for the Council.

(b) The Secretary of the Interior shall establish an advisory committee under the Federal Advisory Committee Act, 5 U.S.C. App., to provide information and advice for consideration by the Council, and shall, after consultation with other members of the Council, appoint members of the advisory committee representing stakeholders. Among other things, the advisory committee shall recommend plans and actions at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Management Plan in section 5 of this order. The advisory committee shall act in cooperation with stakeholders and existing organizations addressing invasive species. The Department of the Interior shall provide the administrative and financial support for the advisory committee.

Sec. 4. *Duties of the Invasive Species Council*. The Invasive Species Council shall provide national leadership regarding invasive species, and shall:

(a) oversee the implementation of this order and see that the Federal agency activities concerning invasive species are coordinated, complementary, cost-efficient, and effective, relying to the extent feasible and appropriate on existing organizations addressing invasive species, such as the Aquatic Nuisance Species Task Force, the Federal Interagency Committee for the Management of Noxious and Exotic Weeds, and the Committee on Environment and Natural Resources;

(b) encourage planning and action at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Management Plan in section 5 of this order, in cooperation with stakeholders and existing organizations addressing invasive species;

(c) develop recommendations for international cooperation in addressing invasive species;

(d) develop, in consultation with the Council on Environmental Quality, guidance to Federal agencies pursuant to the National Environmental Policy Act on prevention and control of invasive species, including the procurement, use, and maintenance of native species as they affect invasive species;

(e) facilitate development of a coordinated network among Federal agencies to document, evaluate, and monitor impacts from invasive species on the economy, the environment, and human health;

(f) facilitate establishment of a coordinated, up-to-date information-sharing system that utilizes, to the greatest extent practicable, the Internet; this system shall facilitate access to and exchange of information concerning invasive species, including, but not limited to, information on distribution and abundance of invasive species; life histories of such species and invasive characteristics; economic, environmental, and human health impacts; management techniques, and laws and programs for management, research, and public education; and

(g) prepare and issue a national Invasive Species Management Plan as set forth in section 5 of this order.

Sec. 5. *Invasive Species Management Plan*. (a) Within 18 months after issuance of this order, the Council shall prepare and issue the first edition of a National Invasive Species Management Plan (Management Plan), which shall detail and recommend performance-oriented goals and objectives and specific measures of success for Federal agency efforts concerning invasive species. The Management Plan shall recommend specific objectives and measures for carrying out each of the Federal agency duties established in section 2(a) of this order and shall set forth steps to be taken by the Council to carry out the duties assigned to it under section 4 of this order. The Management Plan shall be developed through a public process and in consultation with Federal agencies and stakeholders.

(b) The first edition of the Management Plan shall include a review of existing and prospective approaches and authorities for preventing the introduction and spread of invasive species, including those for identifying pathways by which invasive species are introduced and for minimizing the risk of introductions via those pathways, and shall identify research needs and recommend measures to minimize the risk that introductions will occur. Such recommended measures shall provide for a science-based process to evaluate risks associated with introduction and spread of invasive species and a coordinated and systematic risk-based process to identify, monitor, and interdict pathways that may be involved in the introduction of invasive species. If recommended measures are not authorized by current law, the Council shall develop and recommend to the President through its Co-Chairs legislative proposals for necessary changes in authority.

(c) The Council shall update the Management Plan biennially and shall concurrently evaluate and report on success in achieving the goals and objectives set forth in the Management Plan. The Management Plan shall identify the personnel, other resources, and additional levels of coordination needed to achieve the Management Plan's identified goals and objectives, and the Council shall provide each edition of the Management Plan and each report on it to the Office of Management and Budget. Within 18 months after measures have been recommended by the Council in any edition of the Management Plan, each Federal agency whose action is required to implement such measures shall either take the action recommended or shall provide the Council with an explanation of why the action is not feasible. The Council shall assess the effectiveness of this order no

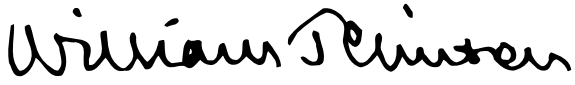
less than once each 5 years after the order is issued and shall report to the Office of Management and Budget on whether the order should be revised.

Sec. 6. *Judicial Review and Administration.* (a) This order is intended only to improve the internal management of the executive branch and is not intended to create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any other person.

(b) Executive Order 11987 of May 24, 1977, is hereby revoked.

(c) The requirements of this order do not affect the obligations of Federal agencies under 16 U.S.C. 4713 with respect to ballast water programs.

(d) The requirements of section 2(a)(3) of this order shall not apply to any action of the Department of State or Department of Defense if the Secretary of State or the Secretary of Defense finds that exemption from such requirements is necessary for foreign policy or national security reasons.



THE WHITE HOUSE,
February 3, 1999.

[FR Doc. 99–3184
Filed 2–5–99; 8:45 am]
Billing code 3195–01–P

APPENDIX B: MATRICES

Master List of Invasive Species for Blossom Point Research Facility

Scientific Name	Common Name
Acer platanoides	Norway Maple
Ailanthus altissima	Tree of Heaven
Alliaria petiolata	Garlic Mustard
Allium vineale	Wild Garlic
Ampelopsis brevipedunculata	Porcelain Berry
Artemisia vulgaris	Mugwort
Berberis thunbergii	Japanese Barberry
Carduus acanthoides	Plumeless Thistle
Carduus nutans	Musk Thistle
Caulerpa taxifolia	Marine Macroalgae
Celastrus orbiculatus	Oriental Bittersweet
Centaurea maculosa	Spotted Knapweed
Cirsium arvense	Canada Thistle
Cirsium vulgare	Bull Thistle
Eichhornia crassipes	Water Hyacinth
Elaeagnus umbellata	Autumn Olive
Elodea densa	Brazilian Elodea
Hedera helix	English Ivy
Hemerocallis fulva	Daylily
Heracleum mantegazzianum	Giant Hogweed
Humulus japonicus	Japanese Hops
Hydrilla verticillata	Hydrilla
Lonicera japonica	Japanese Honeysuckle
Lonicera maackii	Amur Honeysuckle
Lonicera morrowi	Morrow's Honeysuckle
Lonicera tatarica	Tartarian Honeysuckle
Lythrum salicaria	Purple Loosestrife
Microstegium vimineum	Nepalese Browntop
Miscanthus sinensis	Eulalia
Myriophyllum brasiliense	Parrot Feather
Myriophyllum spicatum	Eurasian Milfoil
Paulownia tomentosa	Princess Tree
Perilla frutescens	Perilla
Phragmites australis	Common Reed
Polygonum cuspidatum	Japanese Knotweed
Polygonum perfoliatum	Mile-a-minute
Potamogeton crispus	Curly Leaved Pondweed
Pueraria montana var.lobata	Kudzu
Pyrus calleryana	Bradford Pear
Ranunculus ficaria	Lesser Celandine
Rosa multiflora	Multiflora Rose
Rubus phoenicolasius	Wineberry
Salvinia molesta	Giant Salvinia
Sorghum bicolor	Shattercane
Sorghum halepense	Johnsongrass
Trapa natans	Water Chestnut

Scientific Name	Common Name	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Ailanthus altissima	Tree of heaven			L							L		L		L	
Alliaria officinalis	Garlic mustard			L	L							L	L			
Allium vineale	Wild garlic	L		L			L					L			L	
Berberis thunbergii	Japanese barberry															
Cirsium vulgare	Bull thistle	L										L				L
Elaeagnus umbellata	Autumn olive	L		L	L		L		L			L				L
Hedera helix	English ivy															
Lonicera japonica	Japanese honeysuckle	L		L	L	L	L		L	L	L	L		L	L-H	L
Microstegium vimineum	Nepalese browntop	L	M	M	M	H	M	L	L-H	L		M	M-H	H	H	
Paulownia tomentosa	Princess tree		L		L											
Phragmites australis	Common reed	L	L		H			L-M	L-H	H	M-H	H	H	H		
Rosa multiflora	Multiflora rose						L					L				L
Rubus phoenicolasius	Wineberry	L	L	L	L-H	L	L	L	L	L	L	L	H		L	
Sorghum halepense	Johnson grass															L
# of Species per Site		7	4	7	7	3	6	3	5	4	4	9	5	3	5	5
Acreage per Site		0.50	0.27	2.90	2.15	0.16	0.55	0.25	1.90	0.71	0.80	2.86	7.02	2.84	2.41	0.95
Overall Density Coverage per Site		Species identified in low densities along edge of road & shoreline, high density pockets of Japanese honeysuckle found throughout	Species identified in low densities throughout entire area with some species along shoreline, moderate density of Nepalese browntop in interior of area	Species identified in low densities along edge of road & shoreline, moderate density of Nepalese browntop in interior of area	Species indentified in low densities throughout entire area, moderate density of Nepalese browntop in northern & interior portions, high densities of wineberry in the middle & southern & common reed found along northern shoreline	Species identified in low densities throughout entire area, high density of Nepalese browntop along Huntley Road	Species identified in low densities throughout entire area with multiflora rose along shoreline, moderate density of Nepalese browntop in northern portion of area	Species identified in low densities throughout entire area with common reed along southern shoreline, also moderate density of common reed across northern portion of area	Species identified in low densities throughout entire area with concentrations in the northern & middle portions, high densities of common reed & Nepalese browntop in southern portion of area	Species identified in low densities throughout entire area, high density of common reed along northern shoreline	Species identified in low densities throughout entire area & along shoreline, moderate to high densities of common reed along shoreline & in southern portion of area	Species identified in low densities throughout entire area, moderate density of Nepalese browntop in southeastern portion of area, high density of common reed in southeastern portion of area	Low densities of tree of heaven & garlic mustard in eastern & northeastern portions of area, moderate density of Nepalese browntop in eastern portion & high density in northeastern portion, high density of common reed in eastern portion	Low density of Japanese honeysuckle throughout uplands of area, high densities of common reed & Nepalese browntop in wetlands & uplands	Species identified in low densities throughout entire area, moderate density of Japanese honeysuckle in southern portion, high densities of Japanese honeysuckle & Nepalese browntop in southwestern & eastern uplands	Species identified in low densities throughout entire area

Density: L = Low or Light, M = Moderate or scattered, H = High

Species Density: L = 1, L-M = 1.5, M or L-H = 2, M-H = 2.5, H = 3

Scientific Name	Common Name	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE
Ailanthus altissima	Tree of heaven																
Alliaria officinalis	Garlic mustard		L														
Allium vineale	Wild garlic	L	L														L
Berberis thunbergii	Japanese barberry																
Cirsium vulgare	Bull thistle	L	L														
Elaeagnus umbellata	Autumn olive		L														
Hedera helix	English ivy	H															
Lonicera japonica	Japanese honeysuckle	L-M	H	L	L	L	L									L	L
Microstegium vimineum	Nepalese browntop		H	L-M	M-H	H	H	M	M	L	M	L-H	M-H	H	L-M	L-M	M-H
Paulownia tomentosa	Princess tree													L			
Phragmites australis	Common reed	H	L-H														
Rosa multiflora	Multiflora rose	L	L														
Rubus phoenicolasius	Wineberry	L	L-H		L	L						L	L	L			L
Sorghum halepense	Johnson grass	M															
# of Species per Site		8	9	2	3	3	2	1	1	1	1	2	2	3	1	2	4
Acreage per Site		0.98	6.80	3.51	0.70	0.70	5.19	0.26	0.13	0.89	9.87	1.80	2.43	0.22	1.00	0.36	14.17
Overall Density Coverage per Site		Species identified in low densities throughout entire area, moderate density of Johnson grass in northwestern portion of area, high densities of common reed & English ivy in wetland area & northeastern portion	Species identified in low densities throughout entire area, high densities of common reed, Japanese honeysuckle & Nepalese browntop in wetlands, southern portion & northeastern portion	Low density of Nepalese browntop in western portion with patches of moderate density throughout area, low density of Japanese honeysuckle throughout floodplain	Low densities of Japanese honeysuckle & wineberry along road, moderate to high density patches of Nepalese browntop throughout road	Species identified in low to high densities along old road	Low density of Japanese honeysuckle identified throughout entire area, high density patches of Nepalese browntop identified throughout entire area	Moderate density of Nepalese browntop identified throughout entire area	Moderate density of Nepalese browntop identified throughout entire area	Low density of Nepalese browntop identified throughout entire area	Moderate density of Nepalese browntop identified throughout entire area	Low density with patches of high density of Nepalese browntop identified throughout entire area, low density of wineberry in northeast portion of area	Low density of wineberry identified throughout entire area, moderate density with patches of high density of Nepalese browntop identified throughout entire area	Low densities of wineberry & princess tree identified in center of area, high density of Nepalese browntop identified throughout entire area	Low density of Nepalese browntop identified throughout entire area with patches of moderate density	Species identified in low densities throughout entire area with patches of moderate density of Nepalese browntop	Species identified in low densities throughout entire area, moderate density of Nepalese browntop with patches of high density identified throughout entire area

Density: L = Low or Light, M = Moderate or scattered, H = High

Species Density: L = 1, L-M = 1.5, M or L-H = 2, M-H = 2.5, H = 3

Scientific Name	Common Name	FF	GG	HH	II	JJ	KK	LL	MM	NN	OO	Total # of Species Occurrences on BPRF	Total Density per Species on BPRF
Ailanthus altissima	Tree of heaven	M			L			L	L	L		9	10
Alliaria officinalis	Garlic mustard				L							6	6
Allium vineale	Wild garlic		L					L				10	10
Berberis thunbergii	Japanese barberry	L										1	1
Cirsium vulgare	Bull thistle							L				6	6
Elaeagnus umbellata	Autumn olive											8	8
Hedera helix	English ivy											1	3
Lonicera japonica	Japanese honeysuckle	L	L	L	L	L	L	L	L	M	L	30	34.5
Microstegium vimineum	Nepalese browntop	L-M		H	H	M	M	M	M	L-H	M	37	79
Paulownia tomentosa	Princess tree				L							4	4
Phragmites australis	Common reed	H	M-H									14	33.5
Rosa multiflora	Multiflora rose	L	L		H			L				9	11
Rubus phoenicolasius	Wineberry	L-H	L		M	L	L	M-H		M		28	36.5
Sorghum halepense	Johnson grass											2	3
# of Species per Site		7	5	2	7	3	3	7	3	4	2		
Acreage per Site		10.76	12.50	4.71	27.93	1.25	8.50	5.60	0.28	2.17	0.70		
Overall Density Coverage per Site		Species identified in low densities throughout entire area, moderate density of tree of heaven in western portion of area, high density of common reed in tidal wetlands	Species identified in low densities throughout entire area with concentrations in southern & southwestern portions, high density of common reed in southeastern portion of area	Low density of Japanese honeysuckle identified throughout entire area, high density of Nepalese browntop identified in southwestern portion of area	Species identified in low densities throughout entire area, moderate density of wineberry throughout entire area, high densities of Nepalese browntop & multiflora rose throught entire area with concentrations in southern portion	Species identified in low densities throughout entire area, moderate density of Nepalese browntop adjacent to border of wetland	Species identified in low to moderate densities throughout entire area	Species identified in low densities throughout entire area, moderate to high densities of Nepalese browntop & wineberry throughout entire area with concentrations in northern portion	Species identified in low to moderate densities throughout entire area	Species identified in low to moderate densities throughout entire area, high density patches of Nepalese browntop identified throughout entire area	Species identified in low to moderate densities throughout entire area		

Density: L = Low or Light, M = Moderate or scattered, H = High

Species Density: L = 1, L-M = 1.5, M or L-H = 2, M-H = 2.5, H = 3

APPENDIX C: DATASHEETS

Date:	04/30/12	Site:	Blossom Point A	Time:	9:35 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Elaeagnus umbellata	Low density along edge of road					Herbicide - Triclopyr, Glyphosate Mechanical - Weed Wrench, Hand Pull
Lonicera japonica	Low throught out with pockets of high density					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoenicolasius	Low density along edge of road					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Allium vineale	Low density along edge of road					Herbicide - 2,4-D, Dicamba
Phragmites australis	Low density along shoreline					Herbicide - Glyphosate Prescribed Burn
Microstegium vimineum	Low density throughout					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Cirsium vulgare	Low density along edge of road					Mechanical - Weedeat, Destroy Roots with Shovel

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	04/30/12	Site:	Blossom Point B	Time:	10:00 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Rubus phoeniculasius	Low density throughout the entire area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Microstegium vimineum	Medium density in the interior of the of the area		679			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Phragmites australis	Low density along the edge of the shore					Herbicide - Glyphosate Prescribed Burn
Paulownia tomentosa	Low density along the shoreline					Mechanical - Weed Wrench, Cut and Apply Herbicides

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	04/30/12	Site:	Blossom Point C	Time:	10:30 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Elaeagnus umbellata	Low density along the road and shore					Herbicide - Triclopyr, Glyphosate Mechanical - Weed Wrench, Hand Pull
Microstegium vimineum	Medium density in the interior of the area					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density along the road					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoencolasius	Low density in the interior and along the shoreline					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Allium vineale	Low density along the tree stand 37 road					Herbicide - 2,4-D, Dicamba
Alliaria officinalis	Low densith along the road					Mechanical - Handpull prior to maturation of seeds over several seasons, Regularly mow through growing season, Cover in mulch or woodchips Herbicide - 2,4-D, Glyphosate
Ailanthus altissima	Low density in the southern portion of the area					Herbicide - Triclopyr, Glyphosate, Imazapyr Mechanical - Cut and Apply Herbicides, Weed Wrench

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	04/30/12	Site:	Blossom Point D	Time:	11:00 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density in the northern portion and in interior portion of the area					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Rubus phoenicolasius	Low density in the northern portion of the site and high density in the middle and southern portions of the site		693			Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Lonicera japonica	Low density throughout the site					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Paulownia tomentosa	Low density in the southeast portion of the site					Mechanical - Weed Wrench, Cut and Apply Herbicides
Phragmites australis	High density along the shore of the northern portion of the area		686, 687			Herbicide - Glyphosate Prescribed Burn
Alliaria officinalis	Low density in the middle and eastern portions of the site					Mechanical - Handpull prior to maturation of seeds over several seasons, Regularly mow through growing season, Cover in mulch or woodchips Herbicide - 2,4-D, Glyphosate
Elaeagnus umbellata	Low density in the southeast portion of the site					Herbicide - Triclopyr, Glyphosate Mechanical - Weed Wrench, Hand Pull

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	4/30/12	Site:	Blossom Point E	Time:	11:55 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoenicolasius	Low density throughout the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Microstegium vimineum	High density along Huntley Road in the northern portion of the site		694			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	04/30/12	Site:	Blossom Point F	Time:	1:05 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Microstegium vimineum	Medium density in the northern portion of the site					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Rubus phoenicolasius	Low density throughout the area		695			Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Elaeagnus umbellata	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Mechanical - Weed Wrench, Hand Pull
Allium vineale	Low density throughout the area					Herbicide - 2,4-D, Dicamba
Rosa multiflora	Low density along the shoreline					Herbicide - Triclopyr, Glyphosate, Dicamba Mechanical - Weed Wrench, Repeated Cutting

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	04/30/12	Site:	Blossom Point G	Time:	1:30 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Low density throughout the site					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Phragmites australis	Medium density across the northern portion of the site and low density along the shore in the southern portion of the site					Herbicide - Glyphosate Prescribed Burn
Rubus phoenicolasius	Low density throughout the site					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	04/30/12	Site:	Blossom Point H	Time:	1:42 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Phragmites australis	Low density in the northern portion of the area and high density in the southern portion of the site					Herbicide - Glyphosate Prescribed Burn
Lonicera japonica	Low density throughout the site					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoenicolasius	Low density in the northern portion of the site only					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Elaeagnus umbellata	Low density in the middle portion of the site					Herbicide - Triclopyr, Glyphosate Mechanical - Weed Wrench, Hand Pull
Microstegium vimineum	Low density throughout the site and high density in the southern tip of the site					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	04/30/12	Site:	Blossom Point I	Time:	2:03 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Phragmites australis	High density along the shore in the northern portion of the area					Herbicide - Glyphosate Prescribed Burn
Loniera japonica	Low density throughout the site					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Microstegium vimineum	Low density throughout the site					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Rubus phoenicolasius	Low density throughout the site					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	04/30/12	Site:	Blossom Point J	Time:	2:12 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Rubus phoenicolasius	Low density throughout the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Phragmites australis	Medium density along the shore and high density in the southern portion of the area					Herbicide - Glyphosate Prescribed Burn
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Ailanthus altissima	Low density along the shore					Herbicide - Triclopyr, Glyphosate, Imazapyr Mechanical - Weed Wrench, Hand Pull

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	04/30/12	Site:	Blossom Point K	Time:	2:22 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Cirsium vulgare	Low density in the northeastern corner of the area					Mechanical - Weedeat, Destroy Roots with Shovel
Allium vineale	Low density throughout the area					Herbicide - 2,4-D, Dicamba
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoenicolasius	Low density in the northern portion of the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Rosa multiflora	Low density in the northern and western portions of the area					Herbicide - Triclopyr, Glyphosate, Dicamba Mechanical - Weed Wrench, Repeated Cutting
Microstegium vimineum	Medium density in the southeastern portion of the site					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Elaeagnus umbellata	Low density in the southeastern portion of the site					Herbicide - Triclopyr, Glyphosate Mechanical - Weed Wrench, Hand Pull
Phragmites australis	High density in the southeastern portion of the site					Herbicide - Glyphosate Prescribed Burn
Alliaria officinalis	Low density in the southeastern portion of the site					Mechanical - Handpull prior to maturation of seeds over several seasons, Regularly mow through growing season, Cover in mulch or woodchips Herbicide - 2,4-D, Glyphosate

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	04/30/12	Site:	Blossom Point L	Time:	9:35 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Rubus phoenicolasius	High density in the eastern portion of the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Microstegium vimineum	Medium density in the eastern portion of the area and high density in the northeast portion of the area					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Alliaria officinalis	Low density in the eastern portion of the area					Mechanical - Handpull prior to maturation of seeds over several seasons, Regularly mow through growing season, Cover in mulch or woodchips Herbicide - 2,4-D, Glyphosate
Phragmites australis	High density in the eastern portion of the area		706			Herbicide - Glyphosate Prescribed Burn
Ailanthus altissima	Low density in the northeastern portion of the area		705			Herbicide - Triclopyr, Glyphosate, Imazapyr Mechanical - Weed Wrench, Hand Pull

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point M	Time:	7:00 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Lonicera japonica	Low density throughout the uplands of the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Phragmites australis	High density in wetland areas					Herbicide - Glyphosate Prescribed Burn
Microstegium vimineum	High density in the uplands in the eastern and northern portions of this area		711			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeate

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point N	Time:	7:30AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Lonicera japonica	Low density in the northern and eastern portion of the area, high density in the southwestern end of the site, and medium density in the southern end of the site					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoenicolasius	Low density throughout the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Microstegium vimineum	High density in the uplands in the eastern portions of the area					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Ailanthus altissima	Low density on banks on the banks in the southwest portion of the area					Herbicide - Triclopyr, Glyphosate, Imazapyr Mechanical - Cut and Apply Herbicides, Weed Wrench
Allium vineale	Low density in the southwest portion of the area					Herbicide - 2,4-D, Dicamba

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point O	Time:	8:11 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Lonicera japonica	Low density in the southern portion of the area and southwestern portion of the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Elaeagnus umbellata	Low density in the southern portion of the area					Herbicide - Triclopyr, Glyphosate Mechanical - Weed Wrench, Hand Pull
Rosa multiflora	Low density throughout the area					Herbicide - Triclopyr, Glyphosate, Dicamba Mechanical - Weed Wrench, Repeated Cut
Cirsium vulgare	Low density throughout the area					Mechanical - Weedeat, Destroy Roots with Shovel
Sorghum halepense	Low density in the swale in the northern portion of the area					Mechanical - Hand Pull and Remove Remaining Roots with Shovel Herbicide - Glyphosphate Repeated Application

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point P	Time:	8:32 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Cirsium vulgare	Low density throughout the area					Mechanical - Weedeat, Destroy Roots with Shovel
Lonicera japonica	Low density with patches of medium density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Phragmites australis	High density in the wetland of the area					Herbicide - Glyphosate Prescribed Burn
Rosa multiflora	Low density in the northeastern portion of the site					Herbicide - Triclopyr, Glyphosate, Dicamba Mechanical - Weed Wrench, Repeated Cutting
Hedera helix	High density in the northeastern portion of the site					Herbicide - Triclopyr, Glyphosate, Riclopyr ester, Clopyralid Mechanical - Hand Pull and Repeat
Rubus phoenicolasius	Low density throughout the uplands of the site					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Allium vineale	Low density in the southern portion of the area					Herbicide - 2,4-D, Dicamba
Sorghum halepense	Medium density in the northwestern portion of the area					Mechanical - Hand Pull and Remove Remaining Roots with Shovel Herbicide - Glyphosphate Repeated Application

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point Q	Time:	9:17AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Phragmites australis	High density in wetland and low density in the western portion of the area		721			Herbicide - Glyphosate Prescribed Burn
Rubus phoenicolasius	Low density throughout the area with high densities in the northern portion and the eastern edge of the area		726			Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Lonicera japonica	High density in the souther portion of the area		722			Herbicide - Triclopyr, Glyphosate Prescribed Burn Mechanical - Hand Pull
Allium vineale	Low density in the southern and northeastern portion of the area					Herbicide - 2,4-D, Dicamba
Cirsium vulgare	Low density in the southern portion of the area					Mechanical - Weedeat, Destroy Roots with Shovel
Elaeagnus umbellata	Low density in the eastern portion of the area					Herbicide - Triclopyr, Glyphosate Mechanical - Weed Wrench, Hand Pull
Alliaria officinalis	Low density throughout the area		723-724			Mechanical - Handpull prior to maturation of seeds over several seasons, Regularly mow through growing season, Cover in mulch or woodchips
Microstegium vimineum	Patches of high density in the northeastern portion of the site		725			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Rosa multiflora	Low density in the northern portion of the site					Herbicide - Triclopyr, Glyphosate, Dicamba Mechanical - Weed Wrench, Repeated Cutting

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point R	Time:	10:17 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Low density in the western portion of the area with patches of medium density					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout the floodplain					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point S	Time:	10:40 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Lonicera japonica	Low density along road					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Microstegium vimineum	Medium to high density patches throughout the road					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Rubus phoenicolasius	Low density along road					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point T	Time:	11:35 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Micronstegium vimineum	High density along old road					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density along old road					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoeniculasius	Low density along old road					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point U	Time:	1:30 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Patches of high density throughout the area		736, 737			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point V	Time:	1:30 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density throughout area					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point W	Time:	2:45 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density throughout area		745			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/02/12	Site:	Blossom Point X	Time:	8:31 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Low density throughout the area		747, 748			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/02/12	Site:	Blossom Point Y	Time:	9:45 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density throughout area		758			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/01/12	Site:	Blossom Point Z	Time:	9:55 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Low density with patches of high density throughout		759			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Rubus phoenicolasius	Low density in the northeast portion of the site					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/02/12	Site:	Blossom Point AA	Time:	11:10 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density with patches of high density					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Rubus phoenicolasius	Low density throughout area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/02/12	Site:	Blossom Point BB	Time:	1:30 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	High density throughout area		769			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Rubus phoenicolasius	Low density in the center of the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Paulownia tomentosa	Low density in the center of the area					Mechanical - Weed Wrench, Cut and Apply Herbicides

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/02/12	Site:	Blossom Point CC	Time:	2:00 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Low density throughout with patches of medium					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/02/12	Site:	Blossom Point DD	Time:	2:30 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Low density throughout with patches of medium.		770			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout the area.					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/02/12	Site:	Blossom Point EE	Time:	2:45 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density throughout with patches of high density					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout area		772			Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Allium vineale	Low density in southern part of area		773			Herbicide - 2,4-D, Dicamba
Rubus phoenicolasius	Low density throughout area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/03/12	Site:	Blossom Point FF	Time:	8:30

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Low density throughout with patches of medium density					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoenicolasius	Low density throughout with patches of high density in the uplands in the western portion of the site					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Berberis thunbergii	Low density in the eastern portion of the area		774-775			Mechanical - Weed Wrench Herbicide - Triclopyr, Glyphosate
Phragmites australis	High density in the tidal wetlands		778			Herbicide - Glyphosate Prescribed Burn
Ailanthus altissima	Medium density in the western portion of the area					Herbicide - Triclopyr, Glyphosate, Imazapyr Mechanical - Cut and Apply Herbicides, Weed Wrench
Rosa multiflora	Low density in the western portion of the area					Herbicide - Triclopyr, Glyphosate, Dicamba Mechanical - Weed Wrench, Repeated Cutting

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/03/12	Site:	Blossom Point GG	Time:	10:07 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Phragmites australis	High density in the southeastern portion, medium density in the south and southwestern portion of the area		784			Herbicide - Glyphosate Prescribed Burn
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Allium vineale	Low density in the southern portion of the area					Herbicide - 2,4-D, Dicamba
Rosa multiflora	Low density in the southwestern portion of the area					Herbicide - Triclopyr, Glyphosate, Dicamba Mechanical - Weed Wrench, Repeated Cutting
Rubus phoenicolasius	Low density in the southwestern portion of the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/03/12	Site:	Blossom Point HH	Time:	11:09 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	High density in the southwestern portion of the area					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/03/12	Site:	Blossom Point II	Time:	12:51 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	High density throughout the area		788			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density along the edge of the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoenicolasius	Medium density throughout the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Rosa multiflora	High density in the southern portion of the area		786, 787			Herbicide - Triclopyr, Glyphosate, Dicamba Mechanical - Weed Wrench, Repeated Cutting
Ailanthus altissima	Low density throughout the area					Herbicide - Triclopyr, Glyphosate, Imazapyr Mechanical - Weed Wrench, Hand Pull
Alliaria officinalis	Low density along the western shore of the area					Mechanical - Handpull prior to maturation of seeds over several seasons, Regularly mow through growing season, Cover in mulch or woodchips
Paulownia tomentosa	Low density in the northern portion of the area					Mechanical - Weed Wrench, Cut and Apply Herbicides

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/03/12	Site:	Blossom Point JJ	Time:	2:40 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density adjacent to the border of the wetland					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoenicolasius	Low density throughout the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/03/12	Site:	Blossom Point KK	Time:	2:40 PM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density throughout the area					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoenicolasius	Low density throughout the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/04/12	Site:	Blossom Point LL	Time:	7:25 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density throughout the area					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burning Mechanical - Hand Pull
Rubus phoenicolasius	Medium density with patches of high density in the northern portion of the area		803			Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Cirsium vulgare	Low density in the northern portion of the area					Mechanical - Weedeat, Destroy Roots with Shovel
Rosa multiflora	Low density in the northeastern portion of the area along the edge of the field					Herbicide - Triclopyr, Glyphosate, Dicamba Mechanical - Weed Wrench, Repeated Cutting
Ailanthus altissima	Low density in the northern portion of the area					Herbicide - Triclopyr, Glyphosate, Imazapyr Mechanical - Weed Wrench, Hand Pull
Allium vineale	Low density along the edge of the field					Herbicide - 2,4-D, Dicamba

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/04/12	Site:	Blossom Point MM	Time:	8:00 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density throughoout the area		804			Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burn Mechanical - Hand Pull
Ailanthus altissima	Low density throughout the area					Herbicide - Triclopyr, Glyphosate, Imazapyr Mechanical - Weed Wrench, Hand Pull

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/04/12	Site:	Blossom Point NN	Time:	10:00 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Low density with patches of high density throughout the area					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weed
Lonicera japonica	Medium density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burn Mechanical - Hand Pull
Rubus phoenicolasius	Medium density throughout the area					Herbicide - Triclopyr, Glyphosate, metsulfuron-methyl Mechanical - Hand Pull, Pitchfork or Spade to Remove Plant
Ailanthus altissima	Low density in the southwestern portion of the area					Herbicide - Triclopyr, Glyphosate, Imazapyr Mechanical - Weed Wrench, Hand Pull

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

Date:	05/04/12	Site:	Blossom Point OO	Time:	10:35 AM

SPECIES OF CONCERN

INVASIVE SPECIES	Description (density - # stems/area)	GPS POINT	PHOTO ID	Mgt necessary?	Adj water res? Adj end sp habitat?	Recommended Mgt. actions
Microstegium vimineum	Medium density throughout the area					Herbicide - Glyphosate, Imazapic Mechanical - Hand Pull, "Scalping" with Weedeater
Lonicera japonica	Low density throughout the area					Herbicide - Triclopyr, Glyphosate Prescribed Burn Mechanical - Hand Pull

ENDANGERED SPECIES	Description	GPS POINT	PHOTO ID	Habitat Present?		Recommended Mgt. actions

ADDITIONAL NOTES

APPENDIX D: MAPS

Legend

- Invasive Species Detected in 2012
- Allium officinalis, Elaeagnus umbellata, Lonicera japonica, Phragmites australis, Rosa multiflora
- Lonicera japonica
- Microstegium vimineum
- Phragmites australis
- Rosa multiflora
- Rubus phoenicolasius
- Not Surveyed in 2012
- Installation Boundary

US Army Corps of Engineers
Baltimore District

Figure 1. Blossom Point Research Facility
Occurrence of Invasive Species
Charles County, MD

Sources: Aerial Photo, Bing Maps, 2010. Boundary, ALC, 2010. Locations, USACE, 2012.

1 inch = 1,050 feet

0 265530 1,060 1,590 2,120 Feet

N W E S

APPENDIX E: PHOTOS

Area A – Autumn olive

Area A – Canada thistle

Area A – Common reed

Area A – Wild garlic and wineberry

Area A – Japanese honeysuckle

Area B – Nepalese browntop

Area B – Wineberry

Area C – Nepalese browntop

Area C – Representative photograph

Area D – Common reed along shoreline

Area D – Garlic mustard and Nepalese browntop

Area D – Garlic mustard

Area D – Representative photograph

Area D – Wineberry

Area E – Nepalese browntop

Area F – Wineberry

Area H – Representative photograph

Area K – Common reed

Area K – Representative photograph

Area L – Common reed

Area M – Japanese honeysuckle

Area O – Johnsongrass

Area P – Johnsongrass

Area Q –Garlic mustard

Area Q – Garlic mustard flowers

Area Q – Japanese honeysuckle

Area Q – Wineberry

Area R – Representative photograph

Area S – Representative photograph

Area U – Nepalese browntop

Area W – Nepalese browntop

Area X – Representative photograph

Area Y – Nepalese browntop

Area Z – Nepalese browntop

Area BB – Nepalese browntop

Area EE – Japanese honeysuckle

Area EE – Nepalese browntop

Area FF – Common reed

Area FF – Japanese barberry

Area FF – Japanese barberry leaves

Area GG –Common reed

Area HH – Nepalese browntop

Area II – Common reed

Area II – Garlic mustard

Area II – Multiflora rose

Area II – Nepalese browntop and wineberry

Area II – Wineberry leaves and stem

Area II – Nepalese browntop leaves

Area II – Princess tree

Area LL – Wineberry

Area MM – Nepalese browntop

Area NN – Nepalese browntop

Common reed along eastern shoreline

Common reed along southern shoreline

Common reed along western shoreline

Wetlands between Areas L and M

Wetlands northeast of Area R

Wetlands east of Area V

Wetlands east of Area W

Wetlands east of Area W

Wetlands south of Area Z

Wetlands south of Area Z

Wetlands south of Area Z

Wetlands south of Area Z

Wetlands south of Area AA

Wetlands south of Area AA

Wetlands south of Area AA

Wetlands south of Area AA

Wetlands near Area II

Wetlands west of Area NN

Wetlands near Naval Facility

Wetlands near Naval Facility

Wetlands on southern boundary

Wetlands on southern boundary

Wetlands on southern boundary

Representative photo of Nepalese browntop along road

APPENDIX F: HERBICIDES

ENVIRONMENTAL ASSESSMENT
INVASIVE SPECIES MANAGEMENT PLAN

Blossom Point Research Facility
Charles County, Maryland

Environmental Division
Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, Maryland 20783

JANUARY 2013

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
10 SOUTH HOWARD STREET
BALTIMORE, MARYLAND 21201

FINDING OF NO SIGNIFICANT IMPACT

Implementation of Blossom Point Research Facility Invasive Species Management Plan Charles County, Maryland

In compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Adelphi Laboratory Center (ALC) has prepared an Environmental Assessment (EA) to evaluate and document the potential environmental effects associated with implementation of the Blossom Point Research Facility (BPRF) Invasive Species Management Plan (ISMP).

The Proposed Actions includes the implementation of an updated ISMP by the BPRF to provide an integrated and comprehensive method for identifying and managing invasive plant species on the installation. The ISMP provides a description of potential invasive plant species that may occur on the BPRF. The Proposed Action also provides guidance for facility managers to identify invasive plant species and implement appropriate management actions. The ISMP brings the BPRF into compliance with all applicable legal requirements.

All natural and social environmental factors that may be relevant to the Proposed Action, including the cumulative effects thereof, were considered. Potential short-term, minor, adverse impacts from the Proposed Action include soil erosion from mechanical weed removal and soil contamination from pesticide application. Other short-term, minor, adverse impacts include air emissions and noise from lawn mowers, weed whackers, chainsaws and other equipment used for weed removal. Long-term benefits to land use, soils, surface water and biological resources could result from the Proposed Action due to the elimination of over-populating weeds and the use of fewer pesticides to do so. Mitigations identified in the EA will be implemented.

Public participation opportunities with respect to this EA and decision making on the Proposed Action are guided by 32 CFR Part 651. The EA was made available to the public for 30 days, along with a draft Finding of No Significant Impact (FNSI). A notice of availability was published in The Maryland Independent (Charles County, Maryland) on 5 December 2012. Copies of the EA and draft FNSI were available for review at the Charles County Public Library, La Plata, Maryland. No comments or responses were received.

Upon reviewing the Environmental Assessment, I find that there would be no significant impacts to resources considered and that an Environmental Impact Statement is not required for the proposed project.

Joseph F. Watson
Garrison Manager
U.S. Army Garrison Adelphi Laboratory Center

Date: 2-7-13

ENVIRONMENTAL ASSESSMENT
INVASIVE SPECIES MANAGEMENT PLAN

Blossom Point Research Facility
Charles County, Maryland

Environmental Division
Adelphi Laboratory Center
2800 Powder Mill Road
Adelphi, Maryland 20783

January 2013

EXECUTIVE SUMMARY

INTRODUCTION

The Department of the Army requires all Army installations to prepare an Invasive Species Management Plan (ISMP) in accordance with the Executive Order (EO) 13112 and the Army Policy Guidance for Management and Control of Invasive Species (DA1999). The ISMP outlines U.S. Department of Army policies, procedures and responsibilities for meeting ISMP compliance and management requirements at the Blossom Point Research Facility (BPRF). Additionally, the ISMP is designed to ensure that the BPRF makes informed decisions regarding the ISMP under its control.

The Adelphi Laboratory Center (ALC) has prepared this Environmental Assessment (EA) for the implementation of the ISMP at ALC and BPRF. The ISMP covered by this EA is titled *Invasive Species Management Plan, Blossom Point Research Facility, September 2012*. This EA evaluates the potential environmental effects that would occur as a result of implementing the updated ISMP.

PROPOSED ACTION

The Proposed Action is the implementation of an updated ISMP by the BPRF to provide an integrated and comprehensive method for identifying and managing invasive plant species on the installation. The ISMP provides a description of potential invasive plant species that may occur on the BPRF. The proposed action also provides guidance for facility managers to identify invasive plant species and appropriate management actions; develop individual management plans; and incorporate invasive plant species management plans into the facility Integrated Pest Management Plan (IPMP). The ISMP brings the BPRF into compliance with all applicable legal requirements.

NO ACTION ALTERNATIVE

The "No Action Alternative" is the only alternative to the Proposed Action considered in detail in this EA. The No Action Alternative reflects the status quo and serves as a benchmark against which federal actions can be evaluated.

CONCLUSION

Based upon the analyses contained in this EA, it has been determined that the known and potential impacts of implementing the Proposed Action on the physical, natural and cultural environment would have no significant effects. Implementation of the ISMP would result in the efficient identification and control of invasive plant species, thereby benefiting native species and their habitat. The ISMP establishes procedures for managing invasive plant species in compliance with all applicable federal laws, regulations and installation guidelines. By implementing the ISMP, the BPRF will be in compliance with EO 13112 and Army Policy Guidance for Management and Control of Invasive Species.

Table ES-1: Summary of Potential Individual and Cumulative Effects on Environmental Resources		
Resource	**Proposed Action**	**No-Action**
Land Use	Possible long-term, minor, benefits	No impacts
Soils and Topography	Short-term, minor, adverse impacts Long-term, minor benefits	Possible long-term, adverse impacts
Water Resources		
Surface Water	Short-term, minor, benefits	Possible long-term, adverse impacts
Wetlands	Possible minor, benefits	No impacts
Floodplains	Possible minor, adverse impacts	No impacts
Groundwater	No impacts	Possible long-term, adverse impacts
Air Quality	Short-term, minor, adverse impacts	Minor, adverse impacts
Noise	Short-term, minor, adverse impacts	No impacts
Biological Resources		
Vegetation	Minor benefits	Possible long-term, adverse impacts
Wildlife Resources	Minor benefits	Possible long-term, adverse impacts
Threatened and Endangered Species	Minor benefits	Possible adverse impacts
Aquatic Habitat	Minor benefits	Possible long-term, adverse impacts
Socioeconomic	No impacts	No impacts
Environmental Justice	No impacts	No impacts
Hazardous, Toxic, and Radioactive Substances	Minor benefits	Minor adverse impacts
Cumulative Impacts	No impacts	No impacts

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Acronyms and Abbreviations

ACSIM	Assistant Chief of Staff for Installation Management
ALC	Adelphi Laboratory Center
BPRF	Blossom Point Research Facility
CO	Carbon Monoxide
COR	Contracting Officers' Representative
DoD	Department of Defense
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
HEL	Highly Erodible Lands
INRMP	Integrated Natural Resources Management Plan
IPMC	Installation Pest Management Coordinator
IPMP	Integrated Pest Management Plan
ISMP	Invasive Species Management Plan
ITAM	Integrated Training Area Management
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
MSL	Mean Sea Level
N/A	Not Applicable
NC	Non-Compliance
NEPA	National Environmental Policy Act
NO_2	Nitrogen Dioxide
NRL	Naval Research Laboratory
O_3	Ozone
ODEP	Office of the Director of Environmental Program
Pb	Lead
PM	Particulate Matter
QAE	Quality Assurance Evaluator
RT&E	Rare, Threatened and Endangered
SO_2	Sulfur Dioxide
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

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1.0 PURPOSE, NEED AND SCOPE

1.1 INTRODUCTION

The Blossom Point Research Facility (BPRF) is on Cedar Point Neck in southern Charles County, Maryland. The closest town is La Plata, Maryland, which is located approximately 9 miles north of Blossom Point. The installation covers approximately 1,600 acres and is bordered on three sides by the Potomac River and Nanjemoy Creek. The site was originally owned by the Corporation of Roman Catholic Clergymen of Maryland. It was leased to the federal government in 1942 and purchased by the Army in 1980. The primary activity at the BPRF is field research on fuzes, ordnance, pyrotechnic devices and electronic telemetry in support of the Army mission. In addition, the U.S. Naval Research Laboratory (NRL) holds a lease on 291 acres for a long-range communications tracking station for satellites. The area surrounding the BPRF is currently zoned for a mixture of agricultural and rural residential uses with development restrictions to maintain rural land use (Tetra Tech, Inc., 2003).

1.2 PURPOSE AND NEED

Like all Army landholders, the Adelphi Laboratory Center (ALC) is required to comply with Federal, Department of Defense (DoD), and Army laws, regulations and guidance regarding invasive species control and non-proliferation. Relevant requirements include Executive Order 13112, Invasive Species Management Plan, 2 February 1999 (EO 13112); Army Policy Guidance for Management and Control of Invasive Species, DoD Pest Management Plan (DoD Instruction 4150.7); and the Armed Forces Pest Management Board. These documents are provided in the ISMP.

EO 13112, signed February 3, 1999, established in Invasive Species Council, and specified duties for each Federal agency as follows:

(a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

(1) identify such actions;

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to:

(i) prevent the introduction of invasive species;
(ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner;
(iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded;
(v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and

(vi) promote public education on invasive species and the means to address them; and

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

In response to EO 13112, DoD analyzed its activities, and identified those activities that may affect the status of invasive species. As a result of this analysis, the Army assigned the Assistant Chief of Staff for Installation Management (ACSIM), through the Office of the Director of Environmental Programs (ODEP), as the proponent and Army program manager for all environmental aspects of invasive species management. The Deputy Chief of Staff for Operations and Plans ensures that all aspects of the Integrated Training Area Management (ITAM) Program are consistent with this policy.

The Army Policy Guidance for Management and Control of Invasive Species, issued by the Department of the Army Assistant Chief of Staff for Installation Management on 26 June 2001, is designed to provide policy guidance for the environmental management and control of invasive species on US Army installations. Major points of this guidance, as it applies to ALC are:

- Invasive species shall be managed within the context of the goals and objectives of an installation's Integrated Natural Resources Management Plan (INRMP) and will be integrated into other installation plans as appropriate.

- Installations, subject to legal authorities and limitations, will monitor invasive species populations and track the presence and status of invasive species over time, determine when control measures are necessary, and evaluate the effectiveness of prevention, control/eradication, and restoration measures.

- Installations will give priority to invasive species management actions, including actions to restore native species habitat conditions in ecosystems that have been invaded, that support the installation's primary military mission, and that contribute to the protection of federally listed threatened and endangered species and critical habitat. Installations should ensure that invasive species do not detract from the usefulness of military training and testing lands and will ensure that invasive species

management and control practices do not result in non-permitted take or jeopardize the existence of threatened and endangered species.

- Installations are encouraged to enter into partnerships with other federal agencies, state agencies, and local agencies, tribes, and non-government organizations:

- Installations are encouraged to cooperate with state programs for controlling invasive species and will allow access to the installations for this purpose. Such access must be consistent with installation safety and security considerations. Control measures must be fully coordinated with installation stakeholders and acceptable for use on the installation.

The purpose of the Proposed Action is to implement an ISMP for the identification and development of specific management plans for invasive plant species located on the BPRF. The Proposed Action will be in compliance with all applicable resource management legal requirements including federal statutes and regulations, and U.S. Army guidelines. The ISMP complements the INRMP and sets procedures for the identification and management of invasive plant species at the BPRF.

1.3 SCOPE

This EA does not analyze site-specific impacts associated with individual projects for invasive plant species control that may be implemented by the ISMP for the BPRF. Consideration of site specific impacts will be undertaken by subsequent National Environmental Policy Act (NEPA) analysis specific to those future individual projects.

This EA considers, compares, and evaluates two alternatives. The first alternative, which serves as the Army's preferred alternative, is the adoption and implementation of an updated ISMP for the BPRF. The second alternative is the "No Action Alternative" which would continue the status quo: continued management of invasive species under the existing non-comprehensive procedures or old ISMP.

1.4 PUBLIC INVOLVEMENT

Coordination with federal and state agencies including the U.S. Fish and Wildlife Service (USFWS) and the Maryland Department of Natural Resources (MDNR) was initiated for the Proposed Action in August 2012. Copies of coordination letters are located in Appendix B – Agency Coordination.

Public participation opportunities with respect to this EA and decision making on the Proposed Action are guided by 32 CFR Part 651. The EA was made available to the public for 30 days, along with a draft Finding of No Significant Impact (FNSI). A notice of availability was published in The Maryland Independent (Charles County, Maryland) on 5 December 2012. Copies of the EA and draft FNSI were available for review at the Charles County Public Library, La Plata, Maryland. No comments or responses were received. BPRF will execute a FNSI and will proceed with implementation of the Proposed Action.

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2.0 PROPOSED ACTION

An ISMP is a critical component of the INRMP and, as such, is a decision document used by Army installations to guide its natural resource actions and procedures with regard to invasive species. The ISMP provides guidance for facility managers to identify invasive species at their properties and develop individual management plans for dealing with specific invasive species and incorporating these plans into the facilities Integrated Pest Management Plan (IPMP). The ISMP provides an overview of management methods that can be employed to control invasive species; information on invasive species identification and management; factsheets and maps for invasive species found in the area; and guidance for further implementation and incorporation of management plans to eradicate or manage invasive species at each facility.

The Proposed Action is, therefore, the implementation of an ISMP to identify and control invasive plant species at the BPRF in Charles County. The Proposed Action provides a basis for addressing applicable requirements and best management practices consistent with achievement of the needs, goals and objectives of the Command's military mission.

There are three kinds of invasive plant management methods recommended in the ISMP: chemical, manual and mechanical. The first and best method for managing or eradicating invasive plant species varies from species to species and is also dependent on the size of the area to be treated.

Chemical Management - Chemical management of invasive plant species consists of the use of pesticides, specifically herbicides to slow the spread of or kill invasive plant species. An example would be the application of Glyphosate to multiflora rose (*Rosa multiflora*) through a backpack sprayer. Chemical management techniques for invasive plant species should only be implemented as a facet of an integrated pest management approach. BPRF has an IPMP dated September 2009. According to the IPMP, daily pesticide application and surveillance records are maintained by the ALC pest management technician for work performed by ALC pest management technicians using the Pest Management Maintenance Record (DD Form 1532-1). The monthly Pest Management Report (DD Form 1532-1) is used to summarize and report all pest management operations on the installation. These reports are prepared by the ALC pest management technician and approved by the ALC Installation Pest Management Coordinator (IPMC). Completed Pest Management Reports are kept on file in the pest management shop office. Contracts for pest management (i.e., lawn and ornamental pest management, termite control) are on file in the office of the IPMC. The contractor is required to file a monthly Pest Management Report (DoD Form 1532) with the government Quality Assurance Evaluator (QAE) and to maintain a current 1532-1 record card. The contract requires adherence to all guidelines of DoD Instruction 4150.07, "DoD Pest Management Program". All contractors are required to be Environmental Protection Agency (EPA) and state approved/licensed, and all work must be performed by certified pest management technicians (Long, 2009).

Several factors should be considered when utilizing chemical management techniques, such as what herbicide to apply and when to apply it. Correct timing and application may be the most essential elements for success with herbicide applications. Because herbicides are toxic

materials, users must read and follow label directions exactly. Each State has its own agricultural chemicals handbook, updated yearly for appropriate control recommendations.

Mechanical Management - Mechanical management is the use of machines to remove or destroy invasive plant species. An example would be mowing autumn olive (*Elaeagnus umbellata*) seedlings. Depending on the means, mechanical removal may require users to be trained in proper usage of the tools. Nearly all forms of mechanical removal may result in injury if the tools are improperly used.

Manual Management - Manual management of invasive species consists of hand pulling the target species. This is an effective treatment for small areas of invasive species which are susceptible to hand pulling, such as Japanese honeysuckle (*Lonicera japonica*). When hand pulling species with thorns, such as wine berry (*Rubus phoenicolasius*), gloves are recommended.

2.1 ALTERNATIVE TO THE PROPOSED ACTION

The proposed action is the preferred alternative. The only other action alternative, consisting of only a partial implementation of the ISMP, was considered but was excluded from further study because this incomplete action would not comply with EO 13112, and thus not meet the purpose and need for the proposed action.

2.1.1 No-Action Alternative

The Proposed Action is the implementation of the ISMP to establish a uniform policy for identification and management of invasive plant species located on the BPRF.

The No Action Alternative reflects the status quo and serves as a benchmark against which federal actions can be evaluated.

3.0 AFFECTED ENVIRONMENT

This section describes the existing environmental and operational baseline conditions that exist at the BPRF without implementation of the ISMP. Specific conditions would be addressed as individual projects are developed to implement species specific management plans and actions at the BPRF.

As a result of examination for applicability to the proposed action, implementation of the ISMP has been determined not to bear on certain resource areas that frequently receive attention in NEPA analyses. Resource areas considered, but excluded from further analysis in this EA include: prime and unique farmland, geology, climate, coastal zone, wild and scenic rivers, cultural resources and child health and safety, as implementation of ISMP procedures to identify and manage invasive plant species will have no effect on these resources.

Physical measures carried out to identify, evaluate or manage invasive plant species have the potential to impact land use, soils, surface water, air quality, noise, biological resources, hazardous toxic and radioactive substances and environmental justice. The following is an overview of natural resource areas at the BPRF.

3.1 LAND USE

The primary land use category at the BPRF is industrial. This classification results from its status as a test facility. Secondary land use categories include administration, explosives storage, NRL forested buffer area, NRL facilities, maintenance and research, development and testing areas. Overall, the installation contains 420 acres of improved lands and 1,180 acres of unimproved lands. The campus includes 70,000 square feet of enclosed area in 46 buildings over the 1,600 acre site (Tetra Tech, Inc., 2003).

3.2 SOILS & TOPOGRAPHY

Seven soil series are present at the BPRF: Elkton, Keyport, Mattapex, Othello, Sassafras, Woodstown and Tidal Marsh. The soils are generally poorly to moderately well drained and range in texture from fine sand to silty loam and clay to coarse sand and gravel. The greatest development constraints are associated with the high to moderately high seasonal water table on the BPRF. None of the soil types are classified as Highly Erodible Lands (HEL) by the Charles County Soil Conservation District.

Surface soils are classified as part of the Elkton-Othello-Keyport association. These soils occur on level to sloping terrain and are characterized as poorly to moderately drained, loamy soils (some of which have clay-like subsoil). Texture ranges from fine sand to silty loam and silty clay to coarse sand. The Elkton silt loam is the predominant soil series. The U.S. Department of Agriculture (USDA) lists the Elkton and Othello soil series as hydric soils (U.S. Army Corps of Engineers, 2011).

Topography at the BPRF is characterized by rolling hills with narrow ridge tops and valleys drained by nontidal and tidal tributaries to Nanjemoy Creek and the Potomac River. Elevations range from Mean Sea Level (MSL) along the Potomac River and Nanjemoy Creek to 25 feet

above MSL at Upper Cedar Point. The highest elevation is 25 feet above MSL in the north central part of the installation. The 4.5-mile shoreline has an average bluff height of about 20 feet above MSL. Tidal fluctuations are undercutting bluffs causing erosion and slumping which poses a threat to several landfill sites and other structures. The rate of erosion due to subsurface seepage and wave action along some of the shoreline area has been estimated at between one to three feet per year based on historic trends. There are beaches along the bluff line where sandpits have formed across drowned valleys.

3.3 WATER RESOURCES

The BPRF is located on the north side of the Potomac River at its junction with Nanjemoy Creek. Nanjemoy Creek bounds the facility on the west while the Potomac River bounds the facility on the south and east. Short streams and drainage ways dissect the research facility. There are truncated ravine heads around the marshland and large shoal areas with weakly developed channels along the shoreline.

The high tide elevation is one foot above MSL. The average tidal variation is 20 to 40 inches daily. The 100-year tidal flood elevation, established by the U.S. Army Engineer District, Baltimore, is nine feet above MSL. The facility is subject to tidal flooding. Approximately one third of the installation is located within the 100- year floodplain (U.S. Army Corps of Engineers, 2011).

3.4 AIR QUALITY

Charles County is in the Washington, DC-MD-VA nonattainment area for failing to meet the national ambient air quality standard for ozone (O_3) air pollutants.

The State of Maryland had adopted ambient air quality standards and emission regulations for the following pollutants:

- Particulate matter with a diameter of 10 microns or less (PM-10),
- Carbon monoxide (CO),
- Sulfur dioxide (SO_2),
- Nitrogen dioxide (NO_2),
- Lead (Pb),
- Ozone, and
- Fluorides.

The Maryland Department of the Environment (MDE) has developed plans, which have been submitted to the EPA, for attaining standards in those areas where ambient air quality monitoring indicates nonattainment of specific standards (e.g., ozone) (U.S. Army Corps of Engineers, 2011).

3.5 NOISE

Noise is considered unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. Receptors of noise at the BPRF consist of employees, visitors and wildlife. The change may be intermittent or continuous, steady or impulsive. It may involve a broad range of sound sources and frequencies, or it can have a specific, readily identifiable source. There is a wide diversity among human responses to noise that vary not only according to the type and characteristics of the noise source, but also to the sensitivity and expectations, the time of day, and the distance between the noise source (i.e., aircraft or equipment) and the receptor (i.e., a person or animal). Behavioral and physiological responses have the potential to cause stress and health problems or injury in humans and wildlife. The effects of noise can be immediate or latent as a result of long-term exposure. There is a strong tendency for species to acclimate or habituate to a repetitive noise disturbance.

3.6 BIOLOGICAL RESOURCES

3.6.1 Vegetation

Before being cleared for development and agriculture, the BPRF was originally classified as an oak-hickory-pine forest. Medium to tall forestland of broadleaf deciduous and needle-leaf evergreen trees were characteristic of the area. Currently, vegetation types within the installation include approximately 5 acres of maintained lawn, 900 acres of forestland, 550 acres of flat, grass land and 148 acres of tidal marsh. Tree cover consists of natural stands of mixed maples (*Acer* spp.), oaks (*Quercus* spp.), black locust (*Robinia pseudoacacia*), black walnut (*Juglans nigra*), sweetgum (*Liquidambar styraciflua*), blackgum (*Nyssa sylvatica*), ash (*Fraxinus* spp.), willow (*Salix* spp.), tulip tree (*Liriodendron tulipifera*), Virginia pine (*Pinus virginiana*), red cedar (*Juniperus virginiana*) and American holly (*Ilex opaca*). There are scattered elderberry (*Sambucus canadensis*) and sycamore (*Platanus occidentalis*) along the streams and swamps. Shrubs and small trees include sumac (*Rhus* sp.), bayberry (*Myrica heterophylla*), autumn-olive (*Elaeagnus* umbellata.), dogwood (*Cornus florida*), magnolia (*Magnolia* spp.) and redbud (*Cercis canadensis*) (U.S. Army Corps of Engineers, 2011).

3.6.2 Wildlife

The installation is suitable for many species of wildlife because of the diversity of habitats. The most common game species is the white-tailed deer (*Odocoileus virginianus*). Other wildlife includes eastern grey squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), woodchuck (*Marmota monax*), opossum (*Didelphis marsupialis*), mink (*Neovison vison*), muskrat (*Ondatra zibethicus*), striped skunk (*Mephitis mephitis*), beaver (*Castor canadensis*), raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), bobwhite quail (*Colinus virginianus*), mourning dove (*Zenaida macroura*), black duck (*Anas rubripes*) and wood duck (*Aix sponsa*) (U.S. Army Corps of Engineers, 2011).

3.6.3 Rare, Threatened, and Endangered Species

No federally- or state-listed plant species are known to or are likely to occur on the BPRF.

The BPRF conducted an Endangered Species survey in 1999. Of the four fauna species targeted in the survey the only species located on-site was the bald eagle (*Haliaeetus leucocephalus*). In July 2007, the bald eagle was removed from the Federal List of Endangered and Threatened Wildlife and Plants. Bald eagles continue to be protected by the Bald and Golden Protection Act and the Migratory Bird Treaty Act (U.S. Army Corps of Engineers, 2011). There are currently five active nesting pair of bald eagles at the BPRF and two protected nest sites which are currently inactive, but which have been active within the last five years. No nest reconstruction of the two inactive sites has been observed. The location of the nests are documented and mapped.

3.6.4 Wetlands

There are approximately 260 acres of wetlands located on the BPRF. The dominant classification of wetlands on the site is palustrine marsh dominated by common reed (*Phragmites australis*), cattails (*Typha* sp.), sedges (*Carex* spp.) and rushes (*Juncus* spp.). Palustrine scrub shrub and palustrine forested wetlands are also found on the site and are dominated by wax myrtle (*Morella cerifera*), willow, lowbush blueberry (*Vaccinium angustifolium*), highbush blueberry (*Vaccinium corymbosum*), American holly, red maple (*Acer rubrum*), blackgum and sweetgum (U.S. Army Corps of Engineers, 2011).

3.7 SOCIOECONOMICS

Socioeconomics are defined as attributes and resources related to the interaction of the human environment, population and economic activity. Regional socioeconomic resources include employment, personal income and earnings, population, housing and community services.

With the BPRF being a small site in terms of employees there is little to no affect on regional and local existing socioeconomic conditions, such as unemployment and housing characteristics (A. Morton Thomas and Associates, Inc, 2008).

3.8 ENVIRONMENTAL JUSTICE

On 11 February 1994, President Clinton issued EO 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. The purpose of the order is to avoid disproportionate adverse environmental, economic, social, or health impacts from federal actions and policies on minority and low-income populations. As defined by the Council on Environmental Quality's guidance for addressing environmental justice, a minority is a person who identifies him or herself as Black, Asian or Pacific Islander, Native American or Alaskan Native, or Hispanic. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than the general population of the larger surrounding area. Low-income populations are identified using the U.S. Census Bureau's statistical poverty threshold that is based on income and family size. The U.S. Census Bureau defines a poverty area as a census tract where 20 percent or more of the residents have income below the residents' threshold and an extreme poverty area as a census tract with 40 percent or more of the residents below the poverty level.

From 2006-2010 about 5.2 percent of Charles County resident were classified as living below the poverty limit. The overall poverty level for the state of Maryland is 8.6 percent, 5.2 percent below the poverty rate for the United States (13.8 percent). The number of minority residents living in Charles County is 50 percent. The number of minority residents throughout the state of Maryland is approximately 44.8 percent of Maryland's population (U.S. Census Bureau, 2012).

3.9 HAZARDOUS AND TOXIC MATERIALS/WASTES

All pesticides recommended for use in the BPRF IPMP are EPA as well as state registered pesticides. Pesticide registration is the process through which EPA examines the ingredients of a pesticide; the site or crop on which it is to be used; the amount, frequency and timing of its use; and storage and disposal practices. EPA evaluates the pesticide to ensure that it will not have unreasonable adverse effects on humans, the environment and non-target species. A pesticide cannot be legally used if it has not been registered with EPA's Office of Pesticide Programs. After a pesticide is registered by EPA, states can register pesticides under specific state pesticide registration laws. A state may have more stringent requirements for registering pesticides for use in that state. Ultimately, states have primary responsibility (called primacy) for pesticides used within state borders. ALC pest management technicians who apply pesticides, the Contracting Officers' Representative (COR) and QAE are DoD-certified. Certification by the State of Maryland in applicable categories is required for contract pest management technicians. The DoD-certified personnel are re-certified every three years, and contractor certified personnel are re-certified annually by the State of Maryland (Long, 2009).

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4.0 ENVIRONMENTAL CONSEQUENCES

4.1 LAND USE

Proposed Action

The Proposed Action would have no impact on land use at the BPRF. Minor, long-term benefits could result from removing and/or controlling invasive plant species. The Department of Defense released Invasive Species Management at DoD Facilities in the Chesapeake Bay Watershed which describes potential impacts from the unchecked expansion of invasive species. Within which they describe potential impacts to landuse on DoD lands as;

- Eliminate realistic training or testing conditions and limit related activities,
- Act as a main cause of habitat destruction and biodiversity loss, further reducing training lands, and/or
- Pose security risks (e.g. creating visual screens) or lead to potentially life threatening situations (e.g. increasing the incidence and intensity of wildfires) (Gundlach, 2007).

In light of these potential negative impacts from invasive species the Proposed Action could provide a minor long term benefit.

No Action Alternative

Under this alternative, there would be no impacts on land use at the BPRF. In the long-term, increased expansion and increased density of invasive species could result in minor negative impacts, for the reasons indicated above.

4.2 SOILS AND TOPOGRAPHY

Proposed Action

The proposed action would have initial minor negative impacts on soils. Mechanical weed removal may result in an increase in soil erosion, and there is a possible risk of soil contamination from pesticide applications. Those areas that are impacted by increased soil erosion would be reseeded with native species. It is anticipated that the ISMP would result in the use of less pesticides for controlling invasive plant species in the long term. This would reduce the potential impacts of soil contamination compared to existing practices by reducing the quantities of pesticides used and resulting in a minor, cumulative, positive impact.

No Action Alternative

The No Action Alternative would have the potential to adversely affect soils at the BPRF. The existing invasive species management practices would continue including the existing rate of pesticide use. This repeated outdoor application of pesticides could lead to an accumulation of residues to build up, leading to potential soil contamination.

4.3 WATER RESOURCES

Proposed Action

Minor, positive impacts to surface water resources will occur if chemical and non-chemical invasive plant species control techniques are properly applied as well as reseeding is done in weed removal areas. Proper application of the applicable pesticide according to the label, target pests and environmental features eliminate the chance of material reaching any groundwater or surface water resources. No pesticides would be applied around water resources except when in accordance with manufacturer's label and EPA guidance.

There is no evidence that chemical and mechanical control techniques are improperly used at the BPRF, however implementation of the ISMP at the BPRF would ensure these techniques are properly deployed. Implementation of the ISMP at the BPRF could have minor, positive impacts on wetlands because no pesticide use would occur in wetlands unless specifically in accordance with the manufacturer's label and EPA guidance.

Minor impacts to floodplains, such as erosion and soil and water contamination, could occur if chemical and mechanical control techniques are improperly used. To minimize potential impacts, mechanical removal of pests would be limited to hand tools. No pesticides would be applied in floodplain areas except when in accordance with manufacturer's label and EPA guidance.

No Action Alternative

Under this alternative, there could be long-term, adverse impacts to surface waters as they become choked by aquatic invasive species, specifically common reed. This alternative would maintain existing practices with respect to pest management and its impacts on surface water and groundwater. This alternative could have a negative impact on water resources because it is not an integrated method and would be anticipated to use more pesticides for controlling invasive plant species throughout the facility. Under this alternative, no impacts to wetlands would be expected.

4.4 AIR QUALITY

Proposed Action

Temporary and minor site-specific negative impacts would occur as a result of implementation of invasive plant species control techniques such as the running of lawn mowers and chainsaws during mechanical removal. Chemical application would result in a limited amount of pesticide released into the air. All hand spraying would be performed in accordance with the manufacturer's label and EPA approved guidance to reduce the airborne drift. No significant impacts would occur to the air quality of the areas surrounding the BPRF.

No Action Alternative

Under this alternative, there could be minor site-specific negative impacts as a result of continued mowing and pesticide application.

4.5 NOISE

Proposed Action

The Proposed Action would have minor/temporary site-specific increases in noise levels if power equipment is used for invasive species management practices. This would result in a minor/temporary site-specific negative impact, but negligible cumulative impact. The remote nature of the installation would result in the noise receptors being limited to Blossom Point personnel or visitors. Employees utilizing power equipment (i.e., chainsaws, lawnmowers, tractors, etc.) would wear ear protection. In addition, no power equipment would be operated for invasives species removal within 660 feet of a known active bald eagle nest during the nesting season. The nesting season for bald eagles on the Chesapeake Bay runs from December through July. It is probable the nesting season for bald eagles at Blossom Point is comparable. This alternative is not likely to generate noise that would conflict with federal, state or local noise standards or create noise levels incompatible with existing or proposed land use. Since the impacts are temporary and the noise level will revert back to its original level, the action would not be cumulatively added to other past, present or future actions to create a significant impact.

No Action Alternative

Under this alternative, there would be no impacts to this noise.

4.6 BIOLOGICAL RESOURCES

Proposed Action

Overall, implementation of the ISMP would have a minor, positive effect upon biological resources. The plan contains procedures whereby all invasive plant species management activities clearly define the target species and designate the specific actions to control those species. In the event of a pulse of invasive plant species removal efforts the sudden diminution of invasive species could have a temporary negative impact on the food source and nesting habitat of some wildlife. In this event, the possibility exists for negative impacts to wildlife in the short term; however, due to limited resources the treatment of invasive species will likely be implemented in phases carried out over several years. As a result no single growing season will suffer a significant loss of food sources and nesting habitats provided by invasive plant species. Additionally, with proper seeding and monitoring of treatment areas, as invasive species are eradicated, native species will regrow to fill the niche and provide food sources and nesting habitats.

Adequate precautions would be taken during pesticide application to protect the public and applicators of pesticides, on and off the BPRF. All pesticides would be applied in accordance with the label directions. Pesticide application would be conducted by individuals wearing proper personal protective equipment (PPE) and only by personnel with proper training when training is required. Pesticides would not be applied outdoors when the wind speed exceeds five miles per hour. When pesticides are applied outdoors, care would be taken to make sure that any spray drift is kept away from individuals, including the applicator. The installation would ensure all personnel responsible for application of pesticides are entered into a medical monitoring program.

Currently, no known state or federally protected species, with the exception of the bald eagle are present on the installation. In the event that a species currently present becomes listed or a currently list protected species is discovered on the installation coordination with the FWS would be initiated. Minor benefits could result because no pest management operations would be conducted that have the potential to negatively affect endangered or protected species or their habitats without prior coordination with the U.S. Fish and Wildlife Service (USFWS). No pesticides would be applied within 100-feet of known state threatened or endangered species. If management of invasive species is required within 100 feet of state or federally protected species, manual or mechanical methods would be used.

Mechanical and other non-chemical management techniques and limited pesticide use may keep target species from developing a resistance to specific pesticides. Site-specific impacts would vary based on, among other things, the specificity of the pesticide and its persistence in the environment.

Non-chemical controls and limited pesticide use would not be expected to impact wildlife populations, other than the target species. Proper implementation of the Proposed Action would ensure no negative impacts to biological resources on BPRF and increase the likelihood of beneficial impacts.

Minor benefits could result for aquatic habitats by eliminating certain aquatic invasive species, specifically common reed.

No Action Alternative

The No Action Alternative would maintain existing practices with respect to invasive plant species management and its impacts on biological resources. In the long-term, if invasive species are not controlled they could limit the recruitment of native vegetation and create a less diverse ecosystem. Ironically the lack of diversity due to the dominance of advantageous invasives could make the system susceptible to large scale die-offs from pathogens. The replacement of stands of cattail and marsh meadow by stands of common reed negatively affect most marsh obligates such as, waterfowl, rails and amphibians. Continued expansion of common reed stands are a cause for concern because marsh obligates depend on marsh environments for breeding and common reed disturbs the marsh environment (Meyer, 2003). This alternative could adversely impact migratory birds by not supplying guidance to limit exclusion activities during periods of nesting. State rare, threatened and endangered (RT&E) species and their associated habitats may be impacted due to extensive herbicide use. The ISMP will allow the installation to better implement the IPMP by providing the BPRF with data from which the installation can prioritize invasive plant species and areas needing treatment. In addition, surveys of birds and vegetation conducted in 40 salt and brackish marshes in Connecticut showed there were significantly fewer species of birds and state-listed species in *Phragmites*-dominated wetlands than in short-grass marshes (Benoit and Askins, 1999). As a result the No Action Alternative could result in adverse impacts to wildlife at BPRF.

4.7 SOCIOECONOMICS

Proposed Action
The Proposed Action is not expected to have an impact on socioeconomics at the BPRF or nearby communities.

No Action Alternative
Under this alternative, there would be no impacts to this resource.

4.8 ENVIRONMENTAL JUSTICE

Proposed Action
The Proposed Action is not expected to have a disproportionate impact on minorities or low income communities as all work would be accomplished on the BPRF controlled property.

No Action Alternative
The No Action Alternative would maintain existing conditions with respect to environmental justice. There would be no effect on minority or low-income populations at the BPRF or neighboring communities.

4.9 HAZARDOUS AND TOXIC MATERIALS/WASTES

Proposed Action
The Proposed Action would have a minor, positive impact by reducing the quantity of hazardous and toxic waste/materials purchased and stored through the use of manual as well as mechanical means of controlling invasive plant species. Implementing an integrated approach to pest management will limit the amount of pesticide purchased and mixed for a specific application, thus reducing the amount of residual waste generated. The ISMP will provide a better picture of the installation invasive plant species issues, which should allow for better implementation of the IPMP.

No Action Alternative
The No Action Alternative would maintain existing conditions and would result in a minor negative impact since the quantity of pesticides purchased and stored would not be reduced. The ISMP will provide better data for the IPMP.

4.10 CUMMULATIVE IMPACT

A cumulative impact is defined as an effect on the environment that results from the incremental effect of the 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.

Based on the analyses presented in this chapter, there would be no significant cumulative effects on land use, air, noise and the protection of children resulting from the implementation of ISMP for the BPRF. The combination of non-chemical and limited pesticide use would provide an

effective invasive plant species control approach. The limited and careful application of least toxic pesticides would leave a positive cumulative impact on the resources directly affected.

5.0 CONCLUSION

Based upon this Environmental Analysis, it has been determined that the known and potential impacts of the Proposed Action on the physical and natural environment would be of a beneficial nature. Implementation of the updated ISMP would result in the identification and the development of plans for the management of invasive plant species at the BPRF. The ISMP recommends procedures for managing invasive plant species in compliance with all applicable federal laws, regulations and Army guidelines. By implementing the ISMP, the BPRF will be in compliance with EO 13112. Implementation of the Proposed Action would not result in significant environmental impacts.

Based upon this conclusion, preparation of an Environmental Impact Statement is not recommended prior to implementation of the Proposed Action.

Table 5-1: Summary of Potential Individual and Cumulative Effects on Environmental Resources

Resource	Proposed Action	No-Action
Land Use	Possible long-term, minor, benefits	No impacts
Soils and Topography	Short-term, minor, adverse impacts Long-term, minor benefits	Possible long-term, adverse impacts
Water Resources		
Surface Water	Short-term, minor, benefits	Possible long-term, adverse impacts
Wetlands	Possible minor, benefits	No impacts
Floodplains	Possible minor, adverse impacts	No impacts
Groundwater	No impacts	Possible long-term, adverse impacts
Air Quality	Short-term, minor, adverse impacts	Minor, adverse impacts
Noise	Short-term, minor, adverse impacts	No impacts
Biological Resources		
Vegetation	Minor benefits	Possible long-term, adverse impacts
Wildlife Resources	Minor benefits	Possible long-term, adverse impacts
Threatened and Endangered Species	Minor benefits	Possible adverse impacts
Aquatic Habitat	Minor benefits	Possible long-term, adverse impacts
Socioeconomic	No impacts	No impacts
Environmental Justice	No impacts	No impacts
Hazardous, Toxic, and Radioactive Substances	Minor benefits	Minor adverse impacts
Cumulative Impacts	No impacts	No impacts

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6.0 REFERENCES

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APPENDIX A

Maps

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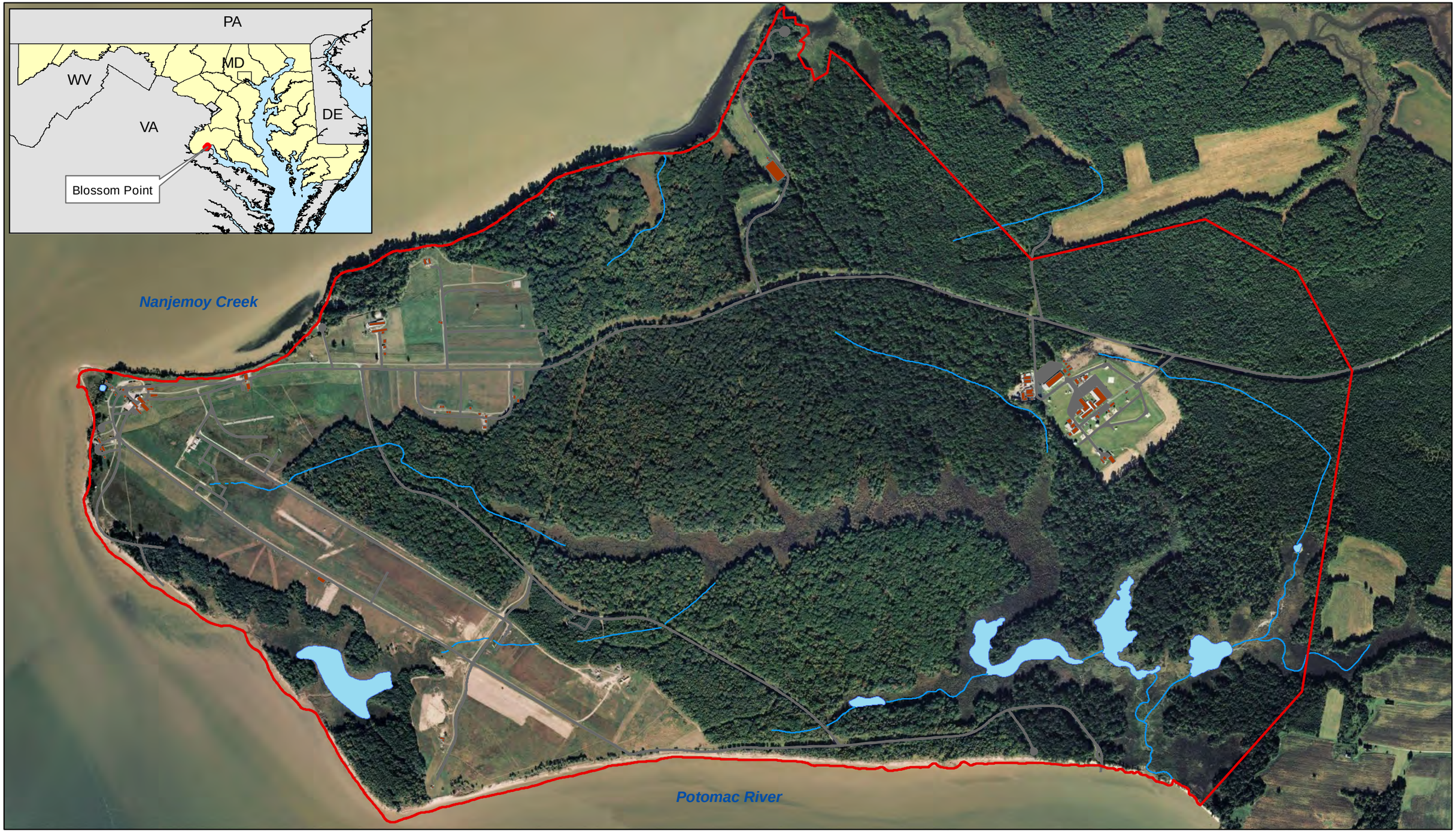
US Army Corps of Engineers

Figure 1: Blossom Point Location Map



US Army Corps of Engineers

Streams
Roads
Buildings
Installation Boundary

Figure 2: Blossom Point Overview Map

0 500 1,000 1,500 2,000 Feet

US Army Corps of Engineers

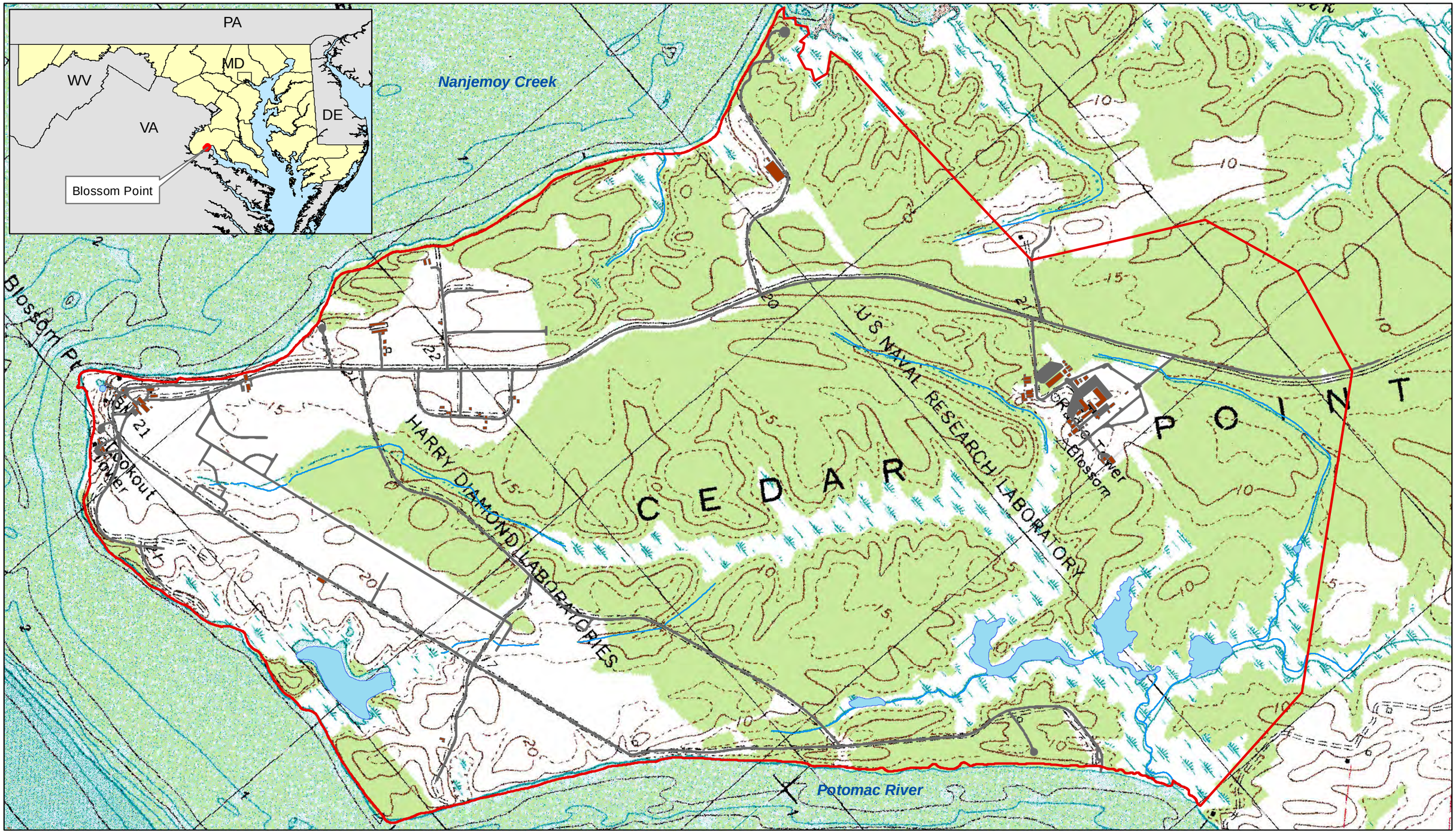
Streams
Buildings
Installation Boundary

AsA
AsB
DfA
DfB
EkA
LQA
LsA
LsB
LxD
MT
NG
PcA
PcB
RgB
W

Figure 3: Blossom Point Soils Map

0 500 1,000 1,500 2,000 Feet

N



US Army Corps of Engineers

Streams
Roads
Buildings
Installation Boundary

Figure 4: Blossom Point Topographic Map

0 500 1,000 1,500 2,000 Feet

US Army Corps of Engineers

Streams
Wetlands
Buildings
Installation Boundary

Figure 5: Blossom Point Wetlands Map

0 500 1,000 1,500 2,000 Feet

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APPENDIX B

Agency Coordination

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DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

August 6, 2012

Planning Division

Mr. Leopoldo Miranda
Chesapeake Bay Field Office
U.S. Department of the Interior Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

Dear Mr. Miranda:

On behalf of the Adelphi Laboratory Center, and in accordance with the National Environmental Policy Act, (NEPA) of 1969, as amended, the U.S. Army Corps of Engineers, Baltimore District (Corps) is preparing an Environmental Assessment (EA) for the implementation of an Invasive Species Management Plan (ISMP) for the Blossom Point Research Facility (BPRF). The BPRF encompasses approximately 1,600 acres in Charles County, Maryland.

The proposed action is necessary to comply with Executive Order 13112 and the Army Policy Guidance for Management and Control of Invasive Species. If no action is taken, minimal to no invasive species management will continue across the BPRF. The EA will be prepared in accordance with the NEPA of 1969, as amended.

The purpose of this letter is to verify that Section 7 of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended: 16 U.S.C. 1531 et seq.) and the U.S. Fish and Wildlife Coordination Act (16 U. S. C. 661 et seq.) requirements have been met for this project as part of our Environmental Assessment. To assist us in identifying environmental issues that may effect the implementation of this project, please provide written comments within 15 days of receipt of this letter to Ms. Erica Smith, U.S. Army Corps of Engineers, Baltimore District, ATTN: CENAB-PL-E, 10 South Howard Street, Baltimore, Maryland 21201. You may contact Ms. Smith at 410-962-4939 if you have any comments or questions regarding this matter.

Sincerely,

for Lawrence D. Eastman
Chief, Planning and Environmental
Services Branch

Enclosures

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF

August 6, 2012

Planning Division

Mr. John Griffin
Maryland Dept. of Natural Resources
Tawes State Office Building
580 Taylor Avenue
Annapolis, MD 21401

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Sincerely,

RJMadega

for Lawrence D. Eastman
Chief, Planning and Environmental
Services Branch

Enclosures