

AMENDED

ENVIRONMENTAL ASSESSMENT

PUBLIC DEER HUNT PROPOSAL

WALLOPS ISLAND NATIONAL WILDLIFE REFUGE

ACCOMACK COUNTY, VIRGINIA

April 2007

U.S. DEPARTMENT OF THE INTERIOR

U.S. FISH AND WILDLIFE SERVICE

Recommended by _____ Date: _____

Louis Hinds
Refuge Manager

Reviewed by _____ Date: _____

Steve Funderburk
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Concurrence by _____ Date: _____

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UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA), and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and determined that the Amended Environmental Assessment for the Public Deer Hunt Proposal for Wallops Island National Wildlife Refuge in Accomack County Virginia:

Check One:

_____ is a categorical exclusion as provided by 516 DM 2, Appendix 1 and 516 DM 6, Appendix 1, Section 1.4 A (4). No further NEPA documentation will therefore be made.

X _____ is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.

_____ is found to have significant effects and, therefore, further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an EIS.

_____ is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.

_____ is an emergency action within the context of 40 CFR 1 506.1 1. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

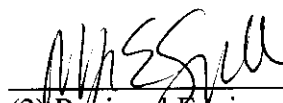
Other Supporting Documents:

Endangered Species Act, Section 7 Consultation, 2007
Compatibility Determination, 2007

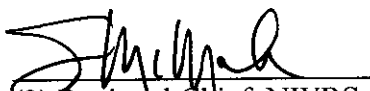
Signature Approval:



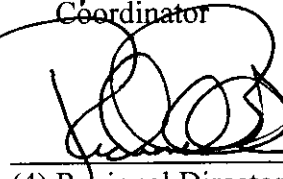
(1) Originator 4/20/07
Date



(2) Regional Environmental
Coordinator 4/25/07
Date



(3) Regional Chief, NWRS,
Northeast Region 4-27-07
Date



(4) Regional Director,
Northeast Region 4-27-07
Date

Acting

Acting

FINDING OF NO SIGNIFICANT IMPACT

2007 Amended Environmental Assessment for the Public Deer Hunt Proposal for Wallops Island National Wildlife Refuge

The U.S. Fish and Wildlife Service has amended the Environmental Assessment for the Public Deer Hunt Proposal for Wallops Island National Wildlife Refuge. The EA evaluated three hunt program alternatives, carefully considering their impacts on the environment, and their potential contribution to the missions of the National Wildlife Refuge System, and the refuge's purposes and goals. White-tailed deer hunting activities will be permitted, but administratively limited to those areas specified in the refuge-specific regulations. All or parts of the refuge may be closed to hunting at any time if necessary for public safety, to provide wildlife sanctuary, or for other reasons.

The Service has analyzed the following alternatives to the proposal in an Environmental Assessment (copy attached):

No action alternative:

The No Action Alternative in the EA is required by the Council of Environmental Quality's regulations on implementing the National Environmental Policy Act. Under this alternative, no white-tailed deer hunting would be permitted.

Population reduction by refuge staff or outside contractor alternative:

Under this alternative white-tailed deer numbers would be reduced by refuge staff or by an outside contractor.

Proposed action, conduct a proposed public hunt:

Under this alternative, public hunting would be permitted on 178 upland acres. This new hunting opportunity would be limited to certain days of the week and specific areas within the refuge.

The preferred alternative was selected over the other alternatives because:

1. The proposed action would allow the refuge to manage wildlife populations, allow the public to harvest a renewable resource, promote a wildlife-oriented recreational opportunity, increase awareness of Wallops Island NWR and the National Wildlife Refuge System, and meet public demand.
2. The proposed action is compatible with general Service policy regarding the establishment of hunting on National Wildlife Refuges.
3. The proposed action is compatible with the purpose for which Wallops Island NWR was established.
4. This proposal does not initiate widespread controversy.

5. There are no conflicts with local, state, regional, or federal plans or policies.

Implementation of the agency's decision would be expected to result in the following environmental, social, and economic effects:

1. The refuge could better manage wildlife populations.
2. Deer vehicle collisions and the potential for deer-aircraft collisions would be reduced.
3. This would allow the public to harvest a renewable resource.
4. The public would have increased opportunity for wildlife-oriented recreation.
5. Local businesses would benefit from visiting hunters.

Measures to mitigate and/or minimize adverse effects have been incorporated into the proposal. These measures include:

1. Hunters are restricted to upland areas only. Marsh areas remain closed to provide habitat for marsh and water birds.
2. Hunting is in compliance with Virginia state law. White-tailed deer hunting will be limited to 15 days rather than the entire state season.
3. The refuge law enforcement program and closely regulated hunting season will ensure hunt regulation compliance and will protect refuge resources.

The proposal has been thoroughly coordinated with all interested and/or affected parties. Parties contacted include:

U.S. Fish and Wildlife Service, Virginia Field Office, Gloucester VA.
Virginia Department of Game and Inland Fisheries, Richmond VA.
NASA Wallops Flight Facility, Goddard Space Flight Facility, Wallops Island VA.

Copies of the Environmental Assessment are available by writing:

Chincoteague National Wildlife Refuge
POB 62
Chincoteague Island VA 23336

Therefore, it is my determination that the proposal does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102(2) (c) of the National Environment Policy Act of 1969 (as amended). As such, an environmental impact statement is not required. This determination is based on the following factors (40 CFR 1508.27):

1. Both beneficial and adverse effects have been considered and this action will not have a significant effect on the physical resources of the human environment (EA, page 11).

2. Both beneficial and adverse effects have been considered and this action will not have a significant effect on the socioeconomic resources of the human environment (EA, page 12).

3. The actions will not have a significant effect on public health and safety, although some benefit to human health may result by reduced deer numbers lessening the potential for vehicle and airplane collisions (EA, page 13).

4. There will be no cumulative significant impacts on the environment. Cumulative Impacts have been analyzed with consideration of other similar activities on adjacent lands, in past action, and in foreseeable future actions (EA, pages 16-25).

5. There are no other reasonably foreseeable hunts. Consequently there will not be unforeseen direct or indirect cumulative impacts (EA, page 24).

References: 2007 Amended Environmental Assessment for the Public Deer Hunt Proposal for Wallops Island National Wildlife Refuge.



Marvin Moriarty
Regional Director
U.S. Fish and Wildlife Service
Hadley, Massachusetts

Acting

4-27-07
Date

List of Acronyms

BCC	Biological Carrying Capacity
CCC	Cultural Carrying Capacity
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NWR	National Wildlife Refuge
NWRS	National Wildlife Refuge System
NWRSIA	National Wildlife Refuge System Improvement Act
UA	Use Agreement
USFWS	United States Fish and Wildlife Service
VDGIF	Virginia Dept. of Game and Inland Fisheries
WFF	NASA/Goddard Space Flight Center/Wallops Flight Facility
WS	U.S. Dept. of Agriculture, Animal and Health Inspection Service, Wildlife Services

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ENVIRONMENTAL ASSESSMENT ON PUBLIC DEER HUNTING
PROPOSED ON WALLOPS ISLAND NATIONAL WILDLIFE REFUGE

In response to a 2003 lawsuit filed by the Fund for Animals, the U.S. Fish and Wildlife Service (Service) will amend or rewrite environmental assessments that describe hunting programs at sixteen national wildlife refuges located in the Northeast Region. The amended environmental assessments will address the cumulative impacts of hunting at all refuges which were named in the lawsuit. This document addresses the hunting programs at Wallops Island National Wildlife Refuge in Virginia.

Hunting at Wallops Island National Wildlife Refuge was first proposed in the *Environmental Assessment Public Deer Hunt Proposal Wallops Island National Wildlife Refuge Accomack, County Virginia January 2002*. Following a public comment period, the white-tailed deer hunting program was initiated in Fall 2002.

The remainder of this document details the hunting program alternatives that were developed and finalized in the 2002 EA. Cumulative impacts of the current hunting programs at Wallops Island National Wildlife Refuge will be addressed following a description of the alternatives that were first proposed in 2002.

I. Introduction

The Wallops Island National Wildlife Refuge (Wallops Island Refuge) was created on July 10, 1975 when 373 acres of land were transferred to the U.S. Fish and Wildlife Service from the National Aeronautics and Space Administration (NASA)/Goddard Space Flight Center/Wallops Flight Facility (WFF). The refuge, comprised mainly of salt marsh and woodlands, is located east of Wattsville in Accomack County, Virginia and contains habitat for a variety of trust species, including uplands and wetlands dependent migratory birds. No public use is currently permitted on the refuge. This refuge is managed as a satellite of Chincoteague National Wildlife Refuge.

In addition, the U.S. Fish and Wildlife Service (USFWS) has an agreement with NASA to use the NASA-owned portion of Wallops Island proper on a non-interference basis for research and management of declining wildlife in special need of protection. This Environmental Assessment concerns only the 373 acres of real property associated with the Wallops Island Refuge (Map 1).

II. Background, Purpose, and Need for the Proposed Action

A. Background

Wallops Island Refuge is located in Accomack County, on the Eastern Shore of Virginia. White-tailed deer (*Odocoileus virginianus*) currently surpass their cultural carrying capacity (CCC) in Accomack County, Virginia (VDGIF 1999). CCC is defined as the maximum number of deer that can coexist compatibly with humans. CCC is a function

of the tolerance of humans to deer, and the effects of deer, including safety issues. The CCC for deer generally occurs below the biological carrying capacity (BCC) (VDGIF 1999). Due to deer population increases in most of Virginia, deer management objectives have recently changed from increasing herds to controlling population growth (VDGIF 1999). The deer population in Accomack County currently supports a 79-day Virginia state hunting season with a four deer seasonal limit. Additional deer may be harvested with the purchase of a bonus deer stamp. Deer hunting is currently prohibited on the refuge and lands owned by NASA/Goddard Space Flight Center/Wallops Flight Facility (WFF) located outside the security fence.

Deer-aircraft strikes are a significant safety concern at the adjacent WFF. Deer-aircraft strikes are particularly dangerous because of the abundance, behavior, and large body size of deer (VDGIF 2000). On the 1,800 acre WFF adjacent to the refuge, there have been at least three documented incidences of deer-aircraft strikes since 1981, all of which resulted in aircraft damage (Wood 2001). As a result, deer removal operations are underway at WFF, conducted monthly using certified U.S. Dept. of Agriculture, Animal and Health Inspection Service, Wildlife Services (WS) sharpshooters. According to Wood (2001), “with minimal or no hunting on neighboring properties, new deer will continue to filter into WFF as illustrated by the continued take of deer by WS in spite of the drastically reduced population [on WFF].” Furthermore, Wood (2001) reports:

The area of adjacent property of most concern is the USFWS refuge property on the east side of Rt. 175. This area has very high deer abundance and contributes to the influx of deer into WFF. Deer reduction efforts may be focused there with close coordination with the USFWS.

Deer population increases have also resulted in habitat degradation on the refuge. A visual inspection of the refuge by USFWS biological staff has revealed high levels of browse damage and negative impacts to forest understory vegetation (e.g. lack of regeneration of native woody plants and forbs). The existence of a browse line alone does not indicate that the BCC has been surpassed on the Refuge or neighboring habitats. The Refuge however, is likely to function as a sanctuary from hunting pressure during the hunting season. Consequently, this sanctuary effect may increase the local survival rate and contribute to an increase in the deer population on the adjacent properties outside the hunting season. This localized increase has likely resulted in loss of personal property due to deer/vehicle collisions along state highway 175 (Schroer 1998, Schroer 2000).

In 1975, 373 acres of federal land, now known as Wallops Island Refuge, was transferred by NASA to the Secretary of Interior. The primary purpose for lands acquired under the Transfer of Certain Real Property for wildlife conservation, or other purposes, as amended, the purpose of the acquisition is: “... particular value in carrying out the national migratory bird management program.” (16 U.S.C. 667b-667d). The primary goals of the refuge are to preserve, enhance, protect, and improve habitat for migratory bird species. These goals are currently compromised by the recent impacts to the understory habitats by abundant deer browsing.

Regulated deer hunting has been shown to be an effective deer management tool; it has been shown to be the most efficient and least expensive technique for removing deer (VDGIF 1999). In addition, regulated deer hunting has been shown to provide diverse recreational benefits and economic benefits in the form of hunting-related expenditures (VDGIF 1999).

Three key acts govern the administration of and outline the mission and uses of the National Wildlife Refuge system. These acts are the Refuge Recreation Act of 1962, the National Wildlife Refuge System Administration Act of 1966, and the National Wildlife Refuge System Improvement Act of 1997 (NWRISA). The NWRISA strengthened and clarified key provisions of the National Wildlife Refuge System Administration Act of 1966 and the Refuge Recreation Act of 1962.

The NWRISA defined a conservation mission for the Refuge System. In addition, the NWRISA calls for the Refuge System to provide increased opportunities for compatible wildlife-dependent recreation. It defined six compatible, wildlife-dependent recreational uses as priority public uses of the System: hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation. The Act directed the Secretary to support management and public use while also ensuring the maintenance of the biological integrity and environmental health of the System.

This plan supports the priority public use provisions of the National Wildlife Refuge System Improvement Act of 1997. Hunting as specified in this plan is a wildlife-dependent recreational use and the law states that as such, it “shall receive priority consideration in national wildlife refuge planning and management.” The Secretary of Interior may permit hunting on a refuge if he/she determines that such use is compatible with the refuge purpose for which it was established. The hunting program will not materially interfere with or detract from the fulfillment of the purposes of the Refuge or mission of the National Wildlife Refuge System.

Public hunting on Wallops Island NWR is an acceptable and desirable form of wildlife oriented public recreation, compatible with the purpose for which the refuge was established. Hunting is a viable management tool and can reduce the overpopulation of species within a given habitat community to provide for greater wildlife diversity. The deer hunting program is designed to minimize conflicts with Refuge purposes.

Annual hunt administration costs including salary, equipment, boundary, sign maintenance, fuel, etc. total less than \$5,000. Less than one full time employee equivalent is expended in conducting hunt-related activities. Funds are available to meet the conditions set forth in the Refuge Recreation Act. It is anticipated that funding will continue to be sufficient to continue the hunting program in the future. In summary, funds are available to continue the hunt program and hunting activities do not significantly interfere with the primary purposes for which the refuge was established.

B. Proposed Action

The USFWS proposes to initiate an annual public hunt for white-tailed deer on Wallops Island Refuge on the Eastern Shore of Virginia.

C. Purpose of the Proposed Action

The purpose of the proposed action is to open to hunting on that real property of the National Wildlife Refuge System (NWRS) known as Wallops Island National Wildlife Refuge (Wallops Island Refuge). As part of the NWRS, the Wallops Island Refuge hunt plan will follow Service Policy as it relates to hunting. Thus, hunting may be considered an acceptable form of wildlife-dependent recreation, provided it is compatible with the purpose for which the refuge was established and the mission of the National Wildlife Refuge System.

The specific objectives for the proposed action for Wallops Island NWR are to:

1. Reduce deer/vehicle collisions that occur along state highway 175 and the refuge boundary.
2. Reduce the potential for increased deer/aircraft collisions at WFF.
3. Manage the deer population at levels that minimize negative effects upon the natural ecosystems at Wallops Island NWR, including native vegetation and wildlife communities.
4. Provide a wildlife-dependent recreational activity.

D. Need for the Proposed Action

1. Virginia deer population status

Deer populations in Virginia have increased significantly in the past 65-70 years, due to reforestation, farm abandonment, protective game laws, and restocking. The current Virginia population is stable and estimated at approximately 900,000 animals. As a result, state deer management objectives currently focus on controlling deer population growth (VDGIF 1999).

2. Deer-Vehicle Collisions

Deer-vehicle collisions are a serious concern nationwide because of the potential for human injury or death and losses to property (VDGIF 2000). Conover et al. (1995) estimated that 1.5 million deer-vehicle collisions occur annually in the U.S., and that the average repair cost is \$1,500. Additionally, deer-vehicle collisions in the U.S. result in 29,000 injuries and 211 human fatalities, annually

(Conover et al. 1995). The VDGIF conservatively reported that there may be tens of thousands of deer-vehicle collisions in the state each year (VDGIF 1999).

From 1985-1994, there were 12 reported fatalities in Virginia that resulted from deer-vehicle collisions (VDGIF 1999). The Deer Damage Committee established by VDGIF estimated that approximately \$4.2 million in damage to property resulted from deer-vehicle collisions in Virginia each year, from 1987-1991 (West 1998). Knox (2000) reports that for the tidewater region of Virginia, "Crop damage... and deer vehicle collisions remain a major management concern over much of the region."

3. Deer-Aircraft Collisions

Wildlife collisions with aircraft are a serious safety and economic problem. In a recent study ranking wildlife hazards to aircraft, deer were ranked as the most hazardous species group (Dolbeer et al. 2000). The FAA and WS recommend a zero-tolerance of deer on an airfield (Wood 2001). In a Wildlife Hazard Assessment for WFF, Wood (2001) reports, "Presently the area of adjacent property of most concern [to WFF] is the USFWS refuge property on the east side of Rt. 175 [Wallops Island Refuge]. This area has very high deer abundance and contributes to the influx of deer into WFF."

4. Damage to Natural Resources

The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well documented (Behrend, et al., 1970; Tilghman, 1989). Numerous studies have shown that overbrowsing by deer can decrease tree reproduction, understory vegetation cover, plant density, and plant diversity (Warren 1991). For example, in Great Smokey Mountains National Park, areas heavily populated by deer showed a reduction in number of plant species and a loss of hardwood species (Bratton 1979).

Degradation of forest habitat from deer overbrowse can have a detrimental effect on deer herd health and displace other wildlife communities (e.g., neotropical migratory songbirds and small mammals) (VDGIF 1999). High deer populations can displace neotropical migrant songbirds and small mammals that depend on understory vegetation for foraging areas, escape cover, and nesting surfaces (DeCalesta 1997). Species richness and abundance of intermediate canopy nesting songbirds can be reduced in areas with higher deer densities (DeCalesta 1997). Casey and Hein (1983) documented that three species of birds were lost when ungulates reached high densities, and that adjacent areas with lower deer populations had higher densities of bird species.

5. Wildlife-Dependent Recreational Opportunities

The NWRSA establishes as the policy of the USFWS that wildlife-dependent recreation, when compatible with refuge purposes and the mission of the NWR, is a legitimate and appropriate public use of the Refuge System, through which the American public can develop an appreciation for fish and wildlife. The NWRSA directs USFWS to facilitate such recreation, including hunting (50 CFR Part 32, Page 46346, Sept 4, 2001).

II. Alternatives

Three alternative management strategies, including a Proposed Action and a No Action Alternative have been developed for the refuge. Under Alternative 1 and Alternative 2, Chincoteague NWR would prepare a hunt management plan. In the Service's opinion, all three alternatives represent a reasonable range as required by the National Environmental Policy Act of 1969 (Pub.L. 91-190) (NEPA), and represent both reasonable and feasible management options.

A. Alternative One: Conduct a controlled public hunt (Proposed Action)

Under this alternative Wallops Island NWR will be open to the public for the hunting of white-tailed deer subject to state, federal, and special regulations.

B. Alternative Two: Reduction of population by refuge staff

This alternative would require that refuge personnel take full responsibility for deer herd reduction by harvesting, dressing and chilling the meat under the Department of Agriculture guidelines for institutional distribution and inspection.

C. Alternative Three: No action Alternative

This alternative would involve no removal/control of the refuge deer herd through hunting or any other means. Deer densities would be regulated by existing factors.

D. Options Considered but Eliminated from Further Consideration

Several options were analyzed and considered during the environmental assessment process that were eliminated as non-viable management options. These include immunocontraception, steroidal implants, oral delivery of contraceptives, GNRH vaccine, sterilization, and live trapping and relocation. Please refer to the Appendix for their description and discussion.

IV. Affected Environment

A. Physical Resources

The refuge extends from bordering saltmarshes at mean sea level to mixed loblolly pine/hardwoods to 25 feet above mean sea level. It is bounded by saltmarshes and tidal creeks along the east border, by land owned by NASA along the north border, by private property along the southern border, and by Virginia State Highway Route 175 along the west border.

1. Climate

The climatic conditions of Wallops Island Refuge are moderated by the Atlantic Ocean. The lowest mean temperature is about 38°F, in January; the highest monthly mean temperature is about 77°F, in July. Dry periods are generally in summer and autumn; prevailing winds are from the northeast and southeast (USFWS Wallops Island NWR Fire Management Plan 1986). Annual precipitation totals range from 30 to 60 inches, averaging about 38 inches per year.

2. Geology and Soils

The soils of Wallops Island NWR consist primarily of sand on uplands and silty loams on tidal marshes and other wetlands. The upland areas of the southern end of the refuge are predominantly Bojac fine sandy loam (0-2 percent slope) and Molena loamy sand (0-6, 6-35 percent slopes). They consist of various mixtures of clay, silt, and sand, and are moderately to slightly well drained. The northern areas of the refuge consist primarily of tidal marshes made of Magotha fine sandy loam (0-2 percent slope) in the high marshes and Chincoteague silt loam (0-1 percent slope) in the low marshes. These areas are frequently flooded. (Peacock 1994).

3. Hydrology

At least two natural freshwater streams exist on Wallops Island NWR, contiguous with two tidal tributaries of Little Simoneaston Creek, which borders the refuge. Rainfall and tidal flooding are other sources of surface water on the refuge.

In addition a sea-level fen exists on the Refuge, known as the Simoneaston Bay sea-level fen (Chris Ludwig, VA Dept. Cons. and Recr., pers. comm.). Sea level fens are nutrient-poor, maritime seepage wetlands, confined to a few sites with an unusual combination of environmental conditions for the mid-Atlantic (VDCR 2001). Only four occurrences are known in Virginia, all of them in Accomack County. The fen is located just above highest tide levels, at the base of a slope where abundant groundwater discharges.

B. Biological Resources

1. Vegetation

Wallops Island Refuge is a 373 acre tract consisting of two main ecosystem types; marsh (195 acres) and woods (121 acres). In addition, there are 57 acres of old-field, successional meadows. Loblolly pine (*Pinus taeda*) is the dominant tree species, secondary components include: tulip poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), southern red oak (*Quercus falcata*) wild cherry (*Prunus serotina*), dogwood (*Cornus florida*) sassafras (*Sassafras albidum*) and sweet gum (*Liquidambar styraciflua*). Understory includes: American holly (*Ilex opaca*), spicebush (*Lindera benzoin*), hercules club (*Aralia spinosa*) and greenbrier (*Smilax sp.*). Transition zones between the marsh and woodland are dominated by groundsel tree (*Baccharis halimifolia*) and wax myrtle (*Myrica cerifera*). The marsh is dominated by (*Spartina alterniflora*) and saltmeadow hay (*Spartina patens*) (USFWS Wallops Island NWR Fire Management Plan 1986).

The Simoneaston Bay sea-level fen exhibits vegetation characteristics of both inland seepage bogs and oligohaline tidal marshes. The fen is a mosaic of open woodland, scrub, and herbaceous patches. Rare herbs include: white beakrush (*Rhynchospora alba*), few-flowered beakrush (*R. oligantha*), ten-angled pipewort (*Eriocaulon decangulare*), brown-fruited rush (*Juncus pelocarpus*), and a bladderwort (*Utricularia juncea*) (Chris Ludwig, pers. comm.). Sea level fens are extremely rare and local throughout their known range along the Atlantic Coast from New Jersey to Virginia. Chronic sea-level rise, with associated intrusions of tidal flooding and salinity, comprises a serious threat to the long-term viability of all sea-level fens (VDCR 2001).

2. Wildlife

Wallops Island Refuge was included as part of the study area analyzed in the Final Environmental Impact Statement for the Chincoteague NWR Master Plan. As such, it is likely that many of the diverse wildlife species recorded for the Chincoteague NWR study area also use Wallops Island Refuge.

A brief summary of these species follows: Nesting migratory waterfowl likely to be found at Wallops Island NWR include wood duck (*Aix sponsa*), American black duck (*Anas rubripes*), mallard (*Anas platyrhynchos*), and gadwall (*Anas strepera*). Wintering species likely to be found in the tidal marsh habitats at the refuge include American black duck, mallard, gadwall, snow goose (*Chen caerulescens*), Canada goose (*Branta canadensis*), green-winged teal (*Anas crecca*), northern pintail (*Anas acuta*), northern shoveler (*Anas clypeata*), American widgeon (*Anas americana*), bufflehead (*Bucephala albeola*), red-breasted merganser (*Mergus serrator*), ruddy duck (*Oxyura jamaicensis*). A variety of wading birds are also likely to inhabit the tidal creeks of the refuge, including: glossy ibis (*Plegadis falinellus*), a variety of herons, several rallids,

and great (*Casmerodius albus*), snowy (*Egretta thula*), and cattle egrets (*Bubulcus ibis*) (USFWS, Environmental Impact Statement, Chincoteague NWR Master Plan 1992).

Nine species of raptors (hawks and owls) are known to be present on the Wallops Island Refuge (Ailes, USFWS, pers. comm.). American kestrel (*Falco sparverius*), osprey (*Pandion haliaetus*), turkey (*Cathartes aura*), black vulture (*Coragyps atratus*), and red-tailed hawks (*Buteo jamaicensis*) are the most commonly seen species. Osprey are common nesters in the vicinity, especially on NASA's towers and launch sites. Navy personnel erected several osprey nesting platforms in years past that help to alleviate the tower nesting issue.

Numerous other species of migratory birds frequent Wallops Island Refuge; however, no formal surveys are conducted on these species. Nevertheless, the Chincoteague NWR bird list includes over 100 species of breeding and/or migrating passerines (Environmental Impact Statement, Chincoteague NWR Master Plan 1992). It is likely that passerines such as carolina wren (*Thryothorus ludovicianus*), pine warbler (*Dendroica dominica*), common yellowthroat (*Geothlypis trichas*), and wood thrush (*Hylocichla mustelina*), breed in the upland forest habitats at Wallops Island Refuge. Old-field breeding species such as song sparrow (*Melospiza melodia*), indigo bunting (*Passerina cyanea*), and brown thrasher (*Toxostoma rufum*) likely use the early-successional habitats on the refuge.

Mammals on the Refuge are likely to include: white-tailed deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), opossum (*Didelphis virginiana*), eastern gray squirrel (*Sciurus carolinensis*), river otter (*Lutra canadensis*), raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), muskrat (*Ondatra zibethicus*), and small mammals, such as meadow vole (*Microtus pennsylvanicus*), and least shrew (*Cryptotis parva*) (USFWS, Environmental Impact Statement, Chincoteague NWR Master Plan 1992).

Reptiles on the Refuge are likely to include: eastern box turtle (*Terrapene carolina*), Northern diamond back terrapin (*Malaclemys terrapin*), eastern mud turtle (*Kinosternon subrubrum*), eastern hognose snake (*Heterodon platyrhinos*), black rat snake (*Elaphe obsoleta*), and northern water snake (*Nerodia sipedon*). Amphibians may include Fowler's toad (*Bufo woodhousei*), southern leopard frog (*Rana sphenocphala*), bull frog (*Rana catesbeiana*), and green tree frog (*Hyla cinerea*) (USFWS, Environmental Impact Statement, Chincoteague NWR Master Plan 1992).

3. Federal Listed Species

The threatened species which frequents Wallops Island NWR is the bald eagle (*Haliaeetus leucocephalus*). The eagle has not historically bred at Wallops Island

Refuge, although there is potential for this activity.

C. Cultural Resources

The body of federal historic preservation laws has grown dramatically since the enactment of the Antiquities Act of 1906. Several themes recur in these laws, their promulgating regulations, and more recent Executive Orders. They include:

- 1) Each agency is to systematically inventory the historic properties on their holdings and to scientifically assess each property's eligibility for the National Register of Historic Places.
- 2) Federal agencies are to consider the impacts to cultural resources during the agencies management activities and seek to avoid or mitigate adverse impacts.
- 3) Protection of cultural resources from looting and vandalism are to be accomplished through a mix of informed management, law enforcement efforts, and public education.
- 4) The increasing role of consultation with groups, such as Native American tribes, in addressing how a project or management activity may impact specific archaeological sites and landscapes deemed important to those groups.

The U.S. Fish and Wildlife Service, like other federal agencies, are legally mandated to inventory, assess, and protect cultural resources located on those lands that the agency owns, manages, or controls. The Service's cultural resource policy is delineated in 614 FW 1-5 and 126 FW 1-3.

In the FWS Northeast Region, the cultural resource review and compliance process is initiated by contacting the Regional Historic Preservation Officer/Regional Archaeologist (RHPO/RA). The RHPO/RA will determine whether the proposed undertaking has the potential to impact cultural resources, identify the "area of potential effect," determine the appropriate level of scientific investigation necessary to ensure legal compliance, and initiates consultation with the pertinent State Historic Preservation Office (SHPO) and federally recognized Tribes.

D. Socioeconomic Resources

Accomack County is one of the poorest counties in Virginia. The mean value of owner occupied units in the county is \$66,600; the mean rent of renter occupied units is \$216 (U.S. Census Department's *1990 Census of Population and Housing*). The 1997 population estimate for Accomack County is 32,300 persons (Eastern Shore of Virginia Economic Development Commission 2000). Major sources of employment include, in descending order of importance, manufacturing, wholesale and retail trade, government, professional and related services, and agriculture, forestry, fishing, and mining (USFWS, Environmental Impact Statement, Chincoteague NWR Master Plan 1992). The largest private employers on the Shore are Perdue Farms (1,900 employees) and Tyson Foods (1,000 employees); both of which operate chicken processing plants (Eastern Shore of Virginia Economic Development Commission 2000). The net cash return from

agricultural sales per farm in Accomack county is \$50,292 (Information from 1992 Census of Agriculture).

The NASA/Goddard Space Flight Center/Wallops Flight Facility (WFF) is a 1,800 acre government facility adjacent to Wallops Island NWR. Established in 1945, WFF is one of the oldest launch sites in the world, supporting research in Earth sciences, space science and technology. With about 750 employees, WFF is the fourth largest employer on Virginia's eastern shore (Eastern Shore of Virginia Economic Development Commission 2000).

V. Environmental Consequences

The proposed action and its alternatives are not likely to affect the physical resources of the human environment of Wallops Island Refuge, since no significant construction or earth-moving activities would occur. The refuge may have to construct small, limited-use parking areas for hunters; however such parking will likely be placed adjacent to state highway 175 (a disturbed, low-quality habitat); and would not result in clearing any forested areas. The refuge will also place refuge hunting signs. The following scope of analysis for the environmental consequences is therefore limited to those resources that would likely be impacted by the proposed action and its alternatives -- the biological environment, both vegetation and wildlife resources, and socio-economic resources . Discussion of the affected environment and impacts will be limited to these resources.

Comparison of Alternatives

A. Alternative One: Conduct a controlled public hunt (Proposed Action)

1. Biological Resources

a. Vegetation

Positive effects on the vegetation should result from a reduction in the white-tailed deer population at Wallops Island Refuge. The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well documented (Behrend, et al., 1970; Tilghman, 1989). Reducing the size of the deer population will prevent further degradation due to overbrowsing. Well-managed hunting can effectively control deer and produce striking changes in the forest vegetation (Behrend, et al., 1970). The impact of deer hunting on the vegetation would likely result in better recruitment of forest canopy species and an increase in the diversity of shrubs and the herbaceous understory.

The sea level fen area will not be open to deer hunting activities. Therefore, there are no anticipated adverse impacts to this rare ecosystem.

b. Wildlife

This alternative should result in few or no adverse impacts to the wildlife of Wallops Island Refuge. Direct impacts to wildlife would include the harvest of deer annually. If no actions are taken to reduce deer populations, deer may increase in the local area, until the habitat can no longer support additional deer numbers. At this point, deer populations may begin to decline due to starvation and disease (USDA and VDGIF 2000). However, Wallops Island Refuge is a relatively small fragment of deer habitat. Considering the Refuges' proximity to other usable habitats in the landscape, a more likely scenario would be the dispersal of surplus deer onto neighboring properties. Deer harvest can result in a lowering and maintaining of the population at a level more consistent with the carrying capacity of the habitat, thereby lessening the burden on adjacent property owners as well. Thus, the long term impacts to the white-tailed deer population as whole will be positive.

This alternative should also reverse degradation of wildlife habitat from over browsing. When deer populations are reduced, understory vegetation should recover, increasing the quality of forage areas, escape cover, and nesting habitat for neotropical songbirds and other forest-floor or mid-canopy wildlife species at Wallops Refuge.

There will be minimal disturbance to other wildlife in the area on the days hunters will be on the refuge, because: hunting activities will take place outside nesting and brood-rearing periods for most wildlife species; hunter numbers will be limited; and hunters will not be permitted to enter the hunting area with motor vehicles (other than on limited parking areas) or hunting dogs. The large acreage of saltmarsh and woodland in the vicinity of the refuge will provide adequate space and habitat for temporarily displaced birds. Escape cover for smaller mammals is available and disturbance by hunters should not significantly adversely affect them.

c. Federal Listed Species

The potential of future impacts on bald eagle nesting activity do exist. Nest building activity may be initiated as early as November 1. However, the bald eagle is not currently breeding at Wallops Island Refuge, nor has the refuge been recorded as a breeding site for the bald eagle since creation of the refuge in 1975 (Ailes, USFWS, pers. comm.). Therefore, there are no anticipated adverse impacts to this species.

2. Socioeconomic Resources

The regional social-economic effects include those impacts on members of the public that react strongly for or against hunting. Some members of the community who object to hunting will react negatively. Others who do not object to hunting will view a public hunt as more humane than starvation and because fewer deer will be injured or killed by vehicle collisions. Visitors interested in viewing wildlife within the refuge will not be impacted during the hunt because there is no visitor access to Wallops Island Refuge.

Other effects include increased early morning and evening traffic on the peripheral county and state roads during hunting periods. However, overall, benefits to human health and safety are anticipated. By reducing the number of deer on the refuge, the potential for deer-vehicle collisions on State Rt. 175 and deer-aircraft collisions at WFF will be reduced. Furthermore, reductions in deer-vehicle and deer-aircraft collisions will provide economic benefits to local commuters and WFF, by reducing repair costs.

Hunting on Wallops Island Refuge will provide recreational activity and food. Furthermore, a deer hunt at the Refuge will likely result in a slight increase in purchase of goods and services at local stores and restaurants, because it may attract a small number of out-of-county hunters into the county. There is no other form of public recreation allowed on Wallops Island Refuge, at this time.

An increase in recreational use will result in economic impacts to Chincoteague National Wildlife Refuge. An estimated 30 staff days will be required to plan and manage the hunt, including: handling public inquiries; conducting hunter orientation; hunter check-in duties; and law enforcement. This is estimated to cost about \$4,000 in materials and overtime, annually. There will likely also be minor, one-time costs (about \$2,000) associated with placing refuge hunt signs.

B. Population Reduction by Refuge Staff or Outside Contractor

1. Biological Resources

a. Vegetation

The impacts of this alternative on vegetation would be same as those for Alternative 1.

b. Wildlife

This alternative would increase the potential of selectively harvesting animals to correct the age/sex ratios of the herd.. The opportunity to reduce reproductive potential by increasing the percent of females harvested would likely be greater than under a regulated hunt. Other impacts of this alternative on white-tailed deer, and other wildlife species

would be same as those for Alternative 1.

c. Federal Listed Species

The impacts of this alternative on vegetation would be same as those for Alternative 1.

2. Socioeconomic Resources

From a public safety standpoint, this alternative carries a greater potential reduction in safety hazards to individual members of the hunting public, as only refuge staff will be involved in deer control activities. Other safety issues would likely be the same as in Alternative 1.

This alternative carries the likelihood of objections from the public to take by refuge staff. It would result in a loss in opportunity for a priority public recreational use. Local deer hunters are likely to be concerned because this alternative precludes potential deer hunting opportunities. This alternative is contrary to Service policy to conduct a reduction of surplus game animals using a recreational hunt, when it can be used to effectively manage wildlife populations.

A refuge-sponsored or contractual hunt will not provide recreation, but could provide food for needy citizens in the local community. It would not likely contribute to a purchase of goods and services at local stores and restaurants, because the operations will be carried out by refuge staff, or a single contractor.

This alternative would likely be impractical in terms of staff time and refuge expense required to accomplish the objective of herd control. The refuge would need to hire at least one new seasonal staff member, annually, to carry out deer control, or else contract annually with a professional sharp-shooter. Although professional removal with marksman can be efficient and cost-effective (Cypher and Cypher 1988), this alternative is usually still more expensive than a public hunting program, since outsourcing is required for equipment and personnel. Each of these options would be much more expensive than the \$4,000 annual and \$2,000 one-time costs estimated for a regulated deer hunt at Wallops Island Refuge. In addition, the refuge would incur the cost of processing and transporting deer carcasses for donation to a "Hunters for the Hungry" or similar program. Other means of disposal of the deer carcasses are infeasible because of the high disease potential if carcasses are left on site. As stated in the Virginia Deer Management Plan (VDGIF 1999), "Wildlife management agencies recognize deer hunting as the only effective, practical and flexible method available for regional deer population management, and therefore rely on it as their primary management tool."

C. No action Alternative

1. Biological Resources

a. Vegetation

Without natural predators, or some means of population control, the herd could continue to grow and the habitat will likely undergo further degradation. High levels of browse damage and negative impacts to forest understory vegetation and overstory species recruitment would continue.

b. Wildlife

This alternative would prevent active deer herd management and would allow the herd to be regulated by means of disease, starvation, age, predation, emigration and deer-vehicle collisions. Continued increases in the deer population on the Refuge may result in increased immigration of deer into neighboring habitats, thereby resulting in reduced habitat quality on those properties as well. While deer populations remain high, the primary goals of the refuge to preserve, enhance, protect, and improve habitat for migratory and non-migratory species would continue to be compromised by abundant deer browsing.

c. Federal Listed Species

It is likely that the impacts of this alternative on the bald eagle would be same as those for Alternative 1.

2. Socioeconomic Resources

Failure to maintain the deer herd at levels within the carrying capacity of Wallops Island Refuge habitat may have serious impacts on public safety on state highway 175. If the deer herd is allowed to self regulate its size, the Refuge community can expect recurring cycles of high deer herd populations with corresponding high frequencies of deer-automobile collisions. There will also be higher occurrences of immigration of deer into WFF than with deer control measures, and the Refuge will continue to be a major contributor to the deer-aircraft collision hazard at the facility. This alternative carries fewer safety hazards to individual members of the hunting public, as there will be no hunting activities permitted on the Refuge.

Those members of the public against hunting would likely view this alternative favorably. For those individuals in favor of hunting, this alternative would preclude a potential for wildlife recreation. This alternative would result in a loss in opportunity for a priority public recreation. This alternative precludes potential deer hunting opportunities and is contrary to Service policy to conduct a reduction of surplus game animals using a recreational hunt, when it can be used to

effectively manage wildlife populations. This alternative will not provide recreation and food sources for the local community and will not contribute to a purchase of goods and services at local stores and restaurants. This alternative would not result in an increase in refuge expenses.

D. Cumulative Impacts Analysis

Council on Environmental Quality regulations require Federal agencies to consider the direct, indirect, and cumulative impacts associated with implementing a proposed action, such as the hunting program that was proposed for Wallops Island National Wildlife Refuge in 2002.

Court cases have identified five elements that constitute a meaningful cumulative impacts analysis and must be included in Environmental Assessments for each refuge hunting program. These five elements are:

1. the area in which the effects of the proposed project will be felt;
2. the impacts that are expected in that area from the proposed project;
3. other actions – past, present, and proposed, and reasonably foreseeable – that have had or are expected to have impacts in the same area;
4. the impacts or expected impacts from these other actions; and
5. the overall impact that can be expected if the individual impacts are allowed to accumulate.

The remainder of this amended environmental assessment will detail the cumulative impacts associated with the hunt program.

1. Anticipated Direct and Indirect Impacts of Proposed Hunt on Wildlife Species

Resident Wildlife

Alternative One: Conduct a controlled public hunt (Proposed Action)

Hunting of white-tailed deer is the only hunting program permitted. All other species are protected by law and take is prohibited. Those species include small mammals such as voles, moles, mice, shrews, and bats; reptiles and amphibians such as snakes, skinks, turtles, lizards, salamanders, frogs and toads; and invertebrates such as butterflies, moths, insects and spiders.

White-tailed Deer harvest is essential to help maintain the herd at or below habitat carrying capacity. When deer are overpopulated, habitat is over browsed and forest succession is altered. Deer car collisions are a concern along State Highway 175 adjacent to the refuge.

Virginia Department of Game and Inland Fisheries county deer harvest

from 1995 to 2005 averaged 2,377 deer yearly. Statewide deer harvest has exceeded 220,000 deer since 2001. The average yearly harvest on Wallops Island NWR is 14 deer. VADGIF county objectives are to reduce the deer population. The hunt is coordinated yearly with VADGIF and NASA officials. Hunting will help manage local populations but will not have direct or indirect cumulative impacts to white-tailed deer either at a county or state wide level.

Disturbance by hunters to other resident wildlife species will not have any direct or indirect cumulative impact. The hunting season is only 15 days and occurs in the late fall when temperatures are low. Only five hunters are permitted for three days weekly in a five week period. Reptiles, amphibians, and invertebrates are inactive and the activity patterns of small mammals are reduced.

Isolated encounters should not have cumulative negative effects on populations. Disturbance by hunting to other resident wildlife will not have direct or indirect cumulative impacts.

Resident Wildlife

Alternative Two: Reduction of population by refuge staff

Impacts of this alternative would be nearly identical to Alternative One - Conduct a controlled public hunt (Proposed Action). Only white-tailed deer would be targeted.

White-tailed Deer reduction is essential to help maintain the herd at or below habitat carrying capacity. When deer are overpopulated, habitat is over browsed and forest succession is altered. Deer car collisions are a concern along State Highway 175 adjacent to the refuge.

The Virginia Department of Game and Inland Fisheries county deer harvest from 1995 to 2005 averaged 2,377 deer yearly. Statewide deer harvest has exceeded 220,000 deer since 2001. The average yearly harvest on Wallops Island NWR is 14 deer. VADGIF county objectives are to reduce the deer population. The hunt is coordinated yearly with VADGIF and NASA officials. Hunting will help manage local populations but will not have direct or indirect cumulative impacts to white-tailed deer either at a county or statewide level.

Disturbance by staff to other resident wildlife species (such as small mammals such as voles, moles, mice, shrews, and bats; reptiles and amphibians such as snakes, skinks, turtles, lizards, salamanders, frogs and toads; and invertebrates such as butterflies, moths, insects and spiders) will not have any direct or indirect cumulative impact and would be

similar to the Proposed Action. The population reduction would occur in the late fall when temperatures are low. Isolated encounters should not have cumulative negative effects on populations. Reptiles, amphibians, and invertebrates are inactive and the activity patterns of small mammals are reduced.

Disturbance by staff to other resident wildlife will not have direct or indirect cumulative impacts.

Resident Wildlife

Alternative Three: No action Alternative

Under this alternative, the refuge would not open to deer hunting. The refuge would remain closed to public use. As a result, additional mortality of individual hunted animals would not occur under this alternative. Disturbance by hunters to wildlife would also not occur.

High deer densities will have a negative effect on plant composition and structure. Continued high or increasing densities will result in habitat degradation from over browsing and can result in elimination of plant species preferred by deer.

Migratory Birds

Alternative One: Conduct a controlled public hunt (Proposed Action)

Hunting of white-tailed deer is the only hunting program permitted. Migratory birds are protected by law and take is prohibited.

White-tailed Deer harvest is essential to help maintain the herd at or below habitat carrying capacity. When deer are overpopulated, habitat is over browsed and forest succession is altered. Deer aircraft collisions on adjacent NASA runways and car collisions along State Highway 175 adjacent to the refuge are a concern.

Disturbance to the daily wintering activities, such as feeding and resting, may occur but will most likely be insignificant. Isolated encounters by hunters should not have cumulative negative effects on populations. Disturbance by hunters to migratory birds will not have direct or indirect cumulative impacts.

Migratory Birds

Alternative Two: Reduction of white-tailed deer population by refuge staff

Impacts of this alternative would be nearly identical to Alternative One - Conduct a controlled public hunt (Proposed Action). Only white-tailed

deer would be targeted.

White-tailed Deer removal is essential to help maintain the herd at or below habitat carrying capacity. When deer are overpopulated, habitat is over browsed and forest succession is altered. Deer aircraft collisions on adjacent NASA runways and car collisions along State Highway 175 adjacent to the refuge are a concern.

Virginia Department of Game and Inland Fisheries county objectives are to reduce the deer population. The bag limit continues to be two deer, either-sex daily. Removal will not have direct or indirect cumulative impacts to white-tailed deer either at a county or state wide level.

Disturbance by staff would be similar to the Proposed Action. Disturbance to the daily wintering activities, such as feeding and resting, of birds may occur but will most likely be insignificant. Isolated encounters should not have cumulative negative effects on populations. Disturbance by staff to migratory birds will not have direct or indirect cumulative impacts.

Migratory Birds

Alternative Three: No action Alternative

Under this alternative, the refuge would remain closed to public use. As a result, no mortality or disturbance to migratory birds would occur. Long term over-utilization by deer will negatively impact habitat conditions for other bird species on the refuge. These impacts may alter bird use of the refuge during migration, wintering or nesting. The effect on bird species may range from complete avoidance of the area, to reduced numbers, to improvement of habitat for some species. A decrease in overall species richness and diversity can be expected.

Endangered Species

Alternative One: Conduct a controlled public hunt (Proposed Action)

The Bald Eagle, a threatened species, may utilize the refuge occasionally. A Section 7 Evaluation was conducted in association with this assessment and accompanying Decision Document Package for opening hunting. It was determined that the proposed alternative will not have direct or indirect cumulative impacts to bald eagle.

Endangered Species

Alternative Two: Reduction of white-tailed deer population by refuge staff

The Bald Eagle, a threatened species, may utilize the refuge occasionally.

Reduction of white-tailed deer by staff would be similar but less than the Proposed Action. The Bald Eagle Section 7 Evaluation associated with the Proposed Action was determined have no effect or direct or indirect cumulative impacts to bald eagle.

Endangered Species

Alternative Three: No action Alternative

Under this alternative, the refuge would remain closed to public use. As a result, there will be no activity potentially adversely affecting threatened and endangered species.

2. Anticipated Direct and Indirect Impacts of Proposed Action on Refuge Programs, Facilities, and Cultural Resources

Other Refuge Wildlife-Dependent Recreation

Alternative One: Conduct a controlled public hunt (Proposed Action)

The refuge is closed to all public use and is open only to deer hunting for 15 days. It is unlikely hunting opportunity will expand in the future. The hunting program will not have direct or indirect cumulative impacts to other wildlife recreation dependent activities.

Other Refuge Wildlife-Dependent Recreation

Alternative Two: Reduction of white-tailed deer population by refuge staff

The refuge would remain closed to all public use and deer reduction would be done by refuge staff. It is unlikely the staff effort will expand in the future. Reduction of deer by staff will not have direct or indirect cumulative impacts to other wildlife recreation dependent activities.

Other Refuge Wildlife-Dependent Recreation

Alternative Three: No action Alternative

The public would not have the opportunity to harvest a renewable resource, participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established, have an increased awareness of Wallops Island NWR and the National Wildlife Refuge System; nor would the Service be meeting public use demand. Public relations would not be enhanced with the local community. The refuge would remain closed to all public use.

Refuge Facilities

Alternative One: Conduct a controlled public hunt (Proposed Action)

Hunters must park in three designated areas just off the highway right-of-way. Under the proposed action, refuge roads, and trails are closed to vehicle use. Minimal maintenance activities will be associated with the three parking areas and little, if any, wildlife disturbances will occur because of the location adjacent to the highway right-of-way. Any costs would be minimal relative to total refuge operations and maintenance costs and would not diminish resources dedicated to other refuge management programs. Refuge facilities are not expected to be negatively impacted by the proposed action. No direct or indirect cumulative impacts to refuge facilities will occur.

Refuge Facilities

Alternative Two: Reduction of white-tailed deer population by refuge staff

Impacts of this alternative would be less than Alternative One - Conduct a controlled public hunt (Proposed Action) as three designated parking areas just off the highway right-of-way would not be necessary. Any costs would be minimal relative to total refuge operations and maintenance costs and would not diminish resources dedicated to other refuge management programs. Refuge facilities are not expected to be negatively impacted. No direct or indirect cumulative impacts to refuge facilities will occur.

Refuge Facilities

Alternative Three: No action Alternative

The refuge would remain closed to all public use. Additionally, minimal costs associated with the parking areas, instructional sign needs, and law enforcement would not be applicable. Refuge facilities would not be negatively impacted. No direct or indirect cumulative impacts to refuge facilities will occur.

Cultural and Historical Resource Impacts

Alternative One: Conduct a controlled public hunt (Proposed Action)

The Proposed Action alternative requires no development such as construction of new trails and facilities, thereby producing no negative effect on the refuge's cultural and historic resources. Existing parking areas are located on sites previously disturbed by highway construction.

Potential archaeological or historical sites are protected by the National Historic Preservation Act that requires any actions by a Federal agency that may affect archaeological or historical resources are reviewed by the State Historic Preservation Office, and that the identified effects must be avoided or mitigated. The Service's policy is to preserve these cultural,

historic, and archaeological resources in the public trust, and avoid any adverse effects wherever possible. No direct or indirect cumulative impacts to refuge cultural and historical resources will occur.

Cultural and Historical Resource Impacts

Alternative Two: Reduction of white-tailed deer population by refuge staff

This alternative requires no development such as construction of new trails and facilities, thereby producing no negative effect on the refuge's cultural and historic resources. Existing parking areas are located on sites previously disturbed by highway construction.

Potential archaeological or historical sites are protected by the National Historic Preservation Act that requires any actions by a Federal agency that may affect archaeological or historical resources are reviewed by the State Historic Preservation Office, and that the identified effects must be avoided or mitigated. The Service's policy is to preserve these cultural, historic, and archaeological resources in the public trust, and avoid any adverse effects wherever possible. No direct or indirect cumulative impacts to refuge cultural and historical resources will occur.

Cultural and Historical Resource Impacts

Alternative Three: No action Alternative

The refuge would remain closed to all public use. This alternative requires no parking areas, instructional sign needs, or law enforcement and therefore, will not have a negative effect on the refuge's cultural and historic resources. No direct or indirect cumulative impacts to refuge cultural and historical resources will occur.

3. Anticipated Impacts of Proposed Hunt on Refuge Environment and Community

Alternative One: Conduct a controlled public hunt (Proposed Action)

The refuge expects no significant, adverse impacts of the proposed alternative on the refuge environment that includes soils, vegetation, air quality, and water quality.

Impacts to air and water quality will be minimal as vehicle use is precluded and parking will occur adjacent to the highway. Hunting would benefit vegetation as it may reduce deer browsing within the forested portions of the refuge.

The refuge expects impacts to air and water quality to be minimal and only due to hunter vehicles parked along the highway. The effect of these

refuge-related activities on overall air and water quality in the region are anticipated to be insignificant, compared to the contributions of vehicle traffic on the adjacent highway and military aircraft on the adjacent NASA airstrip.

Existing State water quality criteria and use classifications are adequate to achieve desired on-refuge conditions. Implementation of the proposed action would not impact adjacent landowners or users beyond the constraints already implemented under existing State standards and laws.

The increase in hunting would provide recreational opportunities for 15 deer hunters. Local purchase of gas, food, lodging, hunting licenses, equipment, and supplies by hunters, especially those from out of state would contribute to the local economy. Deer hunting would also contribute to the reduction of vehicle damage and human injury from collisions between deer and vehicles.

No impact to water quality will result and implementation will not impact adjacent landowners. No direct or indirect cumulative impacts to the refuge environment and community will occur.

Alternative Two: Reduction of white-tailed deer population by refuge staff

The refuge expects no significant, adverse impacts of this alternative on the refuge environment that includes soils, vegetation, air quality, and water quality. Impacts to air and water quality will be minimal as vehicle use will be minimal and less than the public hunt. Deer reduction would benefit vegetation as it may reduce deer browsing within the forested portions of the refuge.

The refuge expects impacts to air and water quality to be minimal and only due to staff activity. The effect of these refuge-related activities on overall air and water quality in the region are anticipated to be insignificant, compared to the contributions of vehicle traffic on the adjacent highway and military aircraft on the adjacent NASA airstrip.

Existing State water quality criteria and use classifications are adequate to achieve desired on-refuge conditions. Implementation of this alternative would not impact adjacent landowners or users beyond the constraints already implemented under existing State standards and laws.

Hunting recreational opportunities would be eliminated for 15 deer hunters. Local purchase of gas, food, lodging, hunting licenses, equipment, and supplies by hunters would not contribute to the local economy. Deer removal would contribute to the reduction of vehicle

damage and human injury from collisions between deer and vehicles.

No impact to water quality will result and implementation will not impact adjacent landowners. No direct or indirect cumulative impacts to the refuge environment and community will occur.

Alternative Three: No action Alternative

Under this alternative, there would be no additional effects of the refuge hunting program on the refuge environment and community.

4. Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts

Alternative One: Conduct a controlled public hunt (Proposed Action)

Cumulative effects on the environment result from incremental effects of a proposed action when these are added to other past, present, and reasonably foreseeable future actions. While cumulative effects may result from individually minor actions, they may, viewed as a whole, become significant over time.

The implementation of any of the proposed action includes actions relating to the refuge hunt program. These actions would have both direct and indirect effects (e.g., a hunt would result in public use, thus increasing littering, noise, and vehicular traffic). Cumulative effects of these actions are not expected to be significant during the next 15 years.

There are no other reasonably foreseeable hunts and anticipated impacts. Consequently, no direct or indirect cumulative impacts will occur.

Alternative Two: Reduction of white-tailed deer population by refuge staff

The implementation of this alternative includes actions relating to a refuge staff-conducted deer reduction. These actions would have both direct and indirect effects (e.g., more refuge staff activity and an increase in disturbance and vehicular traffic). Cumulative effects of these actions are not expected to be significant during the next 15 years and would be similar to the Proposed Action.

There are no other reasonably foreseeable staff conducted deer reduction needs in the future and anticipated impacts. Consequently, no direct or indirect cumulative impacts will occur.

Alternative Three: No action Alternative

The refuge would remain closed to public use and therefore, the cumulative effect of this alternative is not expected to be significant.

5. Anticipated Impacts if Individual Hunts are Allowed to Accumulate

Alternative One: Conduct a controlled public hunt (Proposed Action)

Wallops Island NWR opened the refuge deer hunt program in 2002 to reduce deer airplane and automobile collisions, to reduce over browsing of forest species, and to provide a wildlife-dependent recreational use. The cumulative impact analysis has reviewed the hunt program and discussed the associated impacts. Deer hunting is the only hunting permitted and there are no potential impacts from accumulated hunts. The total number of days in which hunting occurs is 15. This is four percent of the year. The remainder of the year, the refuge is closed to all public use.

U.S. Fish and Wildlife Service staff recognizes that any use of refuge lands impacts refuge wildlife and their habitats. Collective uses have the potential to create accumulated impacts as uses increase. Permitted uses are limited by law to those formally determined to be compatible with the purposes for which the refuge was established and with the Mission of the National Wildlife Refuge System. Periodic review of these uses ensures that possible accumulating impacts are recognized and addressed as necessary.

Accumulated impacts are not expected to have significant impacts. No direct or indirect cumulative impacts will occur.

Alternative Two: Reduction of white-tailed deer population by refuge staff

Reduction of white-tailed deer population by refuge staff to reduce deer airplane and automobile collisions, to reduce over browsing of forest species, and to provide a wildlife-dependent recreational use would not result in accumulative impact. Because this alternative does not allow public hunting, there is no anticipated impact of accumulated hunts.

Alternative Three: No action Alternative

Because this alternative does not allow public hunting, there is no anticipated impact of accumulated hunts.

VI. Regulatory Compliance

Comprehensive Conservation Plan

Wallops Island NWR is managed as a satellite refuge under Chincoteague NWR and by the 1993 Chincoteague NWR Master Plan. Wallops Island NWR will be part of the Chincoteague NWR Comprehensive Conservation Plan scheduled for completion in 2012. Step-down plans (Visitor Services Plans, Habitat Management Plans, etc) will tier off the CCP and follow later.

Compatibility Determination

A Compatibility Determination for white-tailed hunting at Wallops Island NWR has been completed.

National Environmental Policy Act Documentation

This Environmental Assessment white-tailed hunting at Wallops Island NWR meets NEPA requirements.

Endangered Species Act Section 7 Evaluation

A Section 7 Evaluation was completed for the white-tailed deer hunting on Wallops Island NWR.

Letters requesting State, and where appropriate tribal involvement and the results of the request.

The Virginia Department of Game and Inland Fisheries and the Accomack County Board of Supervisors have submitted letters supporting the proposed Wallops Island NWR white-tailed deer hunt. No federally recognized tribes are in the vicinity of the Refuge.

News Release

News releases were sent to numerous public media outlets in four states advertising the availability of the Draft Environmental Assessment (EA) and Draft Compatibility Determination (CD) for public comment. The comment period for the EA extended for a 30 day period from December 5, 2001 through January 4, 2002. The Draft Compatibility Determination for the public deer hunt was opened to public comment for the 14 day period from January 2, 2002 through January 15, 2002. Two news releases announcing the availability of the EA, CD and dates of the comment period were sent to Federal, State, and Local government agencies. The same news releases were also sent to numerous Public Media in four states.

News releases notifying the public of the Amended Environmental Assessment for Public Deer Hunting on Wallops Island NWR will be sent to state and local agencies and public media outlets. This document will be available for public review for 30 days and it may be inspected at the refuge headquarters on Chincoteague Island, Virginia.

Refuge-specific Regulations

WALLOPS ISLAND NATIONAL WILDLIFE REFUGE

A. Migratory Game Bird Hunting. (Reserved)

B. Upland Game Bird Hunting. (Reserved)

C. Big Game Hunting. We allow hunting of white-tailed deer in designated areas of the refuge

in accordance with State regulations subject to the following conditions:

1. You must possess and carry a refuge permit. We issue permits based on a computer lottery system. You may obtain permit applications from the refuge administration office during normal business hours. Hunting brochures containing application procedures, seasons, and maps depicting areas open to hunting are available from the refuge administration office. You must provide an unobstructed view of the refuge permit on the vehicle's dashboard while hunting on the refuge.

2. You must be 12 or older to hunt on the refuge. An adult 18 or older must accompany and directly supervise hunters under age 18. The supervising adult must also possess and carry a State hunting license and refuge permit.

3. You must sign in at the hunter registration station prior to entering your hunt zone and sign out upon exiting your hunt zone. You must sign out no later than two hours after the end of the hunt day.

4. You must wear a minimum of 400 square inches (2,600 square cm) of blaze orange material consisting of a vest and hat or jacket and hat.

5. You may use portable tree stands.

6. We prohibit dogs.

7. You must park your vehicle in designated areas.

D. Sport Fishing (Reserved)

VII. Consultations and Contacts

The Accomack County Board of Supervisors has encouraged the consideration of a public deer hunt on Wallops Island Refuge (Schroer 1998). The proposed action has been discussed and coordinated with refuge staff, and with biologists from the U. S. Fish and Wildlife Service and Virginia Department of Game and Inland Fish.

News releases were sent to numerous public media outlets in four states advertising the availability of the Draft Environmental Assessment (EA) and Draft Compatibility Determination (CD) for public comment. The comment period for the EA extended for a 30 day period from December 5, 2001 through January 4, 2002. The Draft Compatibility Determination for the public deer hunt was opened to public comment for the 14 day period from January 2, 2002 through January 15, 2002. Two news releases announcing the availability of the EA, CD and dates of the comment period were sent to the following:

Federal Agencies

Eric Davis, Endangered Species Biologist, U.S. Fish and Wildlife Service, Ecological Services, Gloucester, VA 23061

Jason Wood, Wildlife Specialist, USDA, Animal and Plant Health Inspection Service, Wildlife Services, Bldg D-10, Rm 204, Wallops Island, VA 23337

U.S. Fish and Wildlife Service, Attn: RF, Interior Building 18th and C St., Washington, D.C. 20240

Assateague Island National Seashore, Route 611, 7206 National Seashore, Berlin, MD 21811
Assateague Island National Seashore/Virginia District, P.O. Box 38, Chincoteague, VA 23336

Regional Director PAO, U.S. FWS, 300 Westgate Center Dr., Hadley, MA 01035-9589

U.S. Coast Guard Group Chincoteague, Attn: PAO Rousseau, South Main St., Chincoteague, VA 23336

Keith Koehler, Public Affairs Officer, Bldg F6, NASA Wallops Flight Facility, Wallops Island, VA 23337

Dr. Marilyn Ailes, Ecologist, AEGIS Combat Systems Center, Wallops Island, VA 23337-5000

State Agencies

Chris Ludwig, Botanist, Virginia Dept. of Conservation and Recreation, Natural Heritage Program, 217 Governor Street, 3rd Floor, Richmond, VA 23219

Phil West, Wildlife Biologist, Virginia Department of Game and Inland Fisheries, 5806 Mooretown Rd., Williamsburg, VA 23188

Kiptopeake State Park, 3540 Kiptopeake Dr., Cape Charles, VA, 23310

Local Agencies

Jim West, Town Manager, 6150 Community Drive, Chincoteague VA 23336

Mayor Jack Tarr, 6150 Community Drive, Chincoteague, VA 23336

Chincoteague Police Dept., 6150 Community La., Chincoteague, VA 23336

Eastern Shore of Virginia Chamber of Commerce, David M. Parker, Executive VP, P.O. Box 460, Melfa, VA 23410

Public Media

Scorchy Tawes, WBOC TV, Channel 16, Salisbury, MD 21801

The Evening Sun, P.O. Box 514, Hanover, PA 17331-0514

Bill Burton, The Sun Newspaper, Baltimore, MD 21203

WDMV 210, 42 Marlo Rd., Wayne, NJ 07470-6017

The Times, Box 1937, Salisbury, MD 21801

WESR Radio 103.3, Nancy Drury Duncan, P.O. Box 100, Tasley, VA 23441

Bob Walker, News Director WGNT TV 27, 131 Spratley St., Portsmouth, VA 23704

Jim Turner, WVES, Box 390, Accomac, VA 23310

OH Magazine, Attn: Peggy Brown, 1501 Roseneath Rd., Richmond, VA 23230

Montgomery Journal, 5706 Frederick Ave., Rockville, MD 20852-1818
Sentinel Publishers, P.O. Box 1272, Rockville, MD 28050
Eastern Shore Times, Box 479, Ocean City, MD 21842
Herald Mail, Box 439, Hagerstown, MD 21740
News Leader, 615 Main St., Laurel, MD 20707-4000
Patuxent Publishing, 10570 Patuxent Parkway, Columbia, MD 21044
The Banner, P.O. Box 580, Cambridge, MD 21643
Bowie Blade News, P.O. Box M, Bowie, MD 20715
Thomas C. Leonard, Daily & Sunday Times, P.O. Box 1939, Salisbury, MD 21801
Maryland Independent, 7 Industrial Park Circle, Waldorf, MD 20601
News Times, P.O. Box 11662, Cumberland, MD 21502
Prince George Journal, 9426 Annapolis Rd., Lanham, MD 20706
John Sitt, Richmond Times Dispatch, P.O. Box 3534, Norfolk, VA 23514
Star Democrat, P.O. Box 600, Easton, MD 21502
John Murphy, The Daily Times, Times Square, Salisbury, MD 21801
WKHI Radio Station, 25259 W. Main St., Onley, VA 23410

Summary of Comments

This comments addressed original 2002 Environmental Assessment. Comments from the 2007 Amended Environmental Assessment are found in the Appendix.

No letters were received addressing specific issues in the EA or CD. Three letters were received from the public expressing views specifically on the hunt: 1. a letter from a resident of Alaska in support of the hunt; 2. a letter from two local residents adamantly opposed to hunting deer; and 3. a letter from a local resident opposed to hunting on Rt. #175 over safety concerns. This individual suggested reducing the speed limit on Route 175; and that the refuge consider restricting season length, providing buffer zones, and bow and arrow hunting, only.

The refuge received a petition specifically addressing Alternative 1 of the EA (public deer hunt). Signatories were in favor of a full season hunt using all methods of harvest. The petition was signed by 122 individuals from 11 states, including 55 residents of the eastern shore of Virginia.

A public meeting was advertised in the December 5 news release and held in the Chincoteague NWR auditorium at 7:00 PM on December 18, 2001. Six members of the public attended. Attendees were given a brief overview of the NEPA process and the EA for the proposed deer hunt. No comments or questions were received on the content of the EA. One individual asked whether Wallops Island NWR was fenced. Another individual asked whether the reflectors erected by the Virginia Department of Transportation had been effective in reducing deer-vehicle collisions.

Three of the six attendees offered no opinions. Three of the attendees supported hunting and offered suggestions on the conduct of the proposed hunt. Two of the three individuals supported a full season hunt using all methods of harvest. An individual was concerned about potential conflicts arising between refuge hunters and adjacent private property owners. An individual

also expressed concerns of overharvest of the local deer herd, especially over the extensive control measures underway at WFF. He questioned whether there were any data supporting the need for deer control on the refuge, but also indicated, based on his own observations that the farm on the southern border of the refuge would easily qualify for the Virginia Department of Game and Inland Fish DPOP program. All three citizens were concerned about hunter and public safety issues associated with a deer hunt. The following issues were highlighted by three of the participants:

- including safety buffers/zones
- requiring (or not) the use of tree stands
- requiring (or not) a check station
- reducing (or not) bag limits below state limits
- restricting (or not) the method of harvest
- limiting (or not) the maximum number of hunting days to 20
- limiting (or not) the season opener to no earlier than December
- limiting the maximum number of hunters/day to 5 or 10
- providing a special hunt for youths
- providing a special hunt for hunters with disabilities

Many local residents have informally voiced support for hunting on the Refuge. The Virginia Department of Game and Inland Fisheries and Accomack County Board of Supervisors have written letters supporting the proposed Wallops Island NWR deer hunt.

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APPENDIX

Options Eliminated from Further Consideration

1. Reproductive Intervention (birth control)

Reproductive intervention or birth control is the general category for a number of fertility control methods available, each with varying rates of success. Immunocontraception with porcine zona pellucida (PZP) vaccine injection, is probably the best known and most widely applied. Steroid implantation has been available since the 1970s. Remote prostaglandin injection (DeNicola 1997), oral vaccination with a live vector (Miller et al. 1999a), and GNRH vaccines are more recent and lack long-term evaluation of effectiveness. Sterilization is a permanent option, although not widely applicable.

Effectiveness and efficiency of any of the above forms of reproductive intervention is affected by a number of factors including; method of application or delivery, need or ability to capture the animal, the number of treatments needed to ensure effectiveness, size of the population, status of the population (confined or free ranging), and longevity of treatment.

Immunocontraception

Immunocontraception (PZP injection) is most effective at preventing pregnancy when hand injected and combined with subsequent boosts. The PZP vaccination produces reversible infertility lasting 1-4 years (Miller et al. 1999b), however, it requires two injections, four weeks apart, to be effective for at least two years (McShea et al. 1997). Effectiveness at reducing population number and growth rate is greatly reduced when dealing with large and open populations due to the need to treat a large percentage of the females over a large area. For a large population, contraception rates of less than 50% of does will curb growth in 30 years, but will not reduce the size. Even rates of greater than 50% require at least a 5-10 year planning horizon to see significant population declines (Seagle and Close 1996). Therefore, the cost, effort, expertise, manpower, and handling time will continue for years before achieving any results.

Another obstacle to PZP immunocontraception is the adjuvant used for the initial injection (an adjuvant is a microbial aid necessary for boosting the vaccine once inside the animal's bloodstream). Complete Froine's, the most commonly used, contains heat-killed tuberculin cells, which causes subjects to test false positive for TB. The FDA, which has jurisdiction over its commercial use, currently does not permit use of this adjuvant on other than tightly controlled or isolated populations and in combination with ear-tagging (in order to prevent the public from consuming escaped deer). There are two other adjuvants undergoing field tests but both are not yet effective as boosters and still pending FDA approval.

Steroidal implants

Subcutaneous steroidal implants have been used during the past 25 years with varying rates of effectiveness in reducing deer pregnancy (and now remote delivery of this treatment is possible) but the long-term effectiveness is uncertain. In addition, the same factors that confound the PZP method at the population level apply (Connecticut Department of Environmental Protection, Wildlife Bureau, 1988). Because of the uncertainty of long-term health effects on deer and subsequent impacts on the food-web (including human consumption of treated deer), the FDA will not approve application on free-ranging deer at this time (DeNicola et al. 2000).

Oral Delivery of Contraceptives

Oral delivery of contraceptives has a number of concerns that make this method ill-advised and impractical: it is not species-specific (risks ingestion by non-target species), bait and supplies are wasted on non-target species, deer sometimes reject treated bait, and it is difficult to manage dosage control. Currently, the method is not working at the field or captive level. Oral vaccinations through live-vector delivery is a relatively new method, and is species-specific, but is not long-acting and so must be delivered on a frequent and regular basis.

GNRH Vaccine

Another field method currently being tested is the GNRH vaccine. This shuts down the whole reproductive hormone system of both sexes and its effects are dramatic, even on behavior and antler development. This is a new method and the affect on deer and their behavior needs further evaluation prior to application in the field.

Sterilization

Sterilizations must be done annually, the number of which must be calculated based on the number of fertile females in the herd. Great care must be taken to reduce the number of sterilizations in time to prevent a population crash and bottleneck (Boone and Wiegert 1994). Again, this option is not effective for open populations unless performed at a landscape level.

No matter which birth control method is used, more than 50% of the females will need to remain infertile to effect a reduction in population size (Hobbs et al. 2000, Seagle and Close 1996). All of the above described techniques are compromised at the individual and population levels due to the openness of the population. Because these operations entail multiple captures, considerable handling time, facilities for holding captured animals or conducting surgery, risk to personnel and animals, trauma losses, and constant or recurring expense, at this stage of development, they are not viable methods in the field.

2. Live Trapping and Relocation

The live trapping and relocation approach entails transporting captured animals to a new location outside the impacted area. Disadvantages, however, far outweigh the advantages. Capture and

handling of deer involves risk to deer and handlers. Deer are susceptible to capture myopathy, a form of muscle dysfunction that is stress-related and can result in delayed mortality. Trauma losses can amount to about 4% of capture and transfer efforts (VDGIF 1999). The mortality potential attendant to handling is amplified by placing individuals in unfamiliar surroundings (Cypher and Cypher 1988). In addition, finding suitable release sites is increasingly more difficult as most locations cannot accommodate more deer and are experiencing their own population management problems.

Response to Public Comments for the Amended Environment Assessment

We received three responses on our Amended Environmental Assessment for the Public Deer Hunt Proposal for Wallops Island National Wildlife Refuge that was available for public comment through March 16. One response from the Safari Club International supported the proposed alternative and two others from the Humane Society of the United States and from a Chincoteague VA citizen were in opposition.

The letter received from the Humane Society of the United States contained comments related to hunting on the National Wildlife Refuge System as a whole and containing elements related to litigation filed in 2003 by the fund for Animals against the Service. Many comments were not specific to this amended EA and are noted but not responded to here.

The HSUS states that the Service has not provided adequate time to sufficiently analyze the cumulative impacts of hunting throughout the refuge system. The Service notes the comment.

The HSUS “objects to the inadequate notice and amount of time for commenting” on the document. The EA was emailed to the HSAUS on March 12, 2007.

The HSUS believes the NWRSA does not “relieve the FWS of its obligations to consider the environmental impact of and alternatives to, the agency’s decisions with regard to hunting in the Refuge System...” The Service notes the comment.

The HSUS states the FWS “must analyze a full range of alternatives”. The FWS disagrees. In addition to three alternatives, including a No Action Alternative, five methods of Reproductive Intervention (birth control) and translocation of deer were considered.

The HSUS does not believe that “sport hunting is compatible with the purposes for which many refuges were established.” The Service has followed its regulations for determining that white-tailed deer hunting is compatible on Wallops Island NWR and compatibility determinations for big game hunting were signed by the Refuge Manager and U.S. Fish and Wildlife Service Region 5 Regional Chief of the National Wildlife Refuge System.

The HSUS states that the Service must ensure the availability of sufficient funds before approving hunting on the refuge. This comment refers to the Refuge Recreation Act. Sufficient funds are available to implement white-tailed deer hunting on Wallops Island NWR.

The HSUS states they are opposed to the hunt plan and believe it violates the National Environmental Policy Act (NEPA). The Service notes the comment.

The HSUS states that the Service has not completed the Refuges 2003 Plan and Environmental Impact Statement (EIS). The Service notes the comment.

The HSUS believes that there are adverse impacts by refuge uses for the past several decades and that an EIS is needed. The Service notes the comment.

The HSUS states that the environmental assessment fails to take into account the cumulative impacts on the Refuge System from the FWS decision to expand hunting. The Service notes the comment.

The HSUS states that the Service must complete a Section 7 evaluation. An Intra-Service Section 7 Biological Evaluation as part of the hunt plan and assessment was completed as part of the original EA.

The HSUS states that the environmental assessment “fails to comport with the Court’s August 2006 decision”, referring to court case The Fund for Animals v. Hall. The Service notes the comment.

The HSUS states that the Service has compromised the biological integrity of refuges by allowing hunting and that the Service does not consider impacts of hunters on non-consumptive users. The HSUS also claims that hunting and the number of hunters is decreasing and the Service has not capitalized on potential economic gain that would come from non-consumptive users. The Service notes these comments.

The HSUS “non-consumptive visitors are not even permitted on the premises while hunters will be given free range of the refuge”. The FWS disagrees that hunters have “free range” as hunter numbers are limited and restricted to 15 days a year while under law enforcement supervision.

The HSUS states that deer overpopulation is not a scientific term and that deer herbivory changing plant communities is not necessarily negative. Numerous studies have been published on the negative impacts of overpopulated deer on native vegetation and plant communities. Based on the best biological information available, recommendations from the Virginia Department of Game and Inland fisheries, and refuge staff expertise, the Service holds to the view that overpopulated deer have negative impacts on vegetation.

The HSUS suggests deer hunting does reduce deer vehicle collisions and recommends a fence be constructed to keep deer from the highway. The Service notes these comments.

The HSUS states that the environmental assessment “does not adequately address the cumulative impacts of hunting across the entire Refuge system nor even, for that matter, the

region of state in which the refuge resides”. The Service notes the comment.