Appendix 11.3: 1985 Summary of impacts on Catoctin's vegetation.

Name	Foliage Damage	Reproductive Impacts	Outlook Given Trend	Remarks
American Elm *Ulmus americana*	Bark eaten, killing entire tree.	Seed production halted, saplings injured as well.	Will probably be eliminated from most of the park.	Moderate injury appears to increase Dutch Elm disease attack.
Slippery Elm *Ulmus rubra*	Bark eaten.	Not severe as yet.	This tree is most common along streams such as Cwens Creek where intensive deer foraging is just beginning.	Same as above.
Canadian Hemlock *Tsuga canadensis*	Saplings and lower branches stripped of needles.	Seedlings and saplings killed.	Virtually no reproduction in Whiskey Still watershed, significant to severe elsewhere.	Important shade component for trout streams.
White Pine *Pinus strobus*	Saplings and lower branches stripped of needles.	Seedlings and saplings killed. No recruitment.	Virtually no reproduction parkwide, will be extirpated if browse pressure continues.	A "preferred" browse species.
American Ginseng *Panax quinquefolius*	Leaves commonly eaten, apparently a preferred species.	Flower stalk commonly eaten only 1 stalk produced each year.	Significant. Severe at some populations where number of leaves and fruit produced each spring have been reduced in past 2 years.	Of 4 mature plants monitored in 1984, all 4 had leaves eaten. Only 1 was able to produce berries. Listed as "Highly Rare" by DNR Natural Heritage Program.
Large Purple-Fringed Orchid *Habenaria grandiflora*	Usually only the smaller upper leaves are eaten (Orchids produce only 1 set of flowers per year)	Densely flowered stalk is eaten (Orchids produce only 1 set of flowers per year.....	Significant and increasing less than 35 mature plants in park. In '83 12% eaten.	Very habitat specific, listed as "Highly Rare"

DRAFT ENVIRONMENTAL ASSESSMENT
White-tailed Deer Management
Catoctin Mountain Park

Name	Foliage Damage	Reproductive Impacts	Outlook Given Trend	Remarks
Long-Bracted Orchid *Habenaria viridis*	Moderate, this species is shorter (10-15 cm) than most orchids.	Flower stalk eaten.	Critical. Only a few plants are known in the park and most were eaten in 1984.	Listed as "Highly Rare"
Leatherwood *Dirca palustris*	Moderate before '83.	Negligible at this time.	Normal since most of this species' few shrubs in the park were included in an exclosure in 1983.	Listed as "Highly Rare"
Mountain Laurel *Kalmia latifolia*	Severe. Leaves less than 1.5m from the ground are gone from most of this plant's range in the park.	Seedling and most submature shrubs are dead.	Seeds still produced by tallest shrubs but newly sprouted plants eaten. Will eventually be restricted to a few rock outcrops.	*Very* slow growing, evergreen averaging 2cm hgt growth per year. Tens of thousands of shrubs have been severely browsed. *Not* a preferred browse species.
Bladdernut *Staphlea trifoliata*	Significant. Only trees on boulder-strewn water courses have escaped browse damage.	Seedlings absent or severely browsed.	Formerly common in rocky areas but becoming much scarcer.	Apparently a preferred browse species.
Wild Gooseberry *Ribes hirtellum*	Moderate, 1 stand heavily browsed, 2 others lightly.	Unknown, but probable.	Unknown. Only 3 populations known in park.	Discovered in Maryland (in park) for first time in 1984. Rare.
Round-Leaved Currant *Ribes rotundifolium*	Severe, low growing woodland shrub is often stripped of all its leaves and twigs.	Reproduction absent from all but the rockiest sites.	Formerly common but disappearing fast, except for the tops of cliffs, and large boulders inaccessible to deer.	Apparently a preferred browse species.
Button bush *Cephalanthus occidentalis*	Severe, all leaves and twigs eaten up to browse level on these large shrubs.	Some seeds still produced but no seedlings survived.	1 population at mountain top bog. Will eventually be extirpated by deer.	Apparently a preferred browse species.
Spirea *Spirea latifolia*	Severe. All leaves and twigs eaten.	No flowers have survived browsing.	Will eventually be extirpated by deer only known from 1 site	Unable to ID species for 2 years because of intensive browsing.

DRAFT ENVIRONMENTAL ASSESSMENT
White-tailed Deer Management
Catoctin Mountain Park

Name	Foliage Damage	Reproductive Impacts	Outlook Given Trend	Remarks
Water Plantain Alisma subcordatum	Entire population of this large aquatic emergent eaten.	No reproduction from park's only population of 50+ plants.	Will eventually be extirpated by deer.	Unable to ID this species for over a year because deer kept entire population eaten to ground.
Christmas Fern Polystichunm acrostichoides	Moderate. Locally intensive along Owens Creek and other wintering sites frequented by deer.	Utilization is mostly in winter and spring, when spores have been released. Plants that have all of their fronds eaten each year probably are declining in vigor.	Probable reduction in numbers and health of population but not critical enough for extirpation at this time.	A long-lived species and our only large evergreen fern.
Downey Arrow-wood Viburnum rafines-queinum	Leaves and twigs eaten up to browse line on this small shrub that grows in dense clumps.	All small shrubs (below 1m tall) killed.	Only a few good-sized populations known in park at present time. Will be greatly reduced.	Uncommon.
Great Rhododendron Rhododendron maximum	Severe. All shrubs less than 1.5m tall are dead. Only 2 tall shrubs remain and they are browsed up 2m.	Critical. Absolutely no seedlings or saplings of this attractive evergreen.	Will be extirpated in a few years.	Known to local people as "Deer Laurel" because of deer's known preference for it. Uncommon in Catoctins.
Wild Pink Azalea Rhododendron periclimenoides	Significant. Over 50% of the shrubs observed have severe browse injury.	Very tall azaleas still producing seed. Sprouts from roots. Very few mid-sized shrubs found.	Eventually will lose most of its range in the park. Currently populations are scattered throughout park.	One of the most attractive native plants. Cultivated azaleas in developed zones.
Smooth Alder Alnus serrulata	Leaves and twigs eaten in summer. Seen for first time in late '84 along headwaters of Owens Creek.	Unknown but recruitment has probably been affected.	Unknown.	Important shade component for headwater trout streams.

DRAFT ENVIRONMENTAL ASSESSMENT
White-tailed Deer Management
Catoctin Mountain Park

Name	Foliage Damage	Reproductive Impacts	Outlook Given Trend	Remarks
Red Canadalily *Lilium canadense* var. *editorum*	Grows to 1.5m tall. By August all known plants in park were eaten to about 0.3m. Only 1 set of leaves and flowers produced per year.	No longer flowers in park due to utilization by deer. Scattered in many small populations in the Owens Creek area.	Eventually survival doubtful. Locations where numbers of flowering plants were found as late as the early to mid-1970s. Now have only a few dwarfed, sterile plants.	Uncommon but still blooms a short distance outside park.
Northern Bush Honeysuckle *Diervilla lonicera*	Only a few shrubs left in park on rock outcrop. All receive heavy loss of leaves and twigs.	Unable to reproduce.	Survival for more than a few years doubtful.	A northern species on the SE limit of its range.
Birch-leaved Spirea *betulifolia*	Should be a shrub to 1m tall. All 15 shrubs found on a cliff in 6/85 were browsed to a height of 10cm.	Unable to reproduce.	Survival for more than a few years is doubtful.	1 location recently discovered in park, believed to be the northeastern most stand of this species.
Bunch Flower *Melanthium spp.*	Foliage and flower spikes eaten.	No flowering. Known to be a preferred food for deer. Most reproduction is by seed.	Population is made up entirely of small sterile plants. These will continue to dwindle.	Park probably has 2 species of *Melanthium*. *M. virginicum* is very uncommon, *M. latifolium* is considered threatened in Maryland.

Appendix B:
Letters of Consultation

#91

COPY

Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor

Maryland Department of Natural Resources
Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

C. Ronald Franks
Secretary

W. P. Jensen
Deputy Secretary

July 13, 2004

Mr. Scott Bell
US Department of the Interior
National Park Service-National Capital Area
Catoctin Mountain Park
6602 Foxville Road
Thurmont, MD 21788

RE: Environmental Review for Catoctin Mountain Park, West of Thurmont, Management of White-tailed Deer Proposal, Frederick County, Maryland.

Dear Mr. Bell:

In response to your inquiry, the Wildlife and Heritage Service's Natural Heritage database does indicate that the following species of interest are known to occur on or within close proximity to the boundaries of the project site:

Scientific Name	Common Name	State Status
Platanthera psycodes	Small Purple Fringed Orchid	Endangered Extirpated
Dirca palustris	Leatherwood	Threatened
Pycnanthemum torrei	Torrey's Mountain-mint	Endangered
Coelglossum viride	Long-bracted Orchis	Endangered
Viola incognita	Large-leaved White Violet	Highly Rare
Geranium robertianum	Herb-robert	Highly Rare
Corvus corax	Common Raven	Rare

TTY via Maryland Relay: 711 (within MD) (800) 735-2258 (Out of State)
Toll Free in MD#: 1-877-620-8DNR ext. _____

Page 2
July 13, 2004

Thank you for providing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2004.1091.fr
Cc: E.L. Thompson, WHS
R. Wiegand, WHS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

November 2, 2005

J. Mel Poole
U.S. DOI – NPS, Nat. Cap. Area
Catoctin Mt. Park
6602 Foxville Rd.
Thurmont, MD 21788

RE: D50 (NCR CATO),Mgmt. of White-tailed Deer, Catoctin Mt. park, Thurmont, MD

Dear Mr. Poole:

This responds to your letter, received September 22, 2005, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above reference project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers,

25c

Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Maricela Constantino at (410) 573-4542.

Sincerely,

G. A. Rauer

for Mary J. Ratnaswamy, Ph.D.
Program Supervisor, Threatened and Endangered Species

25b

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

January 25, 2007

Donna Swauger, Environmental Protection Specialist
Catoctin Mountain Park
6602 Foxville Road
Thurmont, MD 21788

Subject: Draft White-Tailed Deer Management Plan / Environmental Impact Statement Catoctin Mountain Park, Frederick and Washington Counties, Maryland. CEQ No 20060486

Dear Ms. Swauger:

In accordance with the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the United States Environmental Protection Agency (EPA) has reviewed the subject document. The purpose of the EIS is to develop a deer management plan that supports forest regeneration, and provides for long –term protection, conservation and restoration of native species and cultural landscapes

Based on our review we rate this DEIS, Lack of Objections (LO). A description of our rating system can be found at:http://www.epa.gov/compliance/nepa/comments/ratings.html. However we recommend that you coordinate with the appropriate state and federal agencies regarding threatened and endangered species and other species of concern annually at a minimum. Thank you for the opportunity to offer these comments. If you have any questions, please contact Barbara Okorn at (215)814-3330.

Sincerely,

William Arguto,
NEPA Team Leader

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United States Department of the Interior

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NPS
EJC/CAL

NATIONAL PARK SERVICE
National Capital Area
Catoctin Mountain Park FR Co.
6602 Foxville Road
Thurmont, MD 21788

June 19, 2006

D50 (NCR-CATO)

RECEIVED
JUN 23 2006
By

Ms. Elizabeth Cole
Administrator Review and Compliance
Maryland Historical Trust
3rd Floor
100 Community Place
Crownsville, Maryland 21032

Dear Ms. Cole:

Enclosed is a compact disc (CD) with files containing the Draft White-tailed Deer Management Plan/Environmental Impact Statement. We are sending this to you as part of our Section 106 compliance. Please review the document and notify us of your findings.

If you have any questions or need further information, contact Donna Swauger, Environmental Protection Specialist at (301) 416-0135 or donna_swauger@nps.gov.

Sincerely,

J. Mel Poole
Superintendent

enclosure

The Maryland Historical Trust has determined that this undertaking will have no adverse effect on historic properties

Elizabeth J. Cole Date 7/12/06

#2NA BC 7/11/2006
No adverse effect

Appendix C: Overview of Deer Management Activities at Catoctin Mountain Park

Below is a timeline of events related to deer management at Catoctin Mountain Park (NPS 2000e; NPS n.d.).

1981 Catoctin Mountain Park staff visited Pennsylvania State University to develop information on deer population guidelines and vegetation impacts.

1982 First deer exclosure constructed at Thurmont Vista in Catoctin Mountain Park.

First discovery of bark stripping by deer on slippery and American elm trees.

1983 First aerial deer census conducted in winter; 70 deer observed. The aerial deer survey provides a relative indicator, not a density estimate.

Catoctin Mountain Park staff met with National Zoo (Front Royal facility) staff to compare vegetation damage and herd activity.

Daylight deer census begun on Park Central Road.

Two deer pellet transects established and surveyed.

1984 Twelve percent of resident population of purple-fringed orchids reported damaged by deer browse; moderate damage also reported to leatherwoods and mountain laurel from deer browse.

Daylight deer census conducted on Park Central Road.

1985 Three additional exclosures constructed.

Over 250 elm trees reported damaged by bark stripping.

Cubic meter biomass study conducted on two deer exclosures; 49% more vegetative material found inside exclosures compared to outside the exclosures.

1986 Winter aerial deer census conducted; 131 deer observed.

No bark stripping reported, excellent mast year.

1987 The National Park Service entered into a cooperative research agreement with the University of Georgia to collect information concerning herd health.

Park began keeping records of vehicle collisions with deer.

Winter aerial deer census conducted; 117 deer observed.

1988 Winter aerial deer census conducted; no estimate projected due to equipment failure.

Deer immobilization and radio telemetry tracking began.

Six permanent deer pellet transects established.

Five to seven night spotlight survey routes established, and training conducted for staff.

Necropsy activity begun.

Herd health survey conducted by Southeastern Cooperative Wildlife Disease Study; five deer harvested.

Telemetry, spotlight surveys, and deer pellet transect study continued.

Fifteen additional fawns captured for mortality study, and five additional does for supplementing radio telemetry programs.

1989 Winter aerial deer census conducted; observed 324 deer.

The annual survey located 12 purple-fringed orchids in the park.

Receipt of interim research report from the University of Georgia.

Continued radio telemetry program, five to seven night spotlight surveys, pellet group transect surveys, and deer exclosure monitoring.

National Park Service enters into research agreement with West Virginia University on bark stripping of elm trees.

First meeting of Deer Advisory Technical Committee, Catoctin Mountain Park.

1990 Forty-six vegetation plots established by Center for Urban Ecology (CUE) to monitor deer impacts on vegetation.

Necropsies completed on 11 deer.

Bark stripping monitoring and research continued. The greatest concentration was found near Owens Creek campground.

Rare plants (purple-fringed orchids and leatherwood) located and protected from deer browse with wire cages.

Nighttime telemetry surveys initiated for six deer.

Fall spotlight survey, fawn reports, buck observations, and exclosure monitoring continued.

Deer repellents (different types of bar soaps and Ropel®) were applied at the Catoctin Mountain Park Visitor Center; these substances were not effective in repelling deer.

1991 Vegetation plots evaluated.

Fall spotlight survey, fawn reports, buck observations, exclosure monitoring, and nighttime telemetry continued.

Final research report submitted by the University of Georgia: "The Population and Ecological Characteristics of White-tailed Deer on Catoctin Mountain Park."

Initial draft of "Catoctin Mountain Park White-tailed Deer Management Environmental Assessment" completed. Report forwarded to advisory committee.

Thesis on bark stripping completed by Joey Fuller, West Virginia University.

Rare plant protection program continued.

1992 Fall spotlight survey, fawn reports, buck observations, exclosure monitoring, and rare plant protection program continued.

Winter aerial deer census conducted; observed 277 deer.

Small mammal study initiated by the Center for Urban Ecology to examine potential impact of deer on other animals, which compete for the same food sources.

"Draft Deer Management Environmental Assessment" revised by the NPS Washington Office.

Vegetation plots evaluated.

A new deer exclosure was constructed on the Falls Nature Trail.

1993 Rare plant protection program continued.

Fall spotlight survey, fawn reports, buck observations, exclosure monitoring, and rare plant protection program continued.

Winter aerial deer census conducted; observed 127 deer.

Vegetation plots evaluated.

First winter kill deer survey conducted following severe winter weather. Number of deer found was 74.

1994 Deer telemetry project began monitoring five does.

Rare plant protection program continued.

Fall spotlight survey, fawn reports, buck observations, exclosure monitoring, and rare plant protection program continued.

Vegetation plots evaluated.

Winter aerial deer census conducted in January; observed 217 deer.

Winter aerial deer census conducted in March; observed 107 deer.

1995 Deer telemetry program continued.

Rare plant protection program continued.

Fall spotlight survey, fawn reports, buck observations, exc1osure monitoring, and rare plant protection program continued.

Winter aerial deer census conducted; observed 138 deer.

1996 Rare plant protection program continued.

Continued spotlight survey, fawn reports, buck observations, exclosure monitoring, and rare plant protection program.

1997 Rare plant protection program continued.

Hood College, of Frederick, Maryland, exclosure with paired vegetation plot study started.

Fall spotlight survey, fawn reports, buck observations, exclosure monitoring, and rare plant protection program continued.

Winter aerial deer census conducted; observed 264 deer.

1998 Continued monitoring of deer/car motor vehicle incidents; incident locations entered into GIS for previous four years.

Hood College exclosure/vegetation plot study continued; wetland exclosure and two wetland vegetation plots added.

All vegetation plot data sent to regional botanist to be analyzed.

Fall spotlight survey, fawn reports, buck observations, exclosure monitoring, and rare plant protection program continued.

Continued opportunistic collection of necropsy information, which has been done every year.

1999 Winter aerial deer census conducted; observed 300 deer.

Hood College exclosure/vegetation plot monitoring continued.

Fall spotlight survey, fawn reports, buck observations, opportunistic necropsies, and rare plant monitoring and protection continued.

Tracking of dead deer due to motor vehicle accidents continued.

New exclosure built in area damaged by suspected microburst during a severe thunderstorm in June of 1998.

Deer meeting / planning session held by Catoctin Mountain Park and regional CUE staff, December 3.

NPS Servicewide deer management meeting held at Catoctin Mountain Park, December 7.

2000 Catoctin Mountain Park and Center for Urban Ecology (CUE) staff plans for a Deer Advisory Committee Meeting to be held later during the year.

Fawn and buck sighting reports terminated as result of consensus from the 1999 deer management meeting that these reports were not yielding significant data.

Winter aerial deer census; observed 312 deer.

"Summary Report: White-tailed Deer Management in Catoctin Mountain Park" completed on February 15 to document the status of the Catoctin Mountain Park deer herd; based on previous environmental assessments completed in 1995.

Deer Advisory Committee meeting held at Catoctin Mountain Park May 15–17.

Distance sampling training with Dr. Brian Underwood; first distance sampling survey conducted in the fall; park population estimate of 183.99 deer per square mile.

Vegetation plot monitoring continued on a limited basis (15 plots and 5 exclosures); data did not include herbaceous species data, but did include seedling and browse data (includes microburst exclosure and open plot).

Continued tracking of road-killed deer (motor vehicle accidents).

Rare plant monitoring and protection continued.

Diane Pavek analyzed original vegetation plot monitoring data from 1990-1994.

2001 Distance sampling deer spotlight surveys conducted in spring and fall; park population estimates of 147.37 (spring) and 185.83 (fall) deer per square mile.

Vegetation plot monitoring continued on limited basis (16 plots and 5 exclosures); data did not include herbaceous species data, but did include seedling and browse data (including microburst exclosure and open plot).

Continued tracking of road-killed deer (motor vehicle accidents).

Rare plant monitoring and protection continued.

2002 Distance sampling deer spotlight surveys conducted in spring and fall; park population estimates of 112.00 (spring) and 155.43 (fall) deer per square mile.

Deer Technical Committee/Assessment Team meeting at Catoctin Mountain Park May 1. Catoctin Mountain Park White-tailed Deer EIS meeting (Catoctin Mountain Park and CUE staff), May 9.

Meeting to discuss deer management/EIS (Catoctin Mountain Park, CUE, and Washington office personnel) May 22.

Vegetation plot monitoring continued on limited basis (10 plots and 2 exclosures); data did not include herbaceous species data, but did include seedling and browse data (included microburst and fire exclosures and paired open plots).

Deer herd health check by University of Georgia/Southeastern Cooperative Wildlife Disease Study disclosed evidence of significant deterioration of population health problems.

Meeting held with Dr. Susan Stout of the U.S. Forest Service at Kane Experiment Station in the Allegheny National Forest, PA; attended by Diane Pavek (Regional Botanist) and Becky Loncosky (Park Ranger, Catoctin Mountain Park), October 7.

Continued tracking of dead deer from all causes.

Rare plant monitoring and protection continued.

2003 Vegetation plot monitoring continued on limited basis (two plots and two exclosures, including microburst, fire exclosures, and paired open plots).

Received final report from Dr. Russek-Cohen (contracted to analyze vegetation plot data collected during the periods 1990–1995 and 2000–2002).

Distance sampling deer spotlight surveys conducted in spring and fall; population estimates 159.72 (Spring) and 192.95 deer per square mile (Fall).

Received summary report and presentation of distance sampling done in 2000 and 2001 in the National Capital Region from Dr. Brian Underwood.

Continued tracking of road-killed deer (motor vehicle accidents).

Rare plant monitoring and protection continued.

Selected areas for six new exclosures, to be built adjacent to randomly selected pre-existing vegetation monitoring plots. Installed posts for the exclosures, which will be finished after the data is collected in 2004.

Began internal scoping process for the Catoctin's White-Tailed Deer Management Plan / EIS at Catoctin Mountain Park October 28. Two-day meeting held to identify purpose of an need for action, management objectives, issues, and impact topics.

Results of internal scoping meetings produced in "Internal Scoping Report."

2004 Letter dated May 21 initiated informal consultation with USFWS about the presence of federally listed rare, threatened, or endangered species.

Letter dated May 21 initiated informal consultation with the Wildlife and Heritage Service of the Maryland DNR about the presence of state listed rare, threatened, or endangered species in the vicinity of the park.

Notice of Intent to prepare an EIS published in the *Federal Register* on June 23.

Maryland DNR responded to May 21 letter on July 13, listing seven state listed rare, threatened, or endangered species in the vicinity of the park.

USFWS replied to May 21 letter on August 11 stating no federally proposed or listed endangered or threatened species were known to exist within the project impact area, and no biological assessment or further consultation under Section 7 of the Endangered Species Act would be required.

First of five Science Team meetings held October 13 to provide input to the White-Tailed Deer Management Plan / EIS on matters regarding scientific data and analysis. Science Team meetings held over a six-month period.

Newsletter mailed in October to preliminary mailing list of government agencies, organizations, businesses, and individuals.

First public involvement meeting for the White-Tailed Deer Management Plan / EIS held November 9 in Thurmont; park received 64 comments.

Distance sampling deer spotlight survey conducted in fall; population estimate 104.11 deer per square mile.

Continued tracking of road-killed deer.

Started new 3-year rotation of vegetation monitoring. Monitored 6 open plots and corresponding 6 exclosures. The fencing was installed at the 6 exclosures. The microburst and fire open plots and exclosures were also monitored.

Rare plant monitoring and protection continued.

Winter aerial deer census: 128 deer observed.

2005 Second newsletter mailed in March to announce the alternatives development workshop April 20.

Second public involvement meeting (alternatives development workshop) held April 20 in Thurmont. Thirty-six individuals participated and commented. Forty additional comments received.

Distance sampling deer spotlight survey conducted in fall; population estimate 74.5 deer per square mile.

Continued tracking of road-killed deer.

Second year of 3-year rotation of vegetation monitoring. Twenty open plots monitored. The microburst and fire open plots and exclosures were monitored. A new exclosure was built in a blow-down exclosure and an existing open plot located in that same area were monitored.

Rare plant monitoring continued.

2006 Draft White-Tailed Deer Management Plan / EIS released for public review and input.

Appendix D: Chronic Wasting Disease

This appendix summarizes guidance provided by the National Park Service in response to chronic wasting disease, and it outlines management options available to parks for implementation in the absence of a specific CWD plan.

As of November 2005 chronic wasting disease has been diagnosed in two national parks — Rocky Mountain and Wind Cave national parks. Several National Park System units are at high risk because of their proximity to areas where CWD has been diagnosed in either captive or free-ranging cervids. In addition, there is a high likelihood that the disease will be detected in other areas of the country following spread of the disease and increases in surveillance for the disease. Therefore, chronic wasting disease has become an issue of national importance to wildlife managers and other interested publics, as well as NPS managers.

NPS Policy and Guidance

Director's CWD Guidance Memorandum (July 26, 2002)

The NPS director provided guidance to regions and parks on the NPS response to chronic wasting disease in a memorandum dated July 26, 2002. Even though the memo pre-dates current CWD distribution in the National Park System, the guidance remains pertinent. The guidance addresses surveillance, management, and communication regarding the disease. It also strictly limits the translocation of deer and elk into or out of National Park System units. Like any policy, deviation from the guidance memo would require a waiver approved by the director.

A National Park Service Manager's Reference Notebook to Understanding Chronic Wasting Disease (November 15, 2005)

This notebook serves as an informational reference that summarizes some of the most pertinent CWD literature, management options, and policies as they pertain to units of the National Park System. It is not meant to be an all-inclusive review of current literature or management options. Chronic wasting disease is an emerging disease, and the knowledge base is continuing to expand. This document will be updated as necessary to include information pertinent to the National Park Service.

Human Consumption of Elk and Deer Meat Gathered from Areas with Endemic Chronic Wasting Disease (December 22, 2005)

This document provides an overview of the issues surrounding chronic wasting disease as it relates to public health, and includes NPS recommendations for the use of cervid meat for human consumption from parks within or near areas where chronic wasting disease has been identified.

Description and Distribution

Chronic wasting disease is a slowly progressive, infectious, self propagating, neurological disease of captive and free-ranging mule deer (*Odocoileus hemionus*), white-tailed deer (*O. virginianus*), Rocky Mountain elk (*Cervus elaphus nelsoni*), and moose (*Alces alces*). The disease belongs to the transmissible spongiform encephalopathy (TSE) group of diseases (similar to scrapie and bovine spongiform encephalopathy).

Chronic wasting disease is the only TSE currently found in free-ranging animals. TSEs are characterized by accumulations of abnormal prion (proteinaceous infectious particle) proteins in neural and lymphoid tissues (Prusiner 1982, 1991, 1997).

There is evidence that human-associated movement of cervids has aided in the spread of the disease in captive, and likely free-ranging, deer and elk (Miller and Williams 2003; Salman 2003; Williams and Miller 2003). Localized artificial concentration of cervids in areas with few natural predators likely aids in disease transmission (Spraker et al. 1997; Samuel et al. 2003; Farnsworth et al. 2005). There is strong evidence to suggest that anthropogenic factors, such as land use, influence CWD prevalence (Farnsworth et al. 2005). Therefore, human influences are likely a significant component of observed CWD distribution and prevalence.

As of November 2005, chronic wasting disease had been found in captive/farmed cervids in 10 states and 2 Canadian provinces and in free-ranging cervids in 10 states and 2 provinces. The historic area of CWD infection encompasses northeastern Colorado, southeastern Wyoming, and the southwest corner of the Nebraska panhandle (Williams and Miller 2002; Williams et al. 2002b). However, with increased surveillance that has occurred since 2001, the disease has been found with increasing frequency in other geographically distinct areas (Joly et al. 2003).

CLINICAL SIGNS

The primary clinical signs of chronic wasting disease in deer and elk are changes in behavior and body condition (Williams et al. 2002b). Signs of the disease are progressive. Initially only someone who is quite familiar with a particular animal or group of animals would notice a change in behavior. As the clinical disease progresses over the course of weeks to months, animals demonstrate increasingly abnormal behavior and additional clinical signs (Williams and Young 1992). Affected animals can lose their fear of humans, show repetitive movements, and/or appear depressed but quickly become alert if startled. Affected animals rapidly lose body condition, despite having an appetite (Williams et al. 2002b). In the end stages of the disease they become emaciated. Once an animal demonstrates clinical signs the disease is invariably fatal. There is no treatment or preventative vaccine for the disease.

DIAGNOSIS AND TESTING

Chronic wasting disease was initially diagnosed in deer and elk by testing a portion of the brain (histopathology techniques) (Williams and Young 1993). While this method is effective at diagnosing relatively advanced cases, it is not sensitive enough to detect early disease stages (Spraker et al. 1997; Peters et al. 2000).

In contrast, immunohistochemistry (IHC) is a sensitive, specific, and reliable test that can be used to identify relatively early stages of chronic wasting disease. This technique can detect CWD prions in many tissues (brain, retropharyngeal lymph nodes, and tonsils) (O'Rourke et al. 1998).

In addition to immunohistochemistry, which takes several days to complete, new rapid tests also employ antibody technology to diagnose chronic wasting disease. Each has various advantages and disadvantages. Only certified laboratories can perform immunohistochemistry or the rapid CWD tests.

No test available is 100% sensitive for chronic wasting disease, which means that a negative test result is not a guarantee of a disease-free animal.

TRANSMISSION

There is strong evidence that chronic wasting disease is infectious and is spread by direct lateral (animal to animal) or indirect transmission (M. W. Miller et al. 2000; Miller and Williams 2003). Bodily secretions such as feces, urine, and saliva have all been suggested as possible means of transmitting the disease between animals and disseminating infectious prions into the environment (Miller et al. 2000; Williams et al. 2002b; Williams and Miller 2003). Maternal transmission cannot be ruled out, but it does not play a large role in continuing the disease cycle in either deer or elk (Miller et al. 1998; M.W. Miller et al. 2000; Miller and Williams 2003; Miller and Wild 2004).

Like other contagious diseases, CWD transmission increases when animals are concentrated. High animal densities and environmental contamination are important factors in transmission among captive cervids. These factors may also play a role in transmission in free-ranging animals (Miller et al. 2004).

Management actions that increase mortality rates in diseased populations can retard disease transmission and reduce prevalence. Increasing mortality slows transmission by two mechanisms:

1. It reduces the average lifetime of infected individuals. Reduced lifespan, in turn, can compress the period of time when animals are infectious, thereby reducing the number of infections produced per infected individual.

2. The effect of reduced intervals of infectivity is amplified by reductions in population density.

Both of these mechanisms retard the transmission of disease. If these mechanisms cause the number of new infections produced per infected individual to fall below one, then the disease will be eliminated from the population (Tompkins et al. 2001).

DISPOSAL OF CWD INFECTED ORGANIC MATERIAL

Discarding known or suspect CWD-contaminated organic material, such as whole or partial carcasses, is likely to become an important issue for National Park System units in the future. Each state, Environmental Protection Agency region, and refuse disposal area is likely to have different regulations and restrictions for disposal of potentially infected tissues. Currently there is no national standard for disposal. Because infected carcasses serve as a source of environmental contamination (Miller et al. 2004), it is recommended that known and suspect CWD-positive animals be removed from the environment.

Given the type of infectious agent (prions), there are limited means of effective disposal. In most cases, however, off-site disposal of infected material is recommended in approved locations. The available options for each park will vary and will depend on the facilities present within a reasonable distance from the park. Disposal of animals that are confirmed to be infected should be disposed of in one of the following ways:

- *Alkaline Digestion or Incineration* — Alkaline digestion is a common disposal method used by veterinary diagnostic laboratories. This method uses sodium hydroxide or potassium hydroxide to catalyze the hydrolysis of biological material (protein, nucleic acids, carbohydrates, lipids, etc.) into an aqueous solution consisting of small peptides, amino acids, sugars, and soaps.

  Incineration is another disposal method used by veterinary diagnostic laboratories. This method burns the carcass at intense temperatures.

Alkaline digestion and incineration are two of the most effective ways of destroying contaminated organic material. These are usually only available at veterinary diagnostic laboratories or universities. Arrangements can often be made with laboratories to test and then dispose of animals.

- *Landfill* — The availability of this option varies by region, state, and local regulations. Therefore, local landfills must be contacted for more information regarding carcass disposal, to determine if they can and will accept CWD positive carcasses or parts.

MANAGEMENT

Chronic wasting disease has occurred in a limited geographic area of northeastern Colorado and southeastern Wyoming for over 20 years. Recently, it has been detected in captive and free-ranging deer and elk in several new locations, including Nebraska, South Dakota, New Mexico, Utah, new areas of Wyoming and Colorado, and east of the Mississippi River in Wisconsin, Illinois, West Virginia, and New York.

The National Park Service does not currently have a single plan to manage chronic wasting disease in all parks. However, it has provided guidance to parks in how to monitor for and minimize the potential spread of the disease, as well as remove infected animals from specific areas. Generally, two levels of action have been identified, based on risk of transmission: (1) when chronic wasting disease is not known to occur within a 60-mile radius from the park, and (2) when the disease is known to occur within the park or within a 60-mile radius.

The chance of finding chronic wasting disease in a park is related to two factors: the risk of being exposed to the disease (the likelihood that the disease will be introduced into a given population), and the risk of the disease being amplified once a population of animals has been exposed. The first risk is important for National Park System units where no CWD cases have been identified within 60 miles of their border. The second risk applies to units where chronic wasting disease is close to or within their borders, as well as in proactive planning efforts. By evaluating the risk of CWD exposure and amplification, managers can make better decisions regarding how to use their resources to identify the disease.

Actions available to identify chronic wasting disease are linked to the risk factors present in and around the park. When risk factors are moderate, surveillance for chronic wasting disease can be less intense (e.g., opportunistic) than when risk is high (NPS 2005e). When the risk is higher, surveillance (e.g., opportunistic and targeted) should be increased. Other management actions that are in place for the host species may limit risk of exposure or transmission by maintaining appropriate population densities. Whether chronic wasting disease is within 60 miles of a unit or not, coordination with state wildlife and agriculture agencies is strongly encouraged.

OPPORTUNISTIC SURVEILLANCE

Opportunistic surveillance involves taking diagnostic samples for testing from deer found dead or harvested through a management activity within a unit of the National Park System. Cause of death may be culling, predation, disease, trauma (hit by car), or undetermined. Opportunistic surveillance has little, if any, negative impact on current populations. Unless deer are culled, relatively small sample sizes may be available for opportunistic testing. Animals killed in collisions with vehicles may be a biased sample that could help detect chronic wasting disease. Research has indicated that CWD-infected

mule deer may be more likely to be hit by vehicles than non-CWD infected deer (Krumm et al. 2005).

Opportunistic surveillance is an excellent way to begin surveying for presence of chronic wasting disease without changing management of the deer population. This is a good option for park units where chronic wasting disease is a moderate risk but where it has not yet been encountered within 60 miles of the park.

TARGETED SURVEILLANCE

Targeted surveillance entails lethal removal of deer that exhibit clinical signs consistent with chronic wasting disease. Targeted surveillance has negligible negative effects on the entire population, removes a potential source of CWD infection, and is an efficient means of detecting new centers of infection (M.W. Miller et al. 2000). One limitation to targeted surveillance is that environmental contamination and direct transmission may occur before removal. Additionally, there is no available method to extrapolate disease prevalence when using targeted surveillance because actions are focused only on those individuals thought to be infected. Targeted surveillance is moderately labor intensive and requires educating park staff in recognition of clinical signs and training in identifying and removing appropriate samples for testing, as well as vigilance for continued observation and identification of potential CWD suspect animals. Training is available through the NPS Biological Research Management Division. Targeted surveillance is recommended in areas with moderate to high CWD risk (within 60 miles of known CWD occurrence) or in park units where chronic wasting disease has already been identified.

POPULATION REDUCTION

Population reduction involves randomly culling animals within a population in an attempt to reduce animal density, and thus decrease transmission rates. In captive situations, where animal density is high, the prevalence of chronic wasting disease can be substantially elevated compared to that seen in free-ranging situations. Thus, it is hypothesized that increased animal density and increased animal-to-animal contact, as well as increased environmental contamination, enhance the spread of chronic wasting disease. Therefore, decreasing animal densities may decrease the transmission and incidence of the disease. However, migration patterns and social behaviors may make this an ineffective strategy if instead of spreading out across the landscape, deer and elk stay in high-density herds in tight home ranges throughout much of the year (Williams et al. 2002b). Population reduction is an aggressive and invasive approach to mitigating the CWD threat. It has immediate and potentially long term effects on local and regional populations of deer and the associated ecosystem. This may be an appropriate response if animals are above population objectives and/or the need to know CWD prevalence with a high degree of accuracy is vital.

COORDINATION

Regardless of which surveillance method is used, each park should cooperate with state wildlife and agriculture agencies in monitoring chronic wasting disease in park units, working within the park's management policies. Chronic wasting disease is not contained by political boundaries, thus coordination with other management agencies is important.

Additionally, as stated above, the NPS Biological Resource Management Division provides assistance to parks for staff training (e.g., sample collection, recognizing clinical signs of CWD) and testing (e.g., identifying qualified/approved labs or processing samples).

Appendix E: A Review of White-tailed Deer Reproductive Control

INTRODUCTION

Managing the overabundance of certain wildlife species has become a topic of public concern (Rutberg et al. 2004). Species such as Canada geese (*Branta canadensis*), coyotes (*Canis latrans*), and white-tailed deer (*Odocoileus virginianus*) have become either locally or regionally overabundant throughout the United States (Fagerstone et al. 2002). In addition, traditional wildlife management techniques such as hunting and trapping are infeasible in many parks and suburban areas, forcing wildlife managers to seek alternatives management methods.

The use of reproductive control in wildlife management has been assessed for the last several decades. Its use has gained more attention as the public has become more involved in wildlife management decisions. Interest in reproductive control, as an innovative alternative to traditional management methods, has led to the current state of the science (Baker et al. 2004). Oftentimes, the use of reproductive control is promoted in urban and suburban areas where traditional management tools, such as hunting, are publicly unacceptable or illegal due to firearm restrictions (Kilpatrick and Walter 1997; Muller et al. 1997).

The following appendix describes the current state of reproductive control (2006) as it relates to white-tailed deer management. In addition to describing the current technology available, it also covers population management challenges, regulatory issues, logistics, and consumption issues. It should be noted that since technology is changing rapidly in this field of research, this appendix is meant to be a description of the types of technology available and is not all-inclusive.

CURRENT TECHNOLOGY

The area of wildlife reproductive control is constantly evolving as new technologies are developed and tested. For the sake of brevity this appendix will only discuss reproductive control as it applies to female deer. There is a general understanding in white-tailed deer biology that managing the female component of the population is more important than managing the male component. Based on the polygamous breeding behavior of white-tailed deer, treating males with reproductive control would be ineffective if the overall goal is population management (Warren 2000).

There are three basic categories of reproductive control technology:

1. immunocontraceptives (vaccines)
2. non-immunological methods (pharmaceuticals), and
3. physical or chemical sterilization.

IMMUNOCONTRACEPTIVES

It is suggested that immunocontraceptive vaccines offer significant promise for future wildlife management (Rutberg et al. 2004). Immunocontraceptive treatment involves injecting an animal with a vaccine that "stimulates its immune system to produce antibodies against a protein (i.e., antigen) involved in reproduction" (Warren 2000). In

order to provide for sufficient antibody production, an adjuvant is combined with the vaccine. An adjuvant is a product that increases the intensity and duration of the immune system's reaction to the vaccine. There are two primary types of antigens used in reproductive control vaccines in deer: porcine zona pellucida (PZP) and gonadotropin releasing hormone (GnRH).

PORCINE ZONA PELLUCIDA (PZP). The majority of immunocontraceptive research in wildlife has been conducted using PZP vaccines, which in 1992, Turner et al. successfully used on white-tailed deer (Turner et al. 1992). Due to its mechanism of action this type of vaccine is only effective in female deer. Until recently there were only two PZP vaccine products being developed- one is simply called PZP, and the other SpayVac™, however the company producing SpayVac™ has stated that it will no longer begin new research projects involving SpayVac™. The other PZP vaccine has been used extensively in white-tailed deer in the course of investigating its effectiveness (Kirkpatrick et al. 1997; Turner et al. 1992, 1996; Walter et al. 2002a, 2002b).

The currently available PZP vaccine formulation is effective for one year, though multi-year applications are also being studied. There are several limitations to the PZP based vaccines. First, at this time, PZP vaccines require annual boosters in order to maintain infertility, resulting in the need to mark treated animals and re-treat the same individuals each year. Second, the Food and Drug Administration (FDA) has not determined whether vaccine components pose a human health risk. While the antibodies generated by the host's immune system should not pose a risk to human health, the possibility of accidental consumption of the vaccine depot by non-target animals or humans has not been investigated. Finally, the PZP based vaccines may cause abnormal out of season breeding behavior in treated deer populations (Fraker et al. 2002; McShea et al. 1997) as treatment with PZP causes repeated estrous cycling in females, which can result in late pregnancies and behavioral changes.

GONADOTROPIN RELEASING HORMONE (GNRH) VACCINES. GnRH is a small neuropeptide (a protein-like molecule made in the brain) that plays a necessary role in reproduction. It is naturally secreted by the hypothalamus (a region of the brain that regulates hormone production) which directs the pituitary gland to release hormones that control the proper functioning of reproductive organs (Hazum and Conn 1998). In an attempt to interrupt this process, research has focused on eliminating the ability of GnRH to trigger the release of reproductive hormones. One solution that has been investigated is a vaccine that, when combined with an adjuvant, stimulates the production of antibodies to GnRH. These antibodies attach to GnRH in the hypothalamic region and prevent the hormone from binding to receptors in the pituitary gland, thus suppressing the secretion of reproductive hormones.

The use of GnRH vaccines has been used in a variety of both wild and domestic ungulates (hoofed mammals). And, in recent years, a great deal of research has been done on their effectiveness. One such GnRH vaccine being researched and developed is GonaCon™. In addition to developing an adjuvant with fewer unwanted side effects, researchers are also studying ways to develop a multi-year dose of the vaccine (USDA/APHIS 2004). Potential benefits of this vaccine include the longer-lasting contraceptive effect and the lack of repeated estrous cycling. However, at this stage there are many uncertainties about this vaccine. First, like PZP vaccines, there is little information regarding the theoretical human and non-target species health risks. Second, there is very little information regarding vaccination of pregnant animals. Third, the vaccine can cause antibody development to not only the GnRH antigen but also a component of the adjuvant. This may cause difficulties when determining the Johne's disease status of a population of treated deer. Finally, there is limited published data using this vaccine in free-ranging animals. More work is necessary to establish population and herd level effects.

NON-IMMUNOLOGICAL REPRODUCTIVE CONTROL METHODS

This group of reproductive control agents includes GnRH agonists, GnRH toxins, steroid hormones, and contragestives.

GNRH AGONISTS. GnRH agonists are similar in structure to GnRH and act in a similar way – by attaching to receptors in the pituitary gland. In attaching to the receptors, these agonists reduce the number of binding sites available and thereby suppress the effect of the GnRH. As a result of this suppression, reproductive hormones are not released (Aspden et al. 1996; D'Occhio et al. 1996). However, not all agonists have the same effects in all species. In fact, some can have an effect that is the opposite of what is intended. That being said, it is important to fully understand the effects of a product on a given species. GnRH agonists have been tested in white-tailed deer and shown to suppress a specific reproductive hormone (luteinizing hormone). Researchers believe this may be a useful tool for preventing ovulation and pregnancy; however, this hypothesis has not yet been tested in white-tailed deer. This has been shown to be the case in female mule deer and elk, and will likely hold true for white-tailed deer as well.

Leuprolide acetate—Leuprolide is one such GnRH agonist that is being studied. Tests reveal that when it is administered as a controlled-release formulation it results in 100% pregnancy prevention in treated female elk and mule deer (Baker et al. 2004; Baker et al. 2002). In addition, the treatment is reversible, and the effects last only for a specific period of time (90–120 days; Baker et al. 2004; Trigg et al. 2001.). This means that, should a female be treated in one year, before the breeding season, it will not be come pregnant in that year, but if the female is not re-treated the following year, then it has the same chances of becoming pregnant as an animal that was never treated. Treatment using leuprolide differs from GnRH vaccines in that it does not require an adjuvant, however, it does require a slow release implant that remains under the skin or in the muscle for the duration of the treatment effectiveness.

An added benefit to the use of leuprolide is that it requires only one treatment for the first year of use, whereas some immunocontraceptive vaccines require retreating the same individual several times with boosters to develop and maintain infertility. Additionally, leuprolide is not likely to pose a threat to the environment or non-target species (including humans; Baker et al. 2004). In contrast with some of the immunocontraceptive vaccines, leuprolide does not result in physiological side effects, and short term behavioral effects are minimal.

Histrelin acetate—Histrelin acetate has been found to be effective in suppressing a key reproductive hormone in white-tailed deer (Becker and Katz 1995). However, in testing it was administered using a mini-pump that was surgically implanted under the animal's skin. This is an infeasible route of administration in free-ranging animals. In the future a remote delivery system may help to make this a more feasible option for free-ranging wildlife. It is likely that histrelin acetate will also suppress ovulation and pregnancy in white-tailed deer, although this remains to be tested.

GNRH TOXINS. GnRH toxins consist of a cellular toxin that is combined with a GnRH analogue. The toxin is then carried to the receptors in the pituitary gland and is internalized. Once absorbed, the toxin disrupts cellular function and can lead to cellular death. When this occurs the production of reproductive hormones is affected. This process has been studied in female mule deer (Baker et al. 1999), and the technology is still being developed.

STEROID HORMONES. The field of wildlife contraception began with research examining the manipulation of reproductive steroid hormones. Treatments using steroids can include administering high doses of naturally occurring hormones, such as estrogen or

progesterone. However, the treatment usually entails the application of synthetic hormones, such as norgestomet, levangesterol, and melangestrol acetate. Most products that are available are used in domestic animal or zoological veterinary medicine, and have not been used widely in free-ranging wildlife. Some issues related to using steroids include: difficulties in treating large numbers of animals for extended periods of time, negative side effects experienced by the treated animals, and concerns over the consumption of treated animals by non-target species, including humans.

CONTRAGESTIVES. Contragestives are products that terminate pregnancy. Progesterone is the primary gestational hormone for maintaining pregnancy in mammals. Many contragestives act by preventing progesterone production or blocking its effect, thereby affecting pregnancy. The primary contragestive that has been researched for use in domestic animals and white-tailed deer is prostaglandin $F_{2\alpha}$ analogue (Becker and Katz 1994; DeNicola et al. 1997; Waddell et al. 2001). Lutalyse® is a commercially available form of prostaglandin $F_{2\alpha}$ analogue. Unlike many of the other alternatives, there are no issues related to consumption of the meat when it has previously treated with this product. Difficulties with contragestives include; timing of administration, efficacy, potential to re-breed if breeding season is not finished, and the potential for aborted fetuses on the landscape.

STERILIZATION. Sterilization can be either a surgical or chemical treatment process. Surgical sterilization is an invasive procedure that requires a veterinarian and is common in managing domestic animal fertility. Chemical sterilization is typically performed on males as a reproductive control measure. Both types of sterilizations are typically permanent.

REGULATORY ISSUES

The application of reproductive control agents in free-ranging wildlife is fairly new and is currently (December 2005) regulated by the United States Food and Drug Administration (FDA). None of the agents discussed here have been licensed or labeled for use as reproductive control agents in wildlife species. However, some can be used in a research setting under an Investigational New Animal Drug (INAD) exemption. This exemption is granted by the FDA for the purpose of allowing research to facilitate the gathering of information pertaining to the agent prior to the FDA granting full approval for its use.

Some of the agents discussed above, specifically several of the pharmaceuticals, have FDA approval for therapeutic use in humans (e.g., leuprolide) or other non-wildlife species (e.g., prostaglandin $F_{2\alpha}$). As a safety precaution each approved agent is labeled indicating how it is to be used. In order to use the agent in a manner other than that indicated on the label, a licensed veterinarian must prescribe the agent and it must be used in accordance with the *Animal Medicinal Drug Use Clarification Act of 1994*. The prescribing veterinarian is accountable for prescribing and labeling a product when it is to be used in an extra-label manner. However, the owner (in this case, the NPS unit manager) is responsible for using the agent in the prescribed manner. In addition, the veterinarian must establish a meat residue withdrawal period – the time it takes for the animal to fully metabolize and clear the drug from its tissue – for any animals that may enter the human food chain. A treated animal may not be killed and enter the human food chain before the meat residue withdrawal period is over. Treated animals for which a meat residue withdrawal period has been established need to be marked accordingly. If, however, there is no meat residue withdrawal period the animals do not need to be marked.

POPULATION MANAGEMENT CHALLENGES

Managing local populations of wildlife using reproductive control can be difficult. The level of difficulty relates to the number of animals that need to be treated, their behavior (i.e., solitary, herd, diurnal, nocturnal, etc.), the topography of the habitat in which they are found, as well as treatment protocol logistics. In species like elk, animal roundups can occur making treatment easier than in cases where the populations are more dispersed (e.g., deer).

In order for reproductive control agents to effectively reduce population size, treatment with an agent must decrease the reproductive rate to less than the mortality rate. In urban deer populations, mortality rates are generally very low (approximately 10%), therefore it would be necessary to treat 70–90% of the female deer to effectively reduce or halt population growth (Rudolph et al. 2000). Additionally, a significant amount of population data is necessary to effectively monitor the effects of long term population changes due to the use of reproductive controls (Rudolph et al. 2000; Hobbs et al. 2000; Porter et al. 2004).

Reproductive control agents generally decrease population levels slowly. At best, with 90% of the female deer treated, a 5% decline in the population would likely be expected after several years of treatment. Hobbs et al. described a model that suggests deer density will remain constant if 90% of the initial females are treated with a long term reproductive control agent. Subsequently, 90% of female fawns would require treatment. This would stabilize the population if the average mortality rate is 10%. However, this result does not hold for short-duration agents (1 year duration). In this case, the 90% of reproductively mature females would require treatment each year in order to maintain constant herd numbers (Hobbs et. al. 2000). Reproductive control techniques are best suited to localized populations where the number of breeding females to be treated is small (e.g., less than 100 deer) and managers are trying to maintain the population between 30% and 70% of carrying capacity (Rudolph et al. 2000).

ADMINISTERING THE TREATMENT

There are two basic approaches to administering reproductive control agents: capture and treat and remotely treat. Capture and treat requires physically and/or chemically restraining the animal and using a syringe or other delivery device to treat the animal. One benefit of this approach is that it allows for marking the deer which facilitates subsequent treatments. This method also is helpful in collecting valuable biological data, and it provides notice of meat residue withdrawal times. However, this approach is often more time intensive and can be more expensive than using a remote delivery system, especially as treated animals tend to be more difficult to recapture. In addition, capture-related mortality can also be a concern.

A remote delivery system uses an adapted firearm (i.e., dart gun) and some form of projectile that contains the reproductive control agent. These projectiles can be darts or another form of delivery system (e.g., biobullet) that can be used at a distance without needing to capture the animal first. One shortcoming of remote treatment is that it does not allow for permanently marking the treated animals. In addition, previously treated animals can be more difficult to re-treat.

POTENTIAL IMPACTS TO DEER BEHAVIOR AND HEALTH

There have been few studies designed to intensively assess the effects of reproductive control on deer behavior and health. For many agents, additional research is needed to

fully understand the behavioral and social consequences of reproductive control use. Because each group of reproductive control agents operates differently, the effects to the individual deer or population can vary widely. Porcine zona pellucida (PZP) immunocontraceptive agents have been documented to cause the continued cycling of females, which can extend the breeding season or rut (Fraker et al. 2002; McShea et al. 1997). This can result in increased levels of testosterone in males leading to aggressive behavior for an extended period. In addition, if the female gets pregnant later in the year, there are changes to fawning dates and survival rates, as they are born later in the season (DeNicola et al. 1997). Other immunocontraceptives such as the gonadotropin releasing hormone (GnRH) vaccine, when applied to males, have resulted in depressed antler development and lack of interest in breeding. When this vaccine is applied to females, they appear as if they are in anestrus and not estrous cycling during the breeding season. If enough females in the population are treated, it may result in a disruption to natural male/female social as well as reproductive interactions.

The group of reproductive control agents categorized as non-immunocontraceptive methods can also have varying effects to deer behavior and health. For example, GnRH agonists have not been documented as causing behavioral changes when applied to female deer (Baker et al. 2004). GnRH agonists have had variable behavioral effects when applied to male elk. Steroids like progestegin can result in females being unreceptive to males resulting in breeding behavioral changes (Matschke 1977). Contragestives pose a different kind of problem depending on when the treatment is applied. If applied too early in the breeding season, then the female could potentially breed again later in the year extending the rut and resulting fawn-related health issues such as those described for some immunocontraceptive agents above. If applied too late in the season contragestives can result in health implications for the female (DeNicola et al. 1997).

Depending on the method of sterilization this procedure may have behavior effects on both male and female deer. If gonads are removed then the source of important reproductive hormones will be removed. This is likely to change deer social interactions. If gonads are not removed, females will continue to ovulate and show behavioral signs of estrus and consequently may extend the breeding season.

As described above, any effect that could extend the rut has the potential for secondary effects to the individual deer. Increase attempts to breed, especially if unwelcomed, can result in increased aggression and movements. This can be problematic in areas with high vehicle use, as there could be increases in deer/vehicle collisions or other negative interactions with the public. However, as stated above, the effects of reproductive control agents still need more research in order to more fully understand the variations in deer behavior and health.

POTENTIAL IMPACTS TO CONSUMPTION

As described above, some of the reproductive control agents can result in issues related to human consumption of meat. These issues can be avoided by: (1) using an agent that does not pose a risk to humans, (2) marking treated animals and providing meat residue withdrawal times (if possible), (3) providing educational materials to the local public that may consume hunted animals in the general area of treated animals, and (4) increasing research efforts to determine true human consumption risks.

TABLE E-1. A SUMMARY OF THE PERCEIVED ADVANTAGES AND DISADVANTAGES OF DIFFERENT REPRODUCTIVE CONTROL AGENTS FOR DEER

Reproductive Control Agent	Mechanism	Advantages	Disadvantages
PZP Vaccine	Immunization – antibodies directed at the ovum (egg).	• No hormonal residues • Effective for at least 1 year • Antibodies not harmful to humans • Apply any time of year • Remote delivery possible • No apparent adverse health effects • Reversible • Available for use as an INAD	• Requires booster vaccinations • Only useful in females • Females continue to cycle out of natural breeding season • Not 100% effective • Potential adjuvant problems • Animals must be permanently marked in hunted populations
GnRH Vaccine	Immunization – antibodies directed at a protein hormone that is needed for reproduction.	Same as above plus: • Stops hormonal cycling • Applicable to both males and females • Adjuvant may be FDA approved in future • Used as an INAD	• Can remove primary and secondary sexual characteristics • May affect behaviors • Animals must be permanently marked • Incompletely tested in free-ranging populations
GnRH Agonists Leuprolide Historelin	Overwhelming GnRH receptors on anterior pituitary suppressing release of reproductive hormones.	• No hormonal meat residues • No affect on reproductive behaviors • FDA approved for therapeutic use in humans • Slow-release formula available • Remote delivery possible • Continuous release micro-pump (surgically implanted) available	• Annual treatment prior to breeding season • Meat withdrawal period not well established
GnRH Toxin	Linking a GnRH analog to a cellular toxin which targets and kills GnRH receptors preventing release of reproductive hormones.	• May cause permanent sterility	• More research is needed before using this product in free-ranging populations
Steroid Hormones Progestins Estrogens	Controlling the reproductive cycle by administering steroid hormones or their analogues.	• Variable efficacy • Variable duration	• Some formulations can be accumulated in tissues and may pose a health risk to scavengers or humans • Some steroids can be harmful to the target species • Animals must be marked • Administered by slow release implants or repeated feeding
Contragestion Prostaglandin $F_{2\alpha}$	Pre-term pregnancy termination.	• Administered by biobullet or hand injection • FDA approved for use in domestic large animals • No meat withdrawal period in domestic cattle	• Administered when the animal is pregnant • Re-breeding may occur if given early • Increased health complications if given late

Appendix F: Deer Population and Vegetation / Regeneration Monitoring Methods

Deer Population Monitoring Methods

Park staff would continue using the distance sampling method to annually estimate the deer population density within the park (NPS 2004f). Distance sampling is a reliable analytical method for estimating population densities (Buckland et al. 2001; Thompson et al. 1998). It is conducted by an observer traveling along a transect and recording how far away objects of interest are. The method allows for a proportion of objects within a certain distance of the line to be missed. Unbiased estimates of density can be obtained from the distance data if three assumptions are met: (1) objects on the line or point are detected with certainty; (2) objects are detected at their initial location; and (3) distance measurements are exact (Buckland et al. 2001; Thompson et al. 1998; Underwood et al. 1998). A problem with distance sampling in past surveys has been the use of roads and trails as the transect. Recent research and discussion concerning a curved line transect has alleviated many of the conflicts; however, the use of roads and trails still carries the risk of bias from unrepresentative sampling of available habitats (Buckland et al. 2001; Hiby and Krishna 2001). However, Buckland et al. (2001) state that few studies have attempted to verify whether the resulting density estimates are unbiased for the wider study area. After five years of distance sampling (from 2001 to 2005), NPS staff at Catoctin were able to detect a 1% change in the deer population (Bates, pers. comm. 2005; NPS 2004f).

Surveys would typically be conducted at night when deer are most active and would be conducted in late October when leaf drop allows easy viewing and deer behavior is not radically influenced by the breeding season. Deer surveys at Catoctin have been conducted in late October since 1989.

Distance sampling surveys would be conducted for three consecutive nights unless ambient conditions or personal safety reasons (e.g., heavy traffic) required a postponement. Additional surveys would be added when variability in the data exceeded certain statistical standards; specifically, when the coefficient of variation associated with the number of deer groups encountered after three nights of sampling exceeded 20% or if the detection probability variation exceeded 25%. The coefficient of variation and the detection probability variation would not be calculated until the third survey had been completed. The coefficients would be recalculated after each subsequent survey until the above-mentioned criteria were satisfied.

Spotlighting equipment would be assembled and checked at least two weeks before the first survey. Laser rangefinders would also be checked for operability and battery life.

Ambient conditions should meet minimum standards (wind — less than 19 mph; rain — less than heavy; visibility — greater than 2 miles; temperature — higher than 35°F), as reported from the nearest official National Oceanographic and Atmospheric Administration weather data site (<www.weatherunderground.com>) before each survey. Surveys would be postponed if ambient conditions could exceed minimum standards during the survey.

Surveys would begin no earlier than 30 minutes after sunset. A minimum three-person crew, consisting of a driver (data recorder) and two observers, would be required to execute each survey. Survey routes would be driven at speeds ranging from 6 to 10 mph. Observers would use handheld spotlights to illuminate the survey area on both sides of the transect; each observer would focus attention on one side of the transect. Upon

detection of a deer, the observer would direct the driver to position the vehicle such that the perpendicular distance (90° angle to the transect) could be measured. Because the transect is curved, more than one perpendicular distance might be available; the shortest perpendicular distance should be measured (Hiby and Krishna 2001). In cases where a perpendicular distance was not possible, a radial distance could be measured. When measuring a radial distance, the bearing of the transect and the white-tailed deer location would be obtained using a handheld compass. The radial distance would then be multiplied by the sine of the angle (the difference of the bearing measurements) to obtain the perpendicular distance. In all instances the distance measured should be to the initial location of the deer prior to any movement. The distance would be measured using a laser rangefinder and should be measured to an individual deer or, in the case of a group of deer, to the deer closest to the center of a group. In order to detect deer directly on the transect, the driver would be required to observe groups of deer on the transect line and record the distance of the deer or group, if any, from the transect line.

Deer would be categorized by group size (e.g., an individual deer would be a group of one, and five deer would be a group of five). Deer would be partitioned into groups by using behavioral cues and the nearest neighbor criterion (LaGory 1986). For instance, deer that repeatedly looked back at other deer could be counted as part of a group. Additionally, if an individual deer is less than half the distance from the closest deer than from its next nearest neighbor, then that individual deer would be counted as part of a group. When large groups of deer were are seen in open fields, group classification would be attempted before positioning the vehicle for a distance measurement so as to minimize a flight response. In cases where the deer fled, the observer would note the initial location of the group and obtain a distance measurement to the location of first detection.

Data would be recorded on a standard deer distance sampling datasheet. Demographic classification would be collected only when bucks, does, and fawns could be clearly identified; "unknown" would be the demographic classification default.

Data would be analyzed using the distance model (Thomas et al. 2003; Underwood et al. 1998). This model provides estimates of population density (deer per square mile) with well-defined confidence intervals. The minimum amount of data required would include the survey dates, park area, transect length, number in group, and distance.

VEGETATION / REGENERATION MONITORING METHODS

If the deer population is to be managed based on the success of forest regeneration, then tree seedlings would be monitored to determine at what point browsing impacts would warrant the implementation of the possible additional actions.

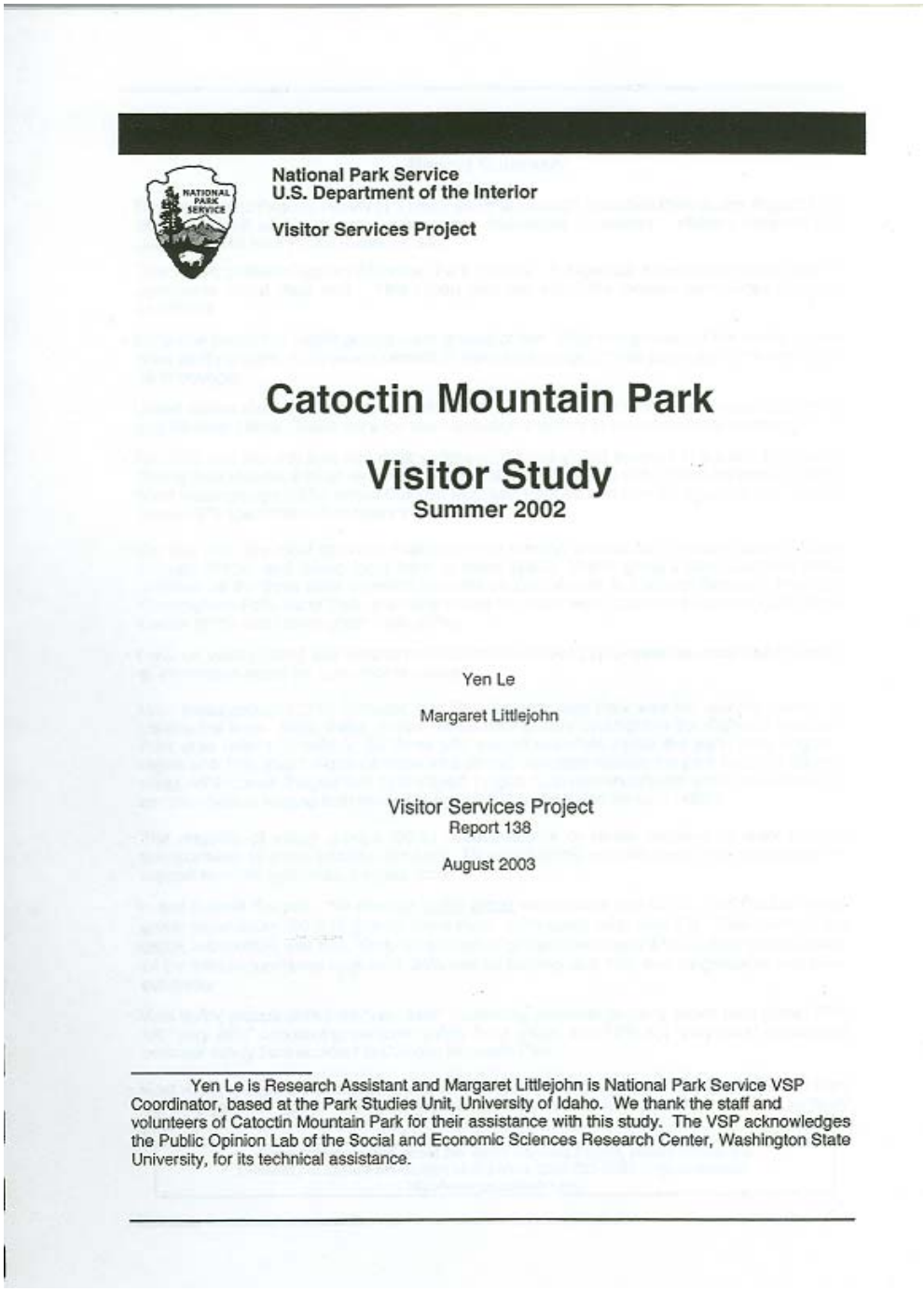
Since 1990 various vegetation monitoring projects have been conducted at Catoctin. In 1990, 45 open plots, each approximately 66 feet square (20 meters square), were established and monitored for five years. In 1997 the vegetation in six open plots was compared with the vegetation in three existing exclosures to document differences. These paired plots and exclosures were monitored from 1997 to 1999 and from 2000 to 2002. In 2004, based on data previously collected and work with Dr. Susan Stout, the park adopted a monitoring protocol to document forest regeneration (NPS 2004i; Marquis et al. 1992; Stout 1999; Pavek 2000; McWilliams et al. 1995). The original 45 plots established in 1990 are the baseline for regeneration monitoring.

Other paired plots (one open, one closed) have been added recently in disturbed areas (blowdowns). Six new exclosures adjacent to randomly chosen open plots from the original 45 were added in 2004 to gather additional information on deer browsing impacts. The original plots would be monitored on a three-year cycle, so that at the end of

each cycle all 45 plots would have been monitored. Within each of the plot areas, four subplots would be surveyed, each of which would be approximately 6.6 feet by 6.6 feet or 44 square feet (4 square meters), for a total monitoring area of approximately 176 square feet (16 square meters). Within the subplots the number of seedlings between height class 3 and 7 (approximately 10–60 inches [or 26–150 cm]) would be counted and species documented. Successful regeneration would be defined as having 51 seedlings or more per open plot in 67% or more of the original 45 open monitoring plots (Stout 1999).

Appendix G: 2002 Catoctin Mountain Park Visitor Use Survey Natural Resource Issue Questions

In 2002, a visitor study was conducted by the Park Studies Unit, University of Idaho. More information on this project including the methodology is available at http://www.psu.uidaho.edu. Although this survey was not part of the deer management planning effort, excerpts below provide insight into the Park resources and uses that are important to park visitors.



National Park Service
U.S. Department of the Interior

Visitor Services Project

Catoctin Mountain Park

Visitor Study

Summer 2002

Yen Le

Margaret Littlejohn

Visitor Services Project
Report 138

August 2003

Yen Le is Research Assistant and Margaret Littlejohn is National Park Service VSP Coordinator, based at the Park Studies Unit, University of Idaho. We thank the staff and volunteers of Catoctin Mountain Park for their assistance with this study. The VSP acknowledges the Public Opinion Lab of the Social and Economic Sciences Research Center, Washington State University, for its technical assistance.

Visitor Services Project

Catoctin Mountain Park

Report Summary

- This report describes the results of a visitor study at Catoctin Mountain Park during August 3-11, 2002. A total of 604 questionnaires were distributed to visitors. Visitors returned 470 questionnaires for a 77.8% response rate.
- This report profiles Catoctin Mountain Park visitors. A separate appendix contains visitors' comments about their visit. This report and the appendix include summaries of those comments.
- Forty-one percent of visitor groups were groups of two. Fifty-two percent of the visitor groups were family groups. Forty-seven percent of visitors were aged 31-55 years and 21% were aged 15 or younger.
- United States visitors were from Maryland (64%), Pennsylvania (10%), Washington D.C. (8%), and 26 other states. There were too few international visitors to provide reliable information.
- This visit was the only time that most visitors (61%) had visited the park in the last 12 months. During their lifetime, 38% of visitors visited the park one time and 29% visited six times or more. Most visitor groups (78%) visited Catoctin Mountain Park for less than 24 hours on this visit. Of those, 70% spent two to four hours in the park.
- On this visit, the most common activities were viewing wildlife and scenery (82%), driving through (61%), and hiking for 1 hour or more (46%). Visitor groups also identified these activities as the three most common activities on past visit(s). In Catoctin Mountain Park and Cunningham Falls State Park, the most visited locations were Catoctin Mountain Park Visitor Center (80%) and Cunningham Falls (57%).
- Previous visit(s) (53%) and word of mouth/friends/relatives (31%) were the most used sources of information about the park prior to visiting.
- Most visitor groups (77%) indicated that Catoctin Mountain Park was the primary reason for visiting the area. Most visitor groups (68%) did not stay overnight in the Catoctin Mountain Park area (within 50 miles). Of those who stayed overnight inside the park, 53% stayed 2 nights and 18% stay 1 night. Of those who stayed overnight outside the park (within a 50-mile area), 46% stayed 2 nights and 19% stayed 1 night. Campgrounds/trailer parks were the most common type of lodging both inside the park (51%) and outside the park (45%).
- The majority of visitor groups (98%) used personal or rental vehicles as their form of transportation to arrive and visit the park. Thurmont (78%) was the most-used community for support services (groceries, ice, gas, etc.).
- In and outside the park, the average visitor group expenditure was $117. The median visitor group expenditure (50% of groups spent more, 50% spent less) was $25. The average per capita expenditure was $34. Forty-six percent of groups spent up to $100 in total expenditures. Of the total expenditures by groups, 26% was for lodging, and 19% was for groceries and take-out foods.
- Most visitor groups (64%) felt "very safe" concerning personal property safety from crime; 70% felt "very safe" concerning personal safety from crime; and 52% felt "very safe" concerning personal safety from accident in Catoctin Mountain Park.
- Most visitor groups (97%) rated the overall quality of visitor services at Catoctin Mountain Park as "very good" or "good." No visitor groups rated the overall quality of visitor services as "very poor."

For more information about the Visitor Services Project, please contact the University of Idaho Park Studies Unit; phone (208) 885-7863 or go to website: http://www.psu.uidaho.edu

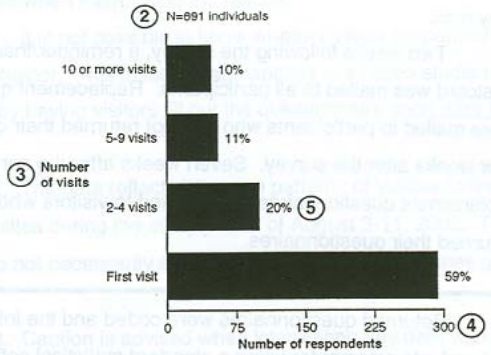
INTRODUCTION

This report describes the results of a study of visitors at Catoctin Mountain Park. This visitor study was conducted August 3-11, 2002 by the National Park Service (NPS) Visitor Services Project (VSP), part of the Park Studies Unit at the University of Idaho.

The report is organized into four sections. The ***Methods*** section discusses the procedures and limitations of the study. The ***Results*** section provides summary information for each question in the questionnaire and includes a summary of visitor comments. An ***Additional Analysis*** section is included to help managers request additional analyses. The final section includes a copy of the ***Questionnaire.*** The separate appendix includes comment summaries and visitors' unedited comments.

Most of this report's graphs resemble the example below. The large numbers refer to explanations following the graph.

SAMPLE ONLY



1 **Figure 4: Number of visits**

1: The figure title describes the graph's information.

2: Listed above the graph, the 'N' shows the number of visitors responding and a description of the chart's information. Interpret data with an 'N' of less than 30 with **CAUTION!** as the results may be unreliable.

3: Vertical information describes categories.

4: Horizontal information shows the number or proportions in each category.

5: In most graphs, percentages provide additional information.

METHODS

Questionnaire design and administration

The questionnaire for this visitor study was designed using a standard format that has been developed in previous Visitor Services Project studies. Some of the questions were comparable with VSP studies conducted at other parks. Other questions were customized for Catoctin Mountain Park.

Interviews were conducted with, and questionnaires were distributed to, a sample of visitors who arrived at Catoctin Mountain Park during the period from August 3-11, 2002.

Visitor groups were greeted, briefly introduced to the purpose of the study, and asked to participate. If visitors agreed, an interview, lasting approximately two minutes, was used to determine group size, group type, and the age of the adult who would complete the questionnaire. These individuals were then given a questionnaire and asked for their names, addresses and telephone numbers in order to mail them a reminder/thank you postcard. Visitor groups were asked to complete the questionnaire during or after their visit and then return it by mail.

Two weeks following the survey, a reminder/thank you postcard was mailed to all participants. Replacement questionnaires were mailed to participants who had not returned their questionnaires four weeks after the survey. Seven weeks after the survey, second replacement questionnaires were mailed to visitors who still had not returned their questionnaires.

Data analysis

Returned questionnaires were coded and the information was entered into a computer using a standard statistical software package—Statistical Analysis System (SAS). Frequency distributions and cross-tabulations were calculated for the coded data, and responses to open-ended questions were categorized and summarized.

Opinions about appropriateness of activities in park

Visitor groups were asked to rate the appropriateness of selected activities in Catoctin Mountain Park. As shown in Table 8, the activities receiving the highest "always" appropriate rating were fishing—catch and release (34%), bicycling on road (30%), and controlling the white-tailed deer population (22%). The activities receiving the highest "never" appropriate rating were removal of non-native plants/species (33%), bicycling off road, and fishing—catch and keep (each 19%).

Table 8: Appropriateness of selected activities in park
percentages may not equal 100 due to rounding.

Activity	Always	Usually	Sometimes	Never	No opinion/ don't know
	%	%	%	%	%
Visitors collecting mushrooms N=440	15	14	15	13	44
Visitors gathering berries N=440	18	15	18	11	37
Removal of non-native plants/species (Japanese barberry, rose, stiltgrass, etc.) N=442	16	10	13	33	29
Control of white-tailed deer population N=435	22	20	28	11	20
Bicycling on road N=441	30	28	18	10	15
Bicycling off road N=441	18	20	27	19	17
Fishing—catch and keep N=438	9	13	37	19	23
Fishing—catch and release N=443	34	24	17	5	20

Ratings of the importance of park elements

Visitor groups were asked to rate the importance of selected Catoctin Mountain Park elements in planning for the preservation of the park for future generations. The following scale was used:

IMPORTANCE
5= extremely important
4= very important
3= moderately important
2= somewhat important
1= not important
DK= don't know/no opinion

Figures 32 to 40 show the importance ratings that were provided by visitor groups for each of the individual park elements. The elements receiving the highest proportion of "extremely important" and "very important" ratings included natural quiet/sounds of nature (92%), views without development (89%%), and viewing native plants/forest (85%). The highest proportions of "not important" ratings were viewing deer and viewing night sky (each 4%).

Figure 41 combines the "extremely important" and "very important" ratings and compares those ratings for all of the park elements.

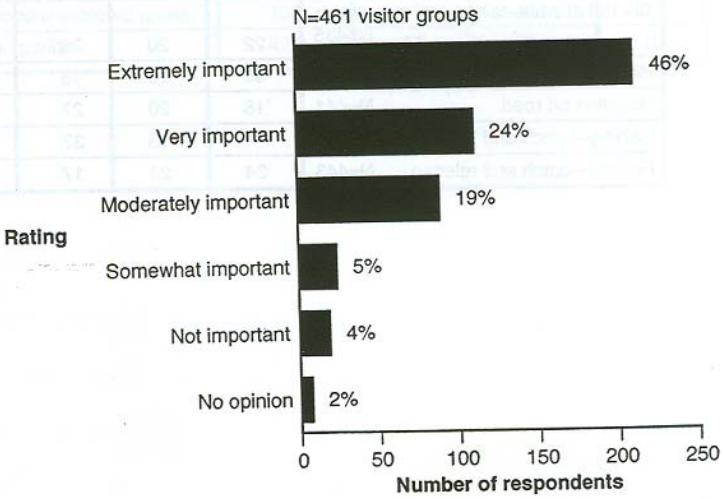


Figure 32: Importance of park element: viewing deer

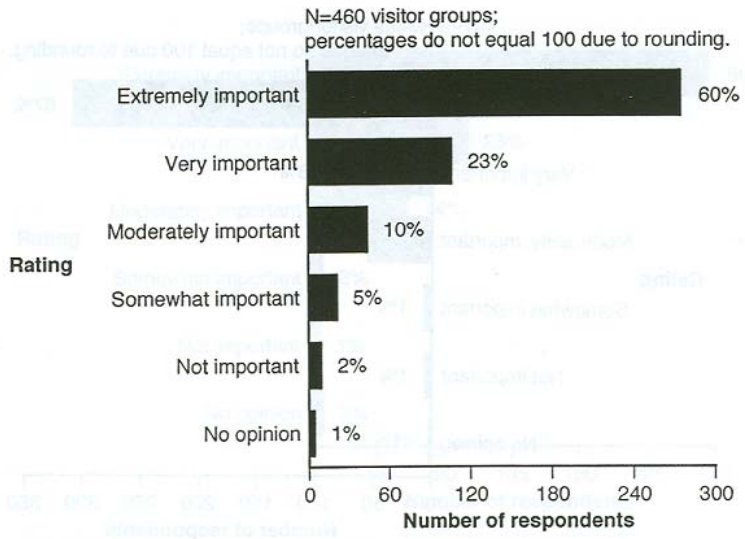


Figure 33: Importance of park element: viewing birds

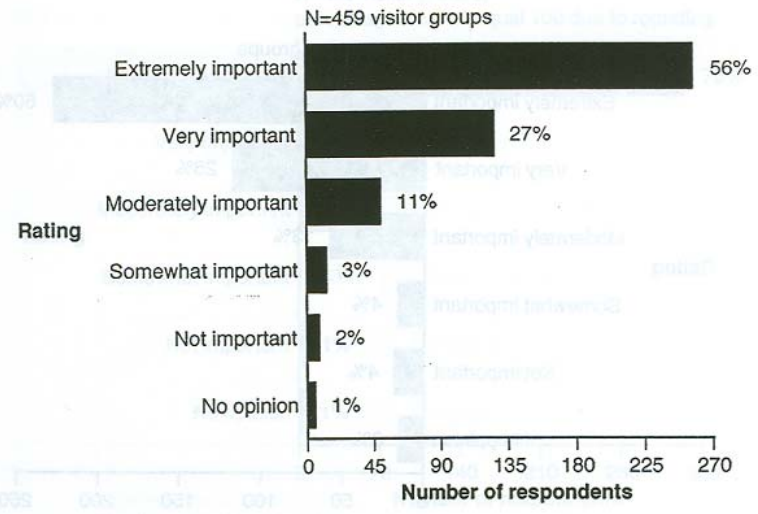


Figure 34: Importance of park element: viewing other native animals

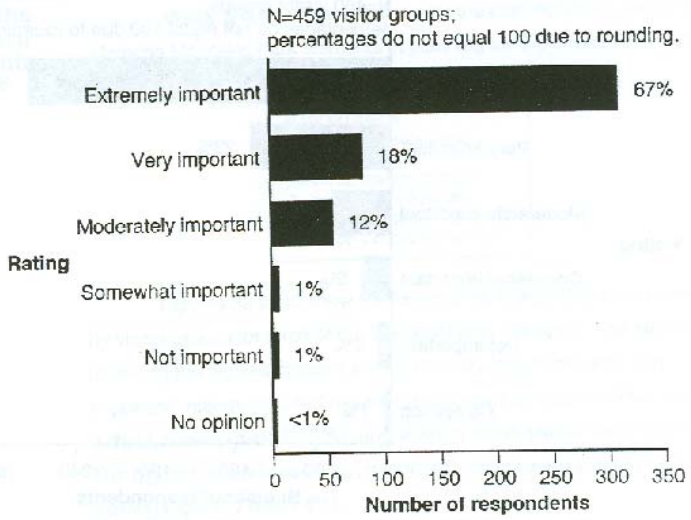


Figure 35: Importance of park element: viewing native plants/forest

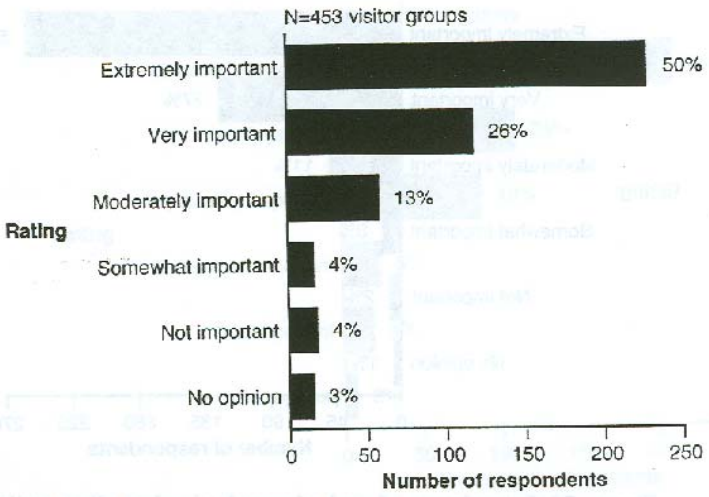


Figure 36: Importance of park element: viewing night sky

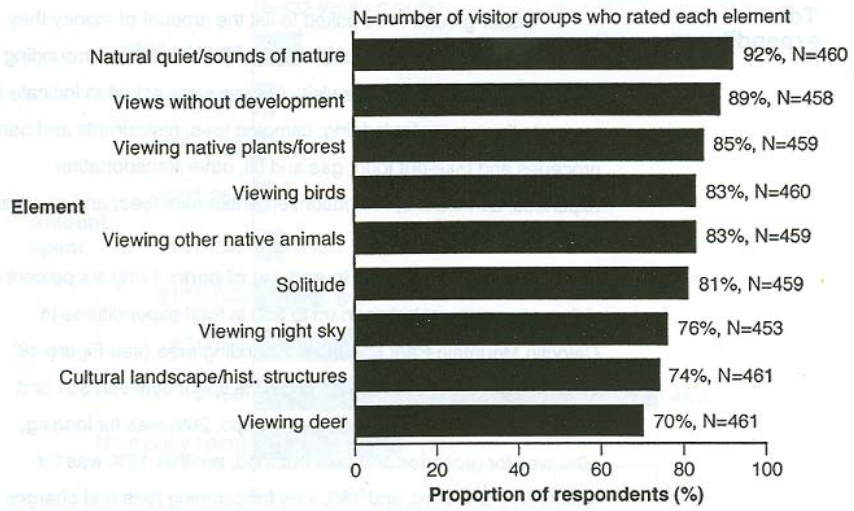


Figure 41: Combined proportions of "extremely important" and "very important" ratings for park elements

Appendix H

Comments and Reponses on the Draft Plan/Environmental Impact Statement

Pursuant to the National Environmental Policy Act, its implementing regulations, and NPS guidance on meeting the Service's NEPA obligations, the park must assess and consider comments submitted on the draft EIS and provide responses. This appendix outlines and describes how the NPS considered public comments and provides the necessary responses to those comments.

RESPONSES TO SUBSTANTIVE COMMENTS ON THE DRAFT PLAN/ ENVIRONMENTAL IMPACT STATEMENT

The Environmental Protection Agency Notice of Availability (NOA) for the Draft White-tailed Deer Management Plan/Environmental Impact Statement (draft plan/EIS) for Catoctin Mountain Park was published on December 1, 2006. The publication of the NOA initiated a 64-day public comment period that ended February 2, 2007.

Correspondence received during the public comment period included letters, electronic mail, transcripts from public meetings, and comments on the National Park Service (NPS) Planning, Environment and Public Comment (PEPC) website. The park received correspondence from 24 individuals, 5 recreational groups, and 2 conservation/ preservation groups. The correspondence contained 192 comments on various topics. All correspondence received during the public comment period may be viewed at the park headquarters during regular business hours.

At the close of the public comment period, the NPS began analyzing the correspondence received on the draft plan/EIS. Content analysis consisted of a five-step process:

- developing a coding structure
- employing a comment database for comment management
- reading and coding public comments
- interpreting and analyzing the comments to identify issues and themes
- preparing this comment summary

A coding structure was developed to help sort comments into logical groupings, or topics. The coding structure was derived from an analysis of the range of topics discussed during internal NPS scoping, past planning documents, and the comments themselves. The coding structure was designed to capture all comment content rather than to restrict or exclude any ideas. Each comment was categorized by topic using the established coding structure.

Once coded, the comments were identified as substantive or nonsubstantive, according to criteria described in the Council on Environmental Quality regulations (40 CFR 1500). These criteria state that substantive comments raise an issue regarding law or regulation, agency procedure or performance, compliance with stated objectives, validity of impact analyses, or other matters of practical or procedural importance. Nonsubstantive comments offer opinions or provide information not directly related to the issues or impact analysis. Nonsubstantive comments were acknowledged and considered, but do not require responses from the NPS.

The majority of comments received focused on various aspects of the alternatives proposed in the draft plan/EIS. Of the 89 comments addressing the alternatives, 31 comments addressed the preferred alternative (alternative C). Thirty-five comments regarded alternatives that had been eliminated for consideration in the draft plan/EIS and suggestions for new alternatives or alternative elements accounted for 6 comments.

Other topics that received numerous comments included the Purpose and Need for the plan (34 comments) as well as comments related to impacts on vegetation (13 comments) and wildlife and wildlife habitat (21 comments).

Concern statements were developed by code to summarize the views expressed in the substantive comments. All together, 148 substantive comments were identified and coded and from that 52 concern statements were developed. The NPS then developed response statements addressing each concern statement. This report provides the concern statements, the representative comments that led to the development of those concern statements, and the NPS responses to these substantive comments.

Reading, coding, and analyzing comments helps the NPS decide if substantive issues raised by the public warrant further modification and analysis of the alternatives, issues, and impacts. Comment analysis also helped the NPS identify any draft plan/EIS text where clarification was helpful or factual errors needed correction. If editorial clarifications or factual changes were required, the text changes are reflected in this Final White-tailed Deer Management Plan/EIS.

The indices in this report provide commenters with various means to track the way NPS addressed their comments. Each correspondence was assigned an ID number that can be found in Index A. Next to the ID number are all of the codes that NPS assigned to each individual correspondence. All of these comments were then used to develop the concern statements and responses. In addition, Index B provides an index broken out by code to show which organizations/individuals provided comments related to each code. Index C provides the full text of all of the letters submitted by businesses, organizations, and government agencies.

Comment Summary

Code	Description	Number of Comments
AL1500	Alternatives: Elements Common To All Alternatives (Non-Substantive)	2
AL2041	Alternatives Eliminated: Managed Hunt	23
AL2047	Oppose Eliminating Managed Hunt	2
AL2061	Alternatives Eliminated: Use the Deer Population as a Research Model	1
AL2071	Alternatives Eliminated: Surgical Sterilization of Does	3
AL2077	Oppose Eliminating Surgical Sterilization of Does Alternative	2
AL2100	Alternatives Eliminated: Ecosystem Management Alternative	1
AL2130	Alternatives Eliminated: Bow Hunting Only	1
AL4000	Alternatives: New Alternatives Or Elements	6
AL4002	Alternatives: Alternative A - No Action	1
AL4011	Alternatives: Alternative B - Combined Non-lethal Actions (Large exclosures, increased use of repellents, and reproductive control of does)	10
AL4014	Support Alternative B - Combined Non-lethal Actions (Large exclosures, increased use of repellents, and reproductive control of does)	5
AL4021	Alternatives: Alternative C - Combined Lethal Actions (Sharpshooting and Capture and Euthanasia)	12
AL4024	Support Alternative C - Combined Lethal Actions (Sharpshooting and Capture and Euthanasia)	16
AL4027	Oppose Alternative C - Combined Lethal Actions (Sharpshooting and Capture and Euthanasia)	3
AL4031	Alternatives: Alternative D - Combined Lethal and Non-lethal Actions	1
AE12000	Affected Environment: Wildlife And Wildlife Habitat	4
AE12500	Affected Environment: Wildlife and Wildlife Habitat (Non-Substantive)	3
CC1000	Consultation and Coordination: General Comments	4
GA1000	Impact Analysis: Impact Analyses	6
GA4000	Impact Analysis: Impairment Analysis-General Methodology	4
GA5000	Impact Analysis: Scientific Data Used to Determine Impacts	6
MT1000	Miscellaneous Topics: General Comments	3
MT4000	Miscellaneous Topics: Deer Management	9
MT5000	Miscellaneous Topics: Desired Deer Density	2
ON1000	Other NEPA Issues: General Comments	4
PN2000	Purpose And Need: Park Purpose And Significance	1
PN5000	Purpose And Need: Regulatory Framework	25
PN6000	Purpose And Need: Land Management Laws, Exec Orders	2
PN8000	Purpose And Need: Objectives In Taking Action	5
PN9000	Purpose And Need: Issues And Impact Topics Selected For Analyses	1
PO4000	Park Operations: Impact Of Proposal And Alternatives	4
SE1000	Socioeconomics: Guiding Policies, Regs And Laws	1
SE2000	Socioeconomics: Methodology And Assumptions	2
SE4000	Socioeconomics: Impact Of Proposal And Alternatives	1
TE2000	Threatened And Endangered Species: Methodology And Assumptions	1
VE2000	Visitor Experience: Methodology And Assumptions	2
VE4000	Visitor Experience: Impact Of Proposal And Alternatives	4
VR2000	Vegetation And Riparian Areas: Methodology And Assumptions	10
VR4000	Vegetation And Riparian Areas: Impact Of Proposal And Alternatives	3

Code	Description	Number of Comments
VS4000	Visitor Conflicts And Safety: Impact Of Proposal And Alternatives	2
VU2000	Visitor Use: Methodology And Assumptions	4
WH2000	Wildlife And Wildlife Habitat: Methodology And Assumptions	14
WH4000	Wildlife And Wildlife Habitat: Impact Of Proposal And Alternatives	2
WH4500	Wildlife and Wildlife Habitat: (CATO Deer Herd) Impact Of Proposal And Alternatives	2
WH8000	Wildlife and Wildlife Habitat (CATO Deer Herd): Affected Environment	2
WH9000	Wildlife and Wildlife Habitat (Unique and Important Wildlife Habitat): Affected Environment	1

Correspondence Distribution by Correspondence Type

Type	Number of Correspondences
Other	1
Park Form	1
E-mail	15
Transcript	2
Web Form	8
Letter	4
Total	**31**

Correspondence Count by Organization Type

Organization Type	Number of Correspondences
Conservation/Preservaion	2
Recreation	5
Unaffiliated Individual	24
Total	**31**

Correspondence Distribution by State

State	Number of Correspondences
Virginia	1
Maryland	17
Georgia	1
Washington DC	2
Pennsylvania	2
Unknown	8
Total	**31**

Comment/Concern Statements and Responses

AE12000 - Affected Environment: Wildlife And Wildlife Habitat

Concern ID: **13812**

CONCERN STATEMENT: Commenters questioned the current and historical deer densities presented in the plan/EIS, stating that the numbers are misleading due to changes in habitat and the availability of edge habitat within the park. They also referenced the baseline deer density data, stating it is its lowest estimate in the past 6 years, to question the need for action.

Representative Quote(s):

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40295 **Organization Type:** Conservation/Preservation
Representative Quote: In addition, deer are an edge species that attain their highest population densities in forest edge habitats that contain more suitable types of forage. (9) Therefore, the increased edge habitat made available by agriculture and suburban sprawl and encroachment onto the borders of the park only serves to increase suitable deer habitat and increases the number of deer that can be supported by the said habitat.

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40281 **Organization Type:** Conservation/Preservation
Representative Quote: Additionally, the Park repeatedly, in both the EIS and its website, states that the deer in Maryland currently number more than at any other time in their history. However, this claim is extremely misleading. The habitat currently available for deer is a far cry from the old growth, contiguous forests encountered by early European settlers. With their dense canopies and low light, these woodlands contained very little early successional, edge, and gap habitats that *O. virginianus* prefers. (1) Hence, comparing past and present deer densities is nonsensical considering the large-scale fragmentation and alteration of potential deer habitat. Such comparisons are the equivalent of comparing coyote (*Canis latrans*) population densities and distribution before and after the extirpation of their main competitor, the grey wolf (*Canis lupus*).(2) Major ecological alterations in an animal's community or ecosystem will inevitably lead to changes in population dynamics and survivorship of that species.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40337 **Organization Type:** Conservation/Preservation
Representative Quote: Indeed, based on the evidence contained in the Draft EIS the deer population has fluctuated over time and, at present, is at a density that is lower than any density estimate of the past six years (though the accuracy of the distance sampling/spotlight survey methodology is highly questionable and likely significantly overestimates deer population numbers).

RESPONSE: The distance sampling method has been used to estimate the deer population density at Catoctin Mountain Park since 2000. The population density has varied from a high of 194 deer per square mile in 2003 to a low of 74 deer per square mile in 2005. In 2006, the population showed an increase to 88 deer per square mile. Population fluctuations are typical for white-tailed deer, and the lowest point (74 deer per square mile) remains three to four times higher than the target density goal for deer to allow the desired tree regeneration.

The EIS on page 15 recognizes and discusses the changes in habitat both within and outside the Park that contribute to the current deer population levels in Catoctin Mountain Park.

Concern ID: **13813**

CONCERN STATEMENT: One commenter questioned the historic and current population trends presented in the plan/EIS for wild turkey and other bird species stating that the observation records and methodology used to collect these data should be provided to show if other species in the park are experiencing a decline.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40375 **Organization Type:** Conservation/Preservation

Representative Quote: The NPS also claims to have observation records indicating that wild turkeys numbers have declined in the 1990s, Draft EIS at 123, but neither the accuracy of those observation records, the methodologies used to collect such data, or the data is presented in the Draft EIS. Interestingly, according to Sinclair (2002), 162 bird species have been documented in the park with several newly identified or unexpectedly identified species. Draft EIS at 123. Though there may be studies in which deer density is positively correlated with a decline in bird species diversity, whether these studies consider all possible explanations (other than deer) for the documented decline in diversity, the NPS has provided no data to suggest that such a decline has occurred or will occur within CMP.

RESPONSE:

Park staff has recorded their observations for wildlife species including wild turkey since the 1970s. These are opportunistic sightings and are not obtained using a designed survey. The number of sightings has steadily decreased from 44 in 1993, to 7 in 2006.

In addition, bird species diversity is not the metric being used to assess the effect of high deer densities on passerine breeding birds. Rather, it is the deer impact on the habitat of ground-nesting bird species that, in turn, affects bird densities, that is being used. Please refer to Concern ID 13864 for details.

AL2041 - Alternatives Eliminated: Managed Hunt

Concern ID: **13814**

CONCERN STATEMENT: Commenters stated that the alternative of a managed hunt was not analyzed adequately including underestimation of the costs of a long-term reduction program, looking at the benefits of sport hunting, the analysis of the alternative in the general sense instead of a park specific analysis, and the ability of a hunt to meet population objectives. Commenters also questioned the reasons for dismissal provided in the plan/EIS including the impacts of overbaiting and the effectiveness of a managed hunt versus sharpshooting.

Representative Quote(s):

Corr. ID: 7 **Organization:** National Rifle Association

Comment ID: 40160 **Organization Type:** Recreational Groups

Representative Quote: The Plan/EIS also states that a managed hunt would be less efficient in meeting ungulate reduction project goals compared to sharpshooting because sharpshooters shoot over bait which increases the rate of success and the ability to be gender specific (does). Many hunters are familiar with shooting over bait since that practice is allowed in some states. But that is not the real point. Hunters can be just as efficient shooting over bait as a park employee or contract

sharpshooter. Furthermore, hunters acting as sharpshooters can conduct the cull in the same manner as the Park envisions with the use of sharpshooters. That is, hunters could use spotlights, suppression devices and night vision equipment that the Park is allowing for its employees or contractors, equipment otherwise prohibited for hunting.

In rejecting a managed hunt, the Plan/EIS explains that the culling operation needs to be conducted near developed areas and potentially occupied buildings in order to be effective in reducing the deer numbers to the desired annual level. Although it is not clear how the topography of the Park limits public hunter access to more remote areas of the park, suffice it to say that areas opened to sharpshooters can be opened to licensed hunters participating in the culling operation. The Plan/EIS says that sharpshooting will take place when visitation is low or absent, a situation the Park can control regardless of whether federal employees, contractors, or licensed hunters are used. The necessary safety and security restrictions would apply to anyone involved in the culling operation.

Corr. ID: 7 **Organization:** National Rifle Association
Comment ID: 40162 **Organization Type:** Recreational Groups
Representative Quote: However, there is likely to be a sizeable pool of licensed deer hunters who have the experience that would qualify them to participate in the culling operation. The sharpshooting qualifications are described as being "expected to coordinate all details related to sharpshooting actions, such as setting up bait stations, locating deer, sharpshooting, and disposition of the deer. An experienced deer hunter could easily meet those qualifications.

Corr. ID: 7 **Organization:** National Rifle Association
Comment ID: 40163 **Organization Type:** Recreational Groups
Representative Quote: The Plan/EIS expressed concern that a managed hunt would not be successful in meeting population objectives because the Park would have to depend on an adequate number of hunters participating annually. The outcome would be an increase in the deer population if management actions failed or were postponed for a year. The Plan/EIS directs the reviewer to a study that analyzed managed hunts which concluded that as ungulate densities drop and management enters the maintenance phase, retaining adequate hunter numbers is difficult. This would likely not be an issue when hunters, like contract sharpshooters, would be able to hunt over bait. However, if hunter numbers should drop off over the 15 year period planned for the culling operation, the Park could augment the number of licensed hunters with park employees or contractors.

Corr. ID: 7 **Organization:** National Rifle Association
Comment ID: 40158 **Organization Type:** Recreational Groups
Representative Quote: The Plan/EIS also states that a managed hunt would be less efficient in meeting ungulate reduction project goals compared to sharpshooting because sharpshooters shoot over bait which increases the rate of success and the ability to be gender specific (does). Many hunters are familiar with shooting over bait since that practice is allowed in some states. But that is not the real point. Hunters can be just as efficient shooting over bait as a park employee or contract sharpshooter. Furthermore, hunters acting as sharpshooters can conduct the cull in the same manner as the Park envisions with the use of sharpshooters. That is, hunters could use spotlights, suppression devices and night vision equipment that the Park is allowing for its employees or contractors, equipment otherwise prohibited for hunting.

Corr. ID: 8 **Organization:** *Not Specified*
Comment ID: 39956 **Organization Type:** Unaffiliated Individual
Representative Quote: The council also believes that the EIS may underestimate the long-term costs of the deer reduction program. The argument presented in the EIS for not considering a managed hunt as an alternative to herd reduction by sharpshooters is a mixture of fact and prejudice. It
misconstrues the purpose of a management hunt as recreation, rather than a valid and accepted wildlife management tool in which recreation is secondary. The council requests that the
discussion of managed hunts in the EIS be revised to accurately describe a managed hunt as a useful population control tool.

Corr. ID: 22 **Organization:** Safari Club International
Comment ID: 40171 **Organization Type:** Recreational Groups
Representative Quote: The NPS's assessment of hunting as a wildlife management tool also inappropriately ignores the advantages of sport hunting, including the valuable revenues (or limits on expenditures on contract sharpshooters or park personnel) that sport hunting generates. Sport hunting dollars can and have been used for conservation efforts related to game and nongame species within the park and surrounding areas. Sport hunting can generate funds, for example, through the sale of tags and licenses, which can be used to benefit wildlife and the ecosystem. In contrast, the use of park employees or contractors to manage wildlife through lethal means is often a costly undertaking. Not only must these park employees be taken away from their other responsibilities, but the Deer Plan estimates that the cost of removing deer under the preferred alternative to be $200/deer for years 1-3 and $400/deer for years 4-15. Deer Plan at 66-67. The estimated total cost over the 15 years of the plan is likely over $600,000. Id. at 66.

Corr. ID: 22 **Organization:** Safari Club International
Comment ID: 40170 **Organization Type:** Recreational Groups
Representative Quote: SCI was surprised to find that the Deer Plan contained an analysis of managed hunting generally - one that appears to extend beyond the CMP and could be read to apply to units throughout the NPS system. The NPS considered and rejected the managed hunt alternative on regulatory grounds, as it has done in other units where sport hunting is not expressly allowed.
Thus, the analysis concerns an alternative the NPS believes is not available to it. By conducting this potentially broadly-applied analysis of hunting as a wildlife management tool in the Deer Plan for CMP, the NPS appears to be airing a national conclusion in a plan that will only be reviewed by the limited members of the public that are interested in CMP.
The agency should not conduct such a broad and apparently nationwide assessment of hunting as a potential management tool in National Park units as part of this limited administrative process. . In any event, the analysis does not accurately or fairly compare the costs, efficiency and safety of managed hunting to the use of sharpshooting for the reduction of an overabundant species. Such a broad comparison is not possible, at least not with a lot more analysis than contained in the Deer Plan, because the costs and efficacy of managed hunting as a potential wildlife management strategy will vary greatly depending upon many variables. The variables include, but are not limited to, the nature of the species to be managed, the size of the species population, the gender distribution of the species, the type of area that could potentially be hunted, the number and skill of potential hunters, and other factors. Suggestions about safety concerns are also overstated since safety variables can be addressed through the use of established parameters for the hunting opportunities.

RESPONSE:

The managed hunt alternative was considered but rejected from detailed evaluation in the plan. In developing this white-tailed deer management plan the NPS is required, pursuant to the National Environmental Policy Act (NEPA), to consider a range of reasonable alternatives in meeting the purposes, needs, and objectives of the plan. In considering alternatives for management under NEPA, a line of court cases have held that an alternative is not deemed unreasonable merely because it would require a change in legislation or policy. However, an alternative may be considered but dismissed from detailed evaluation if its implementation would be remote and speculative. This is especially true if the alternative is inconsistent with long-standing regulations or agency policies that are unlikely to be modified. However, even if an alternative is considered but dismissed from detailed evaluation, it is still part of the range of alternatives considered by the agency as required by NEPA (Native Ecosystem Council v. US Forest Service, 428 F.3d 1233, 1245 (9th Cir, 2005)).

The managed hunt alternative was primarily dismissed because it would be inconsistent with long-standing basic policy objectives of the NPS and the likelihood that the NPS would change its long-standing service wide policies and regulations regarding hunting in parks is remote and speculative. The other factors discussed were included to respond to general comments made by the public that hunting would be cheaper and more effective than sharpshooting. The EIS describes generally these factors as reflected in scientific literature. Although managed hunts are used in many situations and is recognized as a legitimate wildlife management tool, this discussion is meant to articulate that there may not be the perceived benefits of a managed hunt as generally believed.

Concern ID: **13815**

CONCERN STATEMENT:

Commenters in support of including a managed hunt as part of the range of alternatives provided options that could be included in such an alternative. Suggested options included an open controlled archery/shotgun hunt, charging a fee for a license to hunt, coordinating with state agencies to implement a managed hunt, use of military personnel, using a managed hunt to create programs for disabled and youth, donation of meat by hunters, use of archery equipment where appropriate, and the use of safe hunting practices such as use of elevated stands.

Representative Quote(s):

Corr. ID: 3 **Organization:** *Not Specified*
Comment ID: 39966 **Organization Type:** Unaffiliated Individual
Representative Quote: I believe that creating hunting opportunities in Catoctin Mountain Park would be a preferable alternative. I would especially encourage creating hunting opportunities for the disabled and youth. As private hunting land becomes developed in Maryland fewer and fewer hunting opportunities exist for the general public, and youth and disabled hunters in particular. I believe it would be in the best interest of the public and the NPS to reconsider hunting as an alternative method to control the deer population in Catoctin National Park.

Corr. ID: 6 **Organization:** *Not Specified*
Comment ID: 39946 **Organization Type:** Unaffiliated Individual
Representative Quote: Your deer management plans may be acceptable in a HIGHLY populated area such as Gettysburg where it is necessary and not possible to try to open a controlled hunt. I have talked to several different people who feel the same way. Why not open a controlled archery/shotgun hunt, what harm can be done. Your 20 ft. in the air shooting into the ground, none right?

Corr. ID: 7 **Organization:** National Rifle Association
Comment ID: 40159 **Organization Type:** Recreational Groups
Representative Quote: Rather than paying licensed hunters to participate, a fee could be charged to assist the Park in covering its costs to manage the culling operation. Furthermore, state fish and wildlife agencies have already indicated that they are ready and willing to assist in any orientation, certification or other requirements necessary to use hunters to assist the National Park Service in achieving its management objectives for game populations in a safe and efficient manner. As a case in point, the Colorado Division of Wildlife offered to manage the hunters for the Rocky Mountain National Park in a culling operation to reduce the elk population in the Park.

Using licensed hunters would also save the Park money in not having to remove the deer killed (as described in the "Disposal" section of Alternative C). Any licensed deer hunter has experience removing a deer he or she has harvested to use for personal consumption or for donation to a hunters-for-the-hungry program. Testing for chronic wasting disease can still be conducted and if a deer is found infected with the disease, and then the Park can follow the National Park Service's guidance for disposal.

Corr. ID: 16 **Organization:** West Virginia Air National Guard
Comment ID: 40112 **Organization Type:** Federal Government
Representative Quote: Why not let military personnel enter the park on a managed hunt to control the population of deer. The hunt could be by permit only and any number of hunters determined by the park service. The hunt could be with shot guns/slugs or with bow/crossbow. The park service would save $739,000 to $941,000. The meat would not be wasted. THE Hagerstown Water Dept. collected a $10 fee from 100 hunters to hunt 1700 acres. The park service could do something similar and even increase revenue to maintain the park.

Corr. ID: 22 **Organization:** Safari Club International
Comment ID: 40168 **Organization Type:** Recreational Groups
Representative Quote: The NPS has well documented the need to manage the deer population in CMP.
Excessive deer browsing has reduced forest regeneration, could adversely affect native species, and has impacted native shrubs and trees. Deer Plan at iii, 3-5. The desire for "[g]reater cooperation with state and local governments" supports the idea that the use of hunters could be part of the solution to the problem. Id. The carefully regulated use of recreational sport hunters, either in a managed hunting situation or as sharpshooters, would help advance all these goals.

Corr. ID: 22 **Organization:** Safari Club International
Comment ID: 40173 **Organization Type:** Recreational Groups
Representative Quote: SCI supports efforts by the NPS to donate as much as the harvested meat as possible for humanitarian purposes. Deer Plan at 66. SCI has long supported such humanitarian efforts, for example through its "Sportsmen Against Hunger" program. See information at http://www.safariclubfoundation.org/humanitarian/#sah. Using hunters for wildlife management in National Parks would facilitate the NPS's ability to use harvested meat for such purposes, including through programs such as the one SCI runs.

Corr. ID: 31 **Organization:** Quality Deer Management Association
Comment ID: 40568 **Organization Type:** Recreational Groups
Representative Quote: Where rifles, shotguns and muzzleloaders are not permitted, archery equipment can be used. Archery hunting has the advantage of being a relatively discreet and silent activity. These attributes and the limited shooting range make archery hunting a safe and nondisruptive removal technique. Archery hunters have safely and effectively reduced deer populations, deer-vehicle accidents, the incidence of Lyme disease and other deer-human conflicts in many communities and military bases in the United States.

Corr. ID: 31 **Organization:** Quality Deer Management Association
Comment ID: 40566 **Organization Type:** Recreational Groups
Representative Quote: Safety is paramount when using regulated hunting as a management tool. Fortunately, research clearly shows hunting is safe. American Sports Data, Inc. conducted an extensive study in 2002 that examined more than 100 sports and activities. Twenty-eight activities, including cheerleading and aerobics, had higher injury rates than hunting. Safety concerns with hunting can be minimized by having potential hunters who possess an acceptable level of knowledge on deer biology, management and shot placement. Weapon proficiency tests identify hunters who handle weapons safely and have the ability to consistently achieve proper shot placement. Hunters can even be required to hunt from elevated stands so all shots are directed at the ground and weapon type can be regulated to maximize public safety.

RESPONSE: See response to concern statement 13814. The donation of meat is described in Chapter 2 of the EIS. Bow hunting was dismissed based on the same rationale for dismissing hunting generally. When considering the use of archery, the scientific literature suggests that it is the least effective method compared to other weapons. Although the use of archery by sharpshooters has been successful under some specific conditions (e.g., highly urban areas), "[b]ased on information from past managed hunts, doe harvest per hunter tends to be highest for hunts restricted to center-fire rifles (0.48 does/hunter), intermediate for muzzleloading firearms (0.23 does/hunter), and lowest for archery (0.16 does/hunter)" Hansen, L. and J. Beringer. 1997. Managed hunts to control white-tailed deer populations on urban public areas in Missouri. Wildl. Soc. Bull. 25(2) 448-447.

Concern ID: **13817**
CONCERN STATEMENT: Commenters suggested that instead of a managed hunt, which would be defined by the rules of fair chase, licensed hunters should be allowed to act as sharpshooters, if qualifications are met.

Representative Quote(s): **Corr. ID:** 7 **Organization:** National Rifle Association
Comment ID: 40157 **Organization Type:** Recreational Groups
Representative Quote: Under the section of the Plan/EIS entitled "Alternatives Considered But Rejected," a managed public hunt is listed as one of the alternatives considered and rejected. What was not considered was the use of licensed hunters to reduce the deer population in the same manner as the Park would use federal employees or contractors.

Using licensed hunters would not contravene 36 CFR 2.2 nor the National Park Service's Management Policies of 2001 that state that public hunting is allowed in national park areas only where specifically mandated by Federal statutory law. Secondly, using licensed hunters would be in compliance with authority granted to the Secretary of the Interior to destroy plants or animals for the purposes of

preventing detriment to park resources. The purpose of reducing the deer population in the Park is not to provide for a recreational benefit, nor is it to conduct the culling operation as a hunt. The use or presence of hunters does not make the situation a hunt. A hunt is defined by the rules of "fair chase" as proscribed by the state fish and wildlife agency which has jurisdiction over the taking of resident wildlife.

Corr. ID: 22 **Organization:** Safari Club International
Comment ID: 40169 **Organization Type:** Recreational Groups
Representative Quote: But the Deer Plan completely rejects the use of managed hunting as a method of wildlife management. It is unfortunate that legal and policy constraints apparently prevent the NPS from considering the use of recreational sport hunting as part of the solution in CMP and other park units. SCI strongly advocates that the NPS reconsider its general position on the use of managed hunting as a wildlife management tool and should take the necessary steps to allow sport hunting in National Park units where appropriate to manage overabundant species. In addition, SCI recommends that the NPS consider the use of qualified members of the sporthunting community as the "sharpshooters" called for in the preferred alternative.

RESPONSE: The Secretary has broad discretion in managing wildlife. Section 4.4.2.1 of the NPS Management Policies states that the “destruction of animals” may be carried out by NPS personnel or their authorized agents. In some situations, authorized agents can be qualified volunteers. However, the National Park Service has determined that Catoctin Mountain Park is not an NPS unit conducive for the use of public volunteers as authorized agents of the park. Therefore any lethal reduction activity would be carried out by personnel described in the plan/EIS.

AL2061 - Alternatives Eliminated: Use the Deer Population as a Research Model

Concern ID: **13818**
CONCERN STATEMENT: One commenter stated that the plan/EIS did not evaluate a full range of alternatives by eliminating Use of Deer Population as a Research Model and Ecosystem Management, stating that these alternatives should be considered given they are within the NPS regulatory framework and they are not mutually exclusive with the goal of forest regeneration.

Representative Quote(s): **Corr. ID:** 24 **Organization:** Animal Welfare Institute
Comment ID: 40404 **Organization Type:** Conservation/Preservation
Representative Quote: Finally, the NPS has failed to rigorously explore a reasonable range of alternatives in the Draft EIS. First, it rejects two alternatives suggested by the Humane Society of the United States without a rational explanation. Indeed, both the research model and ecosystem management alternative are worth of serious consideration given NPS statutes, regulations, and policies that, in effect, create natural laboratories within national parks for the study of natural processes contributing to natural regulation. The rejection of these alternatives because the NPS would prefer to facilitate forest regeneration is in error as neither alternative suggests that the NPS cannot take action to further its forest regeneration goals. Both of these alternatives, if implemented, would be far more consistent with NPS legal standards than Alternative C.

RESPONSE: In developing this white-tailed deer management plan/EIS the NPS is required, pursuant to the National Environmental Policy Act (NEPA), to consider a range of reasonable alternatives in meeting the purposes, needs, and objectives of the plan.

An alternative may be considered but dismissed from detailed evaluation if its implementation would be remote and speculative. This is especially true if the alternative is inconsistent with long-standing regulations or agency policies that are unlikely to be modified. However, even if an alternative is considered but dismissed from detailed evaluation, it is still part of the range of alternatives considered by the agency as required by NEPA (Native Ecosystem Council v. US Forest Service, 428 F.3d 1233, 1245 (9th Cir, 2005)).

The Research Model Alternative that was suggested has been dismissed due to its failure to meet the purpose and objectives of the plan/EIS. In addition, similar to the analysis of continuing the "No Action" alternative, the park's actions under a research model approach would likely lead to the impairment of park resources and values, particularly as it relates to vegetation. While Congress has given the NPS the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired.

Regarding the Ecosystem Management Alternative: The NPS feels that it has taken an ecosystem perspective in the development of this plan/EIS. However, NPS feels that currently the deer impact from browsing is a limiting factor that needs to be specially addressed at this time. In addition, the plan/EIS considers other factors influencing forest regeneration in the evaluation of impacts.

AL2071 - Alternatives Eliminated: Surgical Sterilization of Does

Concern ID: **13819**

CONCERN STATEMENT: Commenters questioned the elimination of Surgical Sterilization of Does stating that the removal of animals from the gene pool is no different than lethal removal, there are negligible behavioral effects, and it allows the animals to exhibit natural herding behaviors. One commenter also provided an example of where surgical sterilization has been effective.

Representative Quote(s):

Corr. ID: 11 **Organization:** The Humane Society of the United States

Comment ID: 40302 **Organization Type:** Conservation/Preservation

Representative Quote: The city of Highland Park, Illinois conducted a trap / sterilize / release program on the city's deer from 2002 -2005. (13) In that study, does were sterilized through tubal ligation so they were not susceptible to the behavioral alterations typical of methodologies that halt hormone production. This methodology was both safe and humane and resulted in very low mortality rates due to surgery. Computer models of surgical sterilization from this and other research revealed that areas can maintain their deer populations at target densities by sterilizing 32% of the does per year. (13,14) Based upon these results, CATO may do well to reconsider surgical sterilization as a viable option for deer management.

Corr. ID: 11 **Organization:** The Humane Society of the United States

Comment ID: 40306 **Organization Type:** Conservation/Preservation

Representative Quote: Sterilization is superior to lethal control in that it leaves animals in a population as "placeholders" that are reproductively "dead ends" yet continue to occupy consistent home ranges and exhibit natural herding behaviors. The presence of these adult "placeholders" ensures continuity in the social framework of the herd while limiting the number of young and more mobile

animals that might pose increased risks of collisions with vehicles and dispersal to adjoining private properties.

Based upon available research, the EIS must seriously revaluate the usefulness surgical sterilization to stabilize deer population density at CATO. It behooves the Park to more closely examine this option especially in light of the social and political controversy that surrounds lethal deer management.

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40300 **Organization Type:** Conservation/Preservation
Representative Quote: While the EIS briefly discusses the option of surgical sterilization, it quickly dismisses it as infeasible. The reasons given for this are the possible long-term effects on animal behavior and population genetics (EIS pg 90). Firstly, surgical sterilization has the same exact effect on population genetics as would lethal removal. Sterilization simply removes that animal from the gene pool effectively making it "evolutionarily dead". This scenario is in no way different than that created by lethally removing that same animal.

Second, the behavioral effects caused by tubal ligation are negligible especially when compared with the possible behavioral effects that could arise from large scale deer removals. Research has shown that after large scale herd reduction, individual deer may increase their home ranges.(12)

RESPONSE:

The objective of the Highland Park deer sterilization research was to test the efficacy of the technique to control the town's deer population (page 2 in Mathews et al. 2005). The technique had shown promise at the Milwaukee City Zoo as a means to control deer populations in a small area (page 2 in Mathews et al. 2005). Forest regeneration was not presented as a goal at the Milwaukee City Zoo as it is in this plan/EIS. The goal of this plan/EIS is to achieve sufficient forest regeneration over the 15-year life of the plan, and culling deer will immediately decrease deer densities to allow this to occur. Sterilizing deer will have little short-term effect on density and will leave the same number of deer in the short-term that may be prone to vehicle collisions and dispersal outside of the park.

There is also no reference in the Highland Park study (or any other study) to deer as a "placeholder" that will hold a territory and prevent other deer from moving in. One of the conclusions of Mathews et al. (2005, page 20) was that the sterilized deer died at a significantly higher rate than the control deer. Another conclusion (page 20) was that sterilized deer moved more than fertile deer. This would negate their effectiveness as "placeholders" on the landscape.

Overall deer density at Highland Park was also relatively low at 16 deer per square mile of forested habitat (page 10 in Mathews et al. 2005). The highest density in the study area was 31 deer per square mile of forested habitat in the control area in 2005. Relative to the deer density at Catoctin Mountain Park, which was 88 deer per square mile in 2006, these are very low densities. Deer are also much more accessible in this urban area than they are in Catoctin Mountain Park with its mountainous topography and minimal road coverage relative to Highland Park.

AL2130 - Alternatives Eliminated: Bow Hunting Only

Concern ID: **13820**

CONCERN STATEMENT: One commenter offered the NPS further information on the use of bow hunting and how it could be used in the park for deer management. Contact information was provided.

Representative Quote(s):

Corr. ID: 14 **Organization:** *Not Specified*

Comment ID: 39982 **Organization Type:** Unaffiliated Individual

Representative Quote: There is an article in the local paper that states that you are considering using sharpshooters to reduce the deer population in the park. If you would be interested in learning about using archers to do the, I can be contacted by email or phone @ 717-872-6575. I am affiliated with an organization that does whitetail deer management on properties in the suburban Philadelphia region.

RESPONSE:

Managed hunting of any sort, including managed bow hunting, cannot be used as a wildlife management tool at Catoctin Mountain Park. Please see the response to Concern ID: 13814, which outlines the NPS policy on hunting and why it was not carried forward as an alternative for deer management at Catoctin Mountain Park. Use of archers for sharpshooting could be considered as an alternative (as opposed to hunting), but would not be as efficient as the use of rifles. According to Hansen and Beringer (1997), based on information from past managed hunts, doe harvest per hunter tends to be highest for hunts restricted to center-fire rifles (0.48 does/hunter), intermediate for muzzleloading firearms (0.23 does/hunter), and lowest for archery (0.16 does/hunter) Please see the response to Concern ID: 13815. Therefore, sharpshooting by archery would not be sufficiently effective at Catoctin Mountain Park, where several hundred (e.g., up to 468) deer would need to be removed over a relatively short time period (plan/EIS, page 63).

AL4000 - Alternatives: New Alternatives Or Elements

Concern ID: **13821**

CONCERN STATEMENT: Commenters stated that the alternatives should include the donation of harvested meat.

Representative Quote(s):

Corr. ID: 15 **Organization:** *Not Specified*

Comment ID: 39981 **Organization Type:** Unaffiliated Individual

Representative Quote: The meat from the killed deer should be made available to the numerous organizations that provide food for that on welfare and in other 'hardship' situations.

RESPONSE:

It is the park's intention to donate as much harvested meat as possible, given any restrictions related to the donation of meat from documented CWD areas. Please see the response to Concern ID: 13815. Under both alternatives C (preferred alternative) and D, harvested meat would be given to charity, if this can be done in accordance with the NPS Public Health Service Guidance in place at the time of the harvest (see plan/EIS, pages 62, 68, and 77).

Concern ID: **13822**

CONCERN STATEMENT: Commenters suggested new alternatives or alternative elements including translocation of deer to Washington, D.C., use of qualified volunteers as sharpshooters, and management of vegetation through restoration efforts.

Representative Quote(s): **Corr. ID:** 1 **Organization:** AWL
Comment ID: 39991 **Organization Type:** Conservation/Preservation
Representative Quote: If the United States President would send back all the people that do not belong in our country and quit letting more and more come over and then homes would not need to be built and the deer could have their land back. I say we take the percentage of deer you would kill and take them to the White House and all the government places in DC and let them live down there on his ground since he just keeps allowing people from other countries to come here to live for free (you may as well say) and have our AMERICAN DEER to be Slaughtered.

Corr. ID: 22 **Organization:** Safari Club International
Comment ID: 40172 **Organization Type:** Recreational Groups
Representative Quote: Even if managed hunting cannot be utilized as a wildlife management tool on the CMP, there is no reason why the deer culling required for the CMP cannot take advantage of members of the hunting community who are willing to volunteer their services to assist NPS personnel in the management effort. Although SCI understands that the NPS believes that existing regulatory and policy prohibitions prevent recreational hunting within the park from being considered as a viable option at this time, such prohibitions do not bar the NPS from investigating the viability of using qualified voluntary hunters to act as "sharpshooters" under the preferred alternative.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40387 **Organization Type:** Conservation/Preservation
Representative Quote: Of course, active management through actual restoration efforts (i.e., replanting) may be required for those species whose seed dispersal mechanisms do not facilitate recolonization of available habitat.

RESPONSE: As discussed in the plan/EIS, page 90, translocating deer to Washington D.C. would be a violation of the NPS policy regarding translocation. Additional reasons that translocation (or "capture and relocation") of deer were dismissed as an alternative are discussed in the plan/EIS, page 90.

The qualifications necessary for sharpshooters are discussed in the plan/EIS, page 61. These issues, and the reason why they were not carried forward for analysis in the plan/EIS, are further detailed under Concern ID: 13817. Regarding active management of vegetation through restoration, the purpose of the plan is to support regeneration of eastern deciduous forest and not focus on restoration of individual species. Replanting may be considered where plants that have been lost are ornamental or perhaps in cases of rare, threatened or endangered species, but the overall forest restoration that is the goal of the plan will be addressed though reduction of deer browse to allow seedlings to reach sapling height and to allow flowering of native understory herbaceous species.

Concern ID: **13823**
CONCERN STATEMENT: Commenters suggested creating a new alternative through the combination of the existing alternative elements. These alternatives included a combination of regulated hunting, fencing, and a sharpshooting, as well as a variation on alternative B that would include more exclosures, the expansion of immunocontraceptive use, and strategies to facilitate the lethal removal of deer from non-park lands.

Representative Quote(s): **Corr. ID:** 24 **Organization:** Animal Welfare Institute

Comment ID: 40405 **Organization Type:** Conservation/Preservation

Representative Quote: Second, while Alternative B is a suitable non-lethal alternative which the NPS must select in order to be in compliance with its legal mandates, another alternative similar to Alternative B should have also been seriously evaluated. This alternative would have expanded upon Alternative B by proposing the construction of more exclosures to protect forest vegetation (both habitats and single species), the expansion of immunocontraceptive use by cooperatively developing with the Maryland Department of Natural Resources a "hunt" that would allow trained hunters to dart deer within the park, and by working with the State of Maryland and local landowners to promote and simplify existing management strategies to facilitate the lethal removal of deer from non-park lands. While AWI may not fully support such an alternative, it is the type of combination alternative that should have been subject to serious evaluation in the Draft EIS. It would cost more and it could be controversial among certain interests though it, if implemented properly, is likely to achieve deer population reduction, forest regeneration, while also protecting deer within CMP as the law requires. The failure of the NPS to consider such an alternative demonstrates both a lack of creativity and a lack of desire to develop an alternative that, over time, could achieve many if not all of its objectives while allowing the NPS to remain in compliance with its own legal mandates.

Corr. ID: 31 **Organization:** Quality Deer Management Association

Comment ID: 40572 **Organization Type:** Recreational Groups

Representative Quote: We request that you include regulated hunting as a viable alternative for the Park's deer management program. A combination of alternatives including regulated hunting, sharpshooting and fencing in isolated areas will likely provide the most successful results. We appreciate the opportunity to provide input on the deer situation at Catoctin Mountain Park. Please contact me with any questions/comments or if I can provide additional information.

RESPONSE:

The NPS believes that it has developed and presented an adequate range of alternatives within the plan/EIS to satisfy the purpose, need, and objectives of the plan. Alternatives that include hunting in any form are against National Park Service policy and for that reason were not considered in the alternatives carried forward for detailed evaluation (see response to Concern ID: 13814 and plan/EIS page 86). Regarding alternative B, based on the criteria discussed in the plan/EIS, page 51 and 52, NPS believes that the potential areas for exclosures are the maximum that could be accommodated in the park for a period of 10 years (see map in the plan/EIS, page 53). Exclosures would then be moved to immediately adjacent areas. Use of immunocontraception would continue to be evaluated, so that any techniques that are found to be cost-effective and available for use could be considered in the future. Cooperation with MDDNR would continue to be a part of any immunocontraceptive effort, although their direct participation in any action would be dependent on staffing needs, staffing availability, and management approvals at the time the action is taken. As detailed in the plan/EIS, pages 20, 21 and 38, other deer management efforts are taking place outside of the Catoctin Mountain Park, some of which promote an increase in deer harvest on neighboring lands. The park will continue to support the MDDNR in these efforts, which include expanding the use of crop damage permits (allowing permittees to take deer at night and with the use of spotlights) and increasing legal bag limits during the hunting season. The park often invites MDDNR representatives to meetings to facilitate the spread of information about crop damage permits and deer management. An alternative that considers a combination was not carried forward, not due to cost, but because the elements of such an alternative that are feasible to implement at Catoctin Mountain Park were components of the alternatives

evaluated in the plan/EIS. Those components that were not feasible were not evaluated in the range of alternatives, for the reasons described above. Although commenters noted that such an alternative would protect deer in the park, as required by law, it should be noted that NPS *Management Polices 2006*, Section 4.4.2.1, allows for the management of native species to, "prevent them from interfering broadly with natural habitats, natural abundances, and natural distributions of native species and natural processes." Therefore, the actions proposed which involve lethal removal are within the management polices on the NPS.

AL4002 - Alternatives: Alternative A - No Action

Concern ID: **13825**

CONCERN STATEMENT: One commenter stated that the no action alternative is not acceptable because it does not target the actual problem of deer over abundance.

Representative Quote(s):

Corr. ID: 31 **Organization:** Quality Deer Management Association

Comment ID: 40557 **Organization Type:** Recreational Groups

Representative Quote: Alternative A - No Action:
This approach does not target the deer abundance problem. The current deer population is negatively impacting the Park's native vegetation and other wildlife species. An aggressive, active deer management program should be implemented to improve the health of the deer herd and minimize the negative impacts on other plant and animal species. This approach will not meet those objectives.

RESPONSE: National Environmental Policy Act (NEPA) regulations (40 CFR 1502.14) require consideration of a "no action alternative" that includes the continuation of existing management (which in this case is the current deer management plan) to provide a baseline for assessing the effects of all "action" alternatives. The impacts of the no action alternative were in the plan/EIS as required by NEPA, and some of these impacts, such as those to vegetation, reached the level of a major impact (see plan/EIS table 8, page 81). Because of this level of impact, it is recognized that the no action alternative does not meet all of the plan's objectives, especially those relating to the effects of deer on the vegetation of the park (see plan/EIS, table 7, page 79), and for this reason it was analyzed as required by NEPA, but not carried forward as the preferred or environmentally preferred alternative.

AL4011 - Alternatives: Alternative B - Combined Non-lethal Actions (Large exclosures, increased use of repellents, and reproductive control of does)

Concern ID: **13826**

CONCERN STATEMENT: Commenters questioned the level of analysis for portions of alternative B, as well as the effectiveness of the alternative. Concerns included not enough detail on the problem of birth control methods, fencing would not solve the problem but move it elsewhere, the inability of contraceptives to address the current deer densities in the park, and the impacts of contraceptives on the meat once deer are harvested.

Representative Quote(s):

Corr. ID: 5 **Organization:** *Not Specified*

Comment ID: 39963 **Organization Type:** Unaffiliated Individual

Representative Quote: If we marked the animals we treated with birth control agent would hunters not want to risk "wasting" their deer tag on a "contaminated" deer, would they have to "hand in" those deer that were marked and harvested

outside the park to get a replacement tag? Might this lower the amount of hunting around the park?

Corr. ID: 5 **Organization:** *Not Specified*
Comment ID: 39961 **Organization Type:** Unaffiliated Individual
Representative Quote: The section on the non-lethal alternative did not go into enough detail about the problems of the birth control methods and why we were not able to choose those alternatives.

Corr. ID: 5 **Organization:** *Not Specified*
Comment ID: 39962 **Organization Type:** Unaffiliated Individual
Representative Quote: If the park went forward with using a chemical birth control agent in the park, would the neighbors of the park be afraid to harvest deer that may have come from the park and be "contaminated" by the birth control agent? Would this lead to lower harvest rates surrounding the park and hence a growth of the deer population surrounding the park (which would then move into the park-making the population problem worse)?

Corr. ID: 31 **Organization:** Quality Deer Management Association
Comment ID: 40559 **Organization Type:** Recreational Groups
Representative Quote: Fertility control is an approach that attempts to limit or prevent new animals from being born into the population but it does not address the current overabundance issue. Much research has been conducted over the past four decades to develop an effective contraceptive that can be used on free-ranging herds. Unfortunately much confusion surrounds the status of fertility control agents. The perception that overabundant deer herds can be controlled solely with fertility drugs is false. Successful fertility control may limit population growth but it does little to reduce the existing population. In small, isolated areas inaccessible to hunting or sharpshooting programs, this alternative may be useful at maintaining deer densities at acceptable levels following a herd reduction. However, this alternative does not reduce deer populations, it is expensive and retreatment of does is necessary. There also may be unknown long-term effects on deer behavior. Alternative B will not solve the Park's deer problem but could be part of a successful deer management program.

Corr. ID: 31 **Organization:** Quality Deer Management Association
Comment ID: 40558 **Organization Type:** Recreational Groups
Representative Quote: Alternative B - Non-lethal actions including fencing, repellents, and fertility control
Fencing and repellents do not target the deer abundance problem. Fencing and repellents can be effective at reducing deer damage or conflicts but the relief is temporary and should not be confused with solving the problem. Fencing is a reliable method for addressing site-specific areas but is prohibitively expensive for large-scale use. Fencing also moves the problem elsewhere or further increases the impacts in the unfenced adjacent areas.

RESPONSE: The plan/EIS recognizes and discloses the problems associated with the use and effectiveness of reproductive control and other non-lethal methods.

A detailed description of the effects of using fencing and repellents within the park on adjacent areas under alternative B is discussed in the plan/EIS, pages 271 - 273. The effects of fertility control on deer populations and reducing overabundance under alternative B are discussed in the plan/EIS, pages 204 and 205. The analysis

indicates that the timeframe for reduction of populations is unknown but concludes that reproductive controls "could stop population growth, but the park would not be able to reach its initial deer density goal within the life of this management plan using current technology." Through this analysis, the park does recognize that reproductive control alone will not meet the purpose, need, and objectives of the plan, and therefore the plan/EIS only analyzes it an alternative that includes a combination of options for deer management.

Regarding the effect of using a chemical birth control method on hunting on surrounding lands, the plan/EIS states that, depending on the reproductive control agent used, does may need to be marked for non-consumption using ear tags. Use of any agent that has a meat withdrawal period would mean that marking is necessary (plan/EIS, pages 55 and 56, 329). The park would provide educational materials to the local public that may consume hunted animals (plan/EIS, page 329), so local hunters would know not to take deer with ear tags. If one was mistakenly taken, this would not affect their ability to take another deer, although they would be asked to report the tagged animal so it could be retrieved. Also, since the current bag limit on does is 10 per type of weapon used (Eyler, pers. comm., May 14, 2007), it is unlikely that the possibility of shooting a marked deer and "using up" a deer tag would deter doe hunting around the park.

Concern ID: **13827**

CONCERN STATEMENT: Commenters stated that alternative B should be implemented because it is in compliance with NPS legal mandates, is appropriate for the type of ecosystem, it addresses the recent downward trend in deer populations, and is the most humane alternative.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40357 **Organization Type:** Conservation/Preservation
Representative Quote: Even if the NPS can legitimately rely on the original intent of EO 7027 to justify its interest in lethal deer control, considering its statutory obligations, Alternative B remains a valid alternative that the NPS must select to partially meet its stated objectives, facilitate forest regeneration while also complying with its own legal mandates.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40339 **Organization Type:** Conservation/Preservation
Representative Quote: This is not to suggest that AWI believes that the NPS should adopt a hands-off approach to the management of the CMP. While the NPS's own data demonstrate that the CMP deer population has constantly fluctuated in number and that the current population density demonstrates that the deer population is significantly smaller than the numbers documented in the past, the use of large exclosures, plant or area-specific exclosures, repellents, and contraceptive technologies is entirely appropriate given the unique circumstances relevant to the CMP. The fact that CMP is not a complete ecosystem, it no longer provides habitat for a complete assemblage of all native predators, that internal and external development has created or improved deer habitat, and that CMP is surrounded by agricultural lands, residential and commercial development, state parks, and other lands there could be a valid need for non-lethal deer management both to humanely reduce the deer population and to mitigate some of the species impacts.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40369 **Organization Type:** Conservation/Preservation
Representative Quote: Though the NPS has not, as explained below, adequately

discussed a number of important issues associated with the deer population/density estimate methodologies, its own data (assuming that the distance sampling method is valid) demonstrates that the CMP deer population has naturally declined by more than half between fall 2001 and fall 2005. While there may be a variety of explanations for this decline, one is that the deer population is dropping in response to habitat conditions. While the changing habitat conditions may be, in part due to the deer themselves, a number of other factors (i.e., climate, tree disease, pollution) also contributed to these conditions. While it is impossible to predict if the deer population will continue to decline, given the recent trend and NPS statutory mandates to allow natural to take its course to the extent possible, the population data provide ample justification and, indeed, require the NPS to elect to use non-lethal strategies (i.e., Alternative B) to achieve its management objectives in CMP.

Corr. ID: 25 **Organization:** *Not Specified*
Comment ID: 40542 **Organization Type:** Unaffiliated Individual
Representative Quote: I strongly urge you to implement Alternative B (combined Non-Lethal Actions). The facts as you present them show that Alternatives B, C, and D produce the same result - reduction in the deer population. The only significant differences between these three alternatives are the cost and time to achieve forest regeneration. The real difference is that only Alternative B achieves the results in a humane way, which is well worth the additional costs and extra patience required.

RESPONSE:

Deer density estimates at CMP show a constantly fluctuating population, which can be typical for white-tailed deer. Over the six years (2001 - 2006) that distance sampling has been used, the population density has varied between 194 and 74 deer per square mile. However, even the lowest population density of 74 deer per square mile, recorded in 2005, is three times higher than the estimated density where obtaining the desired tree regeneration is possible. White-tailed deer have a high reproductive capacity. In 2006, the population had increased to 88 deer per square mile. These data show that we cannot rely upon "natural population controls" to protect the forest and accomplish the project goals and objectives.

Prior to 2001, aerial surveys were used to monitor the deer population trend, which cannot infer population density, at CMP. The highest count (324 deer per survey flight) was observed in 1989. Five years later in 1994 the count had dropped to 107 following two very severe winters. By 2000, the survey observed 312 deer. The experience at CMP indicates that deer trend counts by aerial survey are highly variable. Any downward population trend may appear to be short lived.

All alternatives fully analyzed in the plan/EIS are compliant with NPS legal mandates and met plan objectives to a large degree. Alternative C was selected as the preferred alternative and is the only alternative that fully meets all of the plan objectives.

Concern ID: **13828**
CONCERN STATEMENT: One commenter stated that PZP or other contraceptive methods should be used because the use of culling will not have a short- or long-term impact on the deer population at the park.

Representative Quote(s):

Corr. ID: 18 **Organization:** *Not Specified*
Comment ID: 40097 **Organization Type:** Unaffiliated Individual
Representative Quote: Although it may be difficult to use in an open population, we do encourage the park to attempt to use PZP or other contraceptive methods, as

culling will not have a long-term impact. In fact, it will likely not even have a short-term impact, because deer from nearby areas can and will migrate into the park. If contraceptives can be used successfully on some part of the population, it may be more successful in that adults will continue to occupy available space while not reproducing.

RESPONSE:

When a one-shot immunocontraceptive has been developed for deer as it has been in horses, and has been approved for use in free-ranging deer populations, it would be worthy of further consideration. As of this writing there have been no white-tailed deer specific immunocontraceptives approved for human consumption.

USDA Wildlife Services has been testing Gonacon^{tm} (the most widely available immunocontraceptive) on an enclosed population at the former White Oak Naval Facility. It was 86% successful during the first year and 49% the second year. This falls below the 90% success rate needed to stabilize or reduce populations.

Lethal removal is still the only alternative that will reduce the deer population to a level that will allow for tree reproduction. It will need to be repeated to be effective but removal levels over the long term will decrease after the first year.

AL4021 - Alternatives: Alternative C - Combined Lethal Actions (Sharpshooting and Capture and Euthanasia)

Concern ID: **13829**

CONCERN STATEMENT: Commenters offered elements of alternative C they would like to see included or feel should further be explored. These elements include the cost of meat processing and/or disposal, restricting the time for sharpshooting activities, the use of non-federal employees for sharpshooting, the cost of capture and euthanasia, the potential for population increase as a result of lethal reduction, and requiring sharpshooters to use certain equipment during removal efforts.

Representative Quote(s):

Corr. ID: 2 **Organization:** Quantico Orienteering Club, Inc.
Comment ID: 39968 **Organization Type:** Recreational Groups
Representative Quote: We support the use of silencers by sharpshooters to reduce noise impacts.

Corr. ID: 2 **Organization:** Quantico Orienteering Club, Inc.
Comment ID: 39969 **Organization Type:** Recreational Groups
Representative Quote: We recommend that sharpshooter activity be restricted to the nights of Sunday through Thursday, in order to reduce the impact on visitors (traditionally highest on weekends), and that euthanization and similar activities also take place only at dawn (Monday through Friday) or dusk (Sunday through Thursday) to minimize the need to close any areas within CMP to visitor use on weekends. On 3 (or 4) day holiday weekends, these activities should be further restricted for similar reasons.

Corr. ID: 3 **Organization:** *Not Specified*
Comment ID: 39965 **Organization Type:** Unaffiliated Individual
Representative Quote: There would be a cost associated with carcass disposal as well as the moral issue of wasting so much valuable protein by not salvaging it for table fare.

Corr. ID: 3 **Organization:** *Not Specified*
Comment ID: 39964 **Organization Type:** Unaffiliated Individual
Representative Quote: One cost that I did not see mentioned in the proposal is the processing of the deer for distribution to a food bank. Maryland food banks may not receive donated meat unless it is processed by a licensed butcher or deer processor. In my experience the least expensive processors charge hunters $75.00 per deer. Some, working with the Farmers and Hunters Feeding the Hungry program, may charge less but I am not certain about the costs at those facilities.

Corr. ID: 7 **Organization:** National Rifle Association
Comment ID: 40156 **Organization Type:** Recreational Groups
Representative Quote: Our comments focus on Alternative C (the Preferred Alternative) that calls for qualified federal employees or contractors to reduce the deer population through sharpshooting and capture and euthanasia, where appropriate. We agree that sharpshooting has a greater chance of success than does increasing non lethal methods (fencing, use of repellants, and reproductive control of does) in meeting the Park's long-term objectives of forest regeneration and protecting, conserving and restoring native species and cultural resources. However, the NRA disagrees with the premise that only federal employees and contractors are qualified to carry out a culling operation.

Corr. ID: 7 **Organization:** National Rifle Association
Comment ID: 40166 **Organization Type:** Recreational Groups
Representative Quote: In summary, the NRA recommends that Alternative C, the Preferred Alternative, be amended to use licensed hunters as sharpshooters in lieu of park employees or contractors. The Park can work with the Maryland Department of Natural Resources and hunter-member organizations like the National Rifle Association to identify licensed hunters who are qualified or could be qualified as sharpshooters.

Corr. ID: 7 **Organization:** National Rifle Association
Comment ID: 40161 **Organization Type:** Recreational Groups
Representative Quote: Alternative C calls for the use of "qualified federal employees or contractors" who would be "experienced with sharpshooting methods and would have the necessary sharpshooting qualifications." The narrative does not explain what qualifications the employees or contractors must meet.

Corr. ID: 7 **Organization:** National Rifle Association
Comment ID: 40164 **Organization Type:** Recreational Groups
Representative Quote: With respect to Alternative C as it relates to capture and euthanasia, we question the effectiveness of conducting a capture and euthanasia operation, especially at a cost of as much as $1000 per deer. Alternative C states that this approach would be taken in circumstances where sharpshooting would not be appropriate due to safety and security concerns. What guarantee does the Park have that deer removed from a "no shoot" zone would not shortly be replaced by other deer? It would seem that the method of killing deer as described in the Plan/EIS, particularly the use of bait stations, would provide for the level of success sought. Capture and euthanasia should be a last resort if the management levels over the 15 year period are not being met.

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40305 **Organization Type:** Conservation/Preservation

Representative Quote: While chemical and physical sterilization has been shown to effectively reduce deer fertility, lethal control may sometimes have the opposite effect. It has been shown that the reproductive rate of *O. virginianus* is greatly reduced at high population densities while deer in areas subjected to periodic harvest have enhanced fertility rates resulting in increased population growth to compensate for harvested animals.(15) Further research also indicates that harvest of both sexes does nothing to stop fluctuations in deer populations due to forage competition and natural mortality as a result of severe winter weather.(16)

RESPONSE:

Thank you for your recommendations regarding time periods and the use of silencers for sharpshooting in the park. NPS will be conducting most, if not all, deer control actions at night with silencers during low visitation months (November – February), and will consider holiday weekends and other periods of high use when determining timing for removal actions (plan/EIS, pages 61, 62, and 80). The park will make a determination of closure and notify visitors about areas that will be closed and when they will be closed (plan/EIS, pages 61-62).

The costs associated with disposal of deer meat are included in the implementation cost analysis for alternative C in the plan/EIS, pages 66 and 67; this involves conducting the lethal removal activity and processing the deer (collecting biological data, preparing meat for transfer to local food bank, and /or arranging for disposal of the deer carcass), which in the plan/EIS was estimated at $72 to $260 per deer. As of 2005, Montgomery County, Maryland, was paying between $40-$60 per deer (Bill Hamilton, Montgomery County wildlife biologist, pers. comm.); this may now be $75 per deer or higher. As mentioned in the plan/EIS (page 62), deer meat will be donated if at all possible, following NPS Public Health Service guidance.

NPS received several comments related to the use of "qualified" federal employees and/or contractors for sharpshooting. In brief, a qualified federal employee or contractor is one that is firearm certified (e.g., NPS firearm certification) and experienced in wildlife sharpshooting (see also definition on page 61 of the plan/EIS). In addition, the recommendations to use licensed hunters from the public was dismissed as discussed under Concern ID:13817.

As stated in the plan/EIS, page 65, the capture and euthanasia method of population control "would only be used in select situations and would supplement the sharpshooting method...." See response to Concern ID 13830: capture and euthanasia would be used only where sharpshooting would not be appropriate due to safety or security concerns, and this would likely involve 3% or less of the total number of deer removed.

Regarding chemical sterilization, this method has worked in situations where deer were easily accessible in landscaped areas (National Institute of Standards and Technology) or residential areas (Fire Island, NY). Physical sterilization has worked in a residential area where deer densities were low relative to Catoctin Mountain park (less than 10 deer per square mile in Highland Park, Illinois). These techniques have not been recommended for use in a high density free-ranging deer population such as Catoctin Mountain park where densities have ranged between 75 deer per square mile and 192 per square mile during 2000-2006.

Regarding the potential for population increase as a result of lethal reduction, it is known that the annual recruitment rate in a healthy deer population is 30-40% (Whitaker and Hamilton 1998, page 538) and that this amount should be removed to maintain a density that will not exceed the carrying capacity of the forest. While the reproductive rate of deer may increase to compensate for a decrease in the overall population, as suggested by commenters, the park's goal is to achieve tree

regeneration sufficient to replace the existing forest within the 15-year life of the management plan. Removal of (primarily) does from the population will immediately decrease browsing pressure in the forest understory and future removal actions will take into consideration any population growth and adjust management actions as needed (see plan/EIS, page 71-75 for information on adaptive management approaches).

Finally, the reference cited to support the statement that harvest of both sexes does nothing to stop fluctuations in deer populations due to forage competition and natural mortality as a result of severe winter weather is not relevant here because the research took place in Nova Scotia where an abiotic factor (winter weather) is the limiting factor influencing deer populations.

The following reference was added to the EIS:
Whitaker, J.O. and W.J. Hamilton. 1998. Mammals of the eastern United States. Cornell University Press, Ithaca, NY. 583 pp.

Concern ID: **13830**

CONCERN STATEMENT: One commenter stated that if alternative C is selected, the component of capture and euthanasia should be removed because it is inhumane.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40406 **Organization Type:** Conservation/Preservation
Representative Quote: At a minimum, if, despite the foregoing evidence documenting significant legal and scientific deficiencies in the Draft EIS, the NPS selects a lethal control option it must reject the physical capture and euthanasia of deer as this practice is extraordinarily inhumane.

RESPONSE:

All of the methods mentioned on page 64 of the plan/EIS are acceptable under the guidelines of the American Veterinary Medical Association (2000). Capture and euthanasia will be used where sharpshooting would not be appropriate due to safety or security concerns (page 64). It is expected that this may occur a maximum of 15 times per year (page 66). This is expected to be 3% or less of the total deer being removed.

Concern ID: **13831**

CONCERN STATEMENT: One commenter questioned the use of the Humane Society recommendations to reduce stress in captured deer because the NPS should not be looking to a non-governmental organization for authority.

Representative Quote(s):

Corr. ID: 7 **Organization:** National Rifle Association
Comment ID: 40165 **Organization Type:** Recreational Groups
Representative Quote: Our last comment concerns a statement in Table S-1, which provides a comparison of the alternatives. It states that handling of the captured deer will be minimized to reduce stress "in accordance with Humane Society recommendations." The NRA is very concerned that the Park would look to a non-governmental organization for guidance on handling wildlife over which the organization has no legal authority or responsibility. The Maryland Department of Natural Resources is the entity that has authority over the management of resident wildlife and it is to that agency that the Park should seek guidance on the protocols for capturing and euthanizing deer.

RESPONSE:

The NPS will follow to the extent possible the recommendations of the American Veterinary Medical Association (AVMA) for the humane treatment of animals

during any animal handling activity (see plan/EIS, page 49). The MDDNR does not have a formal policy on this and would likely follow the AMVA guidance (Eyler, pers, comm., May 14, 2007). The entry on Table 6, regarding Humane Society recommendations is erroneous and has been corrected.

AL4031 - Alternatives: Alternative D - Combined Lethal and Non-lethal Actions

Concern ID: **13832**

CONCERN STATEMENT: One commenter noted the benefits of alternative D, but felt that this alternative still was lacking in the number of possible tools for management and the utility of those tools.

Representative Quote(s):

Corr. ID: 31 **Organization:** Quality Deer Management Association

Comment ID: 40563 **Organization Type:** Recreational Groups

Representative Quote: Alternative D - Combination of Alternative C and fertility control of does
A combination of management strategies often produces the best results with respect to deer management programs. Using multiple "tools" affords managers the ability to match the preferred technique to a specific situation. However, the tools listed as Alternatives in the notice of availability are limited in number and utility.

RESPONSE: The NPS believes that an appropriate range of alternatives was analyzed in the plan/EIS, including the combination of tools proposed, to satisfy the purpose, need, and objectives of the plan. Alternative D includes both lethal and non-lethal tools that can work well together to reduce deer numbers and keep them at reduced levels over the life of the plan so that forest regeneration can occur. The tools not in alternative D include large exclosures and repellents from alternative B, which would not be effective or useful in a combination alternative that includes lethal reduction options. Other tools and options for deer management were considered in the development of the plan/EIS, but were dismissed because they did not best meet the purpose, need, and objectives of the plan/EIS. A discussion of the other tools considered and why they were not carried forward for analysis is provided on pages 86-92 of the plan/EIS.

CC1000 - Consultation and Coordination: General Comments

Concern ID: **13833**

CONCERN STATEMENT: Commenters noted difficulties in accessing the PEPC website to provide comments and noted those difficulties. Some commenters asked for an extension of the comment period because of this.

Representative Quote(s):

Corr. ID: 18 **Organization:** *Not Specified*

Comment ID: 40087 **Organization Type:** Unaffiliated Individual

Representative Quote: I would like to submit comments on the Draft EIS/Management plan for White-tailed Deer but the website says that the document is not open for public comment and there are no documents in the "Open for Public Comment" section. However, the Federal Register notice was published on November 22 and says that comments will be accepted for 60 days from the date of the publication of the EPA notice of availability. I searched the Federal Register for 2006 for the notice of availability and don't see that it has been published yet.

However, rather than trying to remember to continue to check the EPA Notices, I am submitting these comments now and hope you will be able to accept them.

Corr. ID: 19 **Organization:** *Not Specified*
Comment ID: 40109 **Organization Type:** Unaffiliated Individual
Representative Quote: I ALSO THINK THE TIME TO COMMENT SHOULD BE EXTENDED.

Corr. ID: 20 **Organization:** *Not Specified*
Comment ID: 40000 **Organization Type:** Unaffiliated Individual
Representative Quote: Mel Poole's letter of 11/1/06 on the subject document stated that invited us to submit comments through the PEPC website listed in the letter. When, after reviewing the document, I attempted to do so, I received the following message: "The selected document is not open for comments at this time. Thank you." I suggest that you rectify this problem.

Corr. ID: 25 **Organization:** *Not Specified*
Comment ID: 40541 **Organization Type:** Unaffiliated Individual
Representative Quote: have attempted to submit through the http://parkplanning.nps.gov/cato website, as instructed, a formal comment in response to the White-tailed Deer Management Plan Environmental Impact Statement, but when I complete the website comment form and hit the submit button, a message is returned indicating that the site is experiencing difficulties. My comments are not accepted. The deadline for submitting comments is February 2, 2007.

RESPONSE:

The commenter is correct in stating that the Environmental Protection Agency (EPA) Notice of Availability (NOA) officially begins the start of the comment period. However, this NOA was published in the Federal Register on December 1, 2006, not November 22, 2006 and the website (http://parkplanning.nps.gov) was immediately made available for electronic comments on this date for the entire 60-day comment period. See chapter 5 for more information.

In addition, it was determined that minimum comment period requirement of 45 days per CEQ regulations (1506.10(c)) was met and exceeded by offering a 60-day comment period and did not warrant further extension, as various methods of commenting were available throughout the comment period.

In response to other concerns regarding the PEPC website experiencing technical difficulties, thus making it problematic to submit comments electronically, NPS apologizes for these complications and assures the public that such instances are minimized to the greatest extent possible. When this does occur, NPS encourages commenters to submit their comments by other methods provided.

GA1000 - Impact Analysis: Impact Analyses

Concern ID: **13834**
CONCERN STATEMENT: Commenters questioned the overall impact analysis, noting specific areas of concern such as the proper spelling of scientific names and the inference incorrect spelling has on the accuracy of the document; inadequate evaluation of direct, indirect, and cumulative impacts; lack of scientific data to proceed with the action, and insufficient level of detail.

Representative Quote(s): **Corr. ID:** 11 **Organization:** The Humane Society of the United States

Comment ID: 40275 **Organization Type:** Conservation/Preservation

Representative Quote: We have some general concerns with respect to the scholarship of this plan/EIS. Although we were not able to check the scientific names for all species referenced in the EIS, we did note that a number of the plant binomials were misspelled. Such negligence reflects poorly on the content of the EIS as a whole and calls into question the accuracy of its claims.

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40363 **Organization Type:** Conservation/Preservation

Representative Quote: Though an EIS is intended to provide a comprehensive review of the direct, indirect, and cumulative impacts of an action and is required to contain a sufficient level of detail to ensure that interested stakeholders, the public, and agency officials can understand the need for the action and the action's environmental consequences. Therefore, the disclosure of all relevant information is crucial to insure that the public can meaningfully participate in the decision-making process by submitting informed and substantive comments and so those with decision-making authority can consider all relevant information when determining the course of action to pursue. In this case, it appears that the NPS was so sure of what action was required that it neglected to disclose all relevant information, evidence, and data. Considering the efforts made by the NPS to denigrate white-tailed deer claiming that deer are responsible for a whole host of problems in CMP, the NPS may have predetermined the outcome of this process.

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40340 **Organization Type:** Conservation/Preservation

Representative Quote: Conversely, given the lack of substantive data and analysis to document the alleged significant impacts that the NPS attributes to deer in the CMP, there is no rational scientific or legal basis to proceed with the proposed action. Indeed, even if the NPS believes that its data is solid, given its statutory requirements it must attempt to address its deer management challenges through the creative use of all non-lethal management alternatives before it resorts to any consideration of lethal control.

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40327 **Organization Type:** Conservation/Preservation

Representative Quote: The National Park Service (NPS) has failed to disclose sufficient evidence or data to substantiate the need for such drastic actions and has failed to provide an adequate evaluation of the direct, indirect, and cumulative impacts of the preferred alternative and other alternatives in violation of the National Environmental Policy Act (NEPA).

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40408 **Organization Type:** Conservation/Preservation

Representative Quote: Even if this initial legal threshold was not an obstacle to the NPS proposal, the Draft EIS is deficient both due to a failure by the NPS to disclose information directly relevant to its proposal but also because it has failed to adequately evaluate the direct, indirect, and cumulative impacts of the action on the environment.

RESPONSE: The NPS believes that the plan/EIS fully and adequately discloses data that substantiates the need for action, and the analysis presented provides a thorough and adequate evaluation of the direct, indirect, and cumulative impacts of the preferred alternative and other alternatives. Data supporting the need for action are

summarized in the plan/EIS, pages 16-19, with additional details provided in the Affected Environment description on pages 104-107 and in appendix A. These data were based on variety of sources, all which are considered to be scientifically sound and are found in the References section of the plan/EIS. The direct, indirect, and cumulative impacts of the preferred alternative and other alternatives are addressed in detail the Environmental Consequences section of the plan/EIS, pages 163-288. In the description of the Affected Environment and in the Environmental Consequences, the plan/EIS discloses all relevant information that was used in the decision making process. As the plan/EIS is a public document, in some cases the data used in the decision making process was summarized in the plan/EIS to make it as understandable as possible to the general public. The NPS recognizes that the subject of deer management is highly technical and any decision made on the issue must be based in scientific data. The plan/EIS attempts to summarize these data so that the scientific information is present, but is understandable by the general public that may not be familiar with the issues.

The NPS statutory requirements do not require that it use all non-lethal management alternatives before it resorts to any consideration of lethal control. NPS *Management Policies 2006* Section 4.4.2 states that the NPS will rely on natural processes whenever possible, but may intervene to manage wildlife or plant populations under certain circumstance. Further, Section 4.4.2.1 allows for the management of native species to, "prevent them from interfering broadly with natural habitats, natural abundances, and natural distributions of native species and natural processes." As shown in the analysis of the no action alternative in the plan/EIS, continuation of the current condition would lead to major adverse impacts of park resources, such as vegetation. Because of these potential impacts, the consideration of lethal control in the plan/EIS is within the constraints of NPS policy.

The NPS recognized that some plant binomials were misspelled. Although these errors are regrettable, they represent synonyms of current scientific nomenclature and editorial typographical errors made in compiling this document only and are not a reflection on the actual work done over the years within the park or cited from other published studies. Synonym use and misspellings within this EIS do not negate the accuracy of other material in the document. All data have sources cited, which the reader may review for themselves. Regarding the misspelling of plant binomials in the plan/EIS text corrections will be made in the FEIS.

Concern ID: **13835**

CONCERN STATEMENT: One commenter stated that the plan/EIS should consider that the impacts of allowing nature to take its own course are not irreversible.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40336 **Organization Type:** Conservation/Preservation

Representative Quote: While there are impacts associated with allowing nature to take her own course, those impacts are not irreversible and, in time, the dynamics of the ecosystem will change resulting in a reduced deer population, increased forest regeneration, and an expansion of herbaceous cover.

RESPONSE:

The current management of the white-tailed deer population at Catoctin Mountain Park is to allow the population to self-regulate. This has been the approach that the park has taken for the seventy years that the park has existed. In the current EIS, alternative A includes continuing with the current management of deer including continuing with studies to track the deer population, regeneration of the forest and rare plant populations. The only action that would be taken as a part of alternative A

that could be considered as not allowing nature to take its course would be the protection of certain plants through the fencing of rare plant species and landscape plantings and the use of repellants on landscape plantings.

The impacts of the no action alternative (Alternative A) were analyzed and shown to result in impairment over the long term to several park resources including vegetation, white-tailed deer herd health, other wildlife and wildlife habitat, and sensitive and rare species. Pursuant to the Organic Act and further defined in the 2006 Management Policies, the "impairment of park resources and values may not be allowed by the Service" (sec. 1.4.4), thus an alternative that would allow nature to take its course would not be a feasible management option.

GA4000 - Impact Analysis: Impairment Analysis-General Methodology

Concern ID: **13836**

CONCERN STATEMENT: One commenter stated that, because of the legal definition of impairment, the NPS incorrectly applies the impairment standard throughout the document because the standard should apply to public uses of the park, which does not include wildlife health, as directed by NPS Management Policies. The commenter further disagrees with the application of the impairment standard under the No Action alternative, because the stated impacts are natural components of the ecology of the area and are not an administrative use subject to the impairment standard.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40347 **Organization Type:** Conservation/Preservation
Representative Quote: For example, in its summary of the environmental consequences of each alternative, the NPS claims that selection of the no-action alternative would cause an impairment to park vegetation, white-tailed deer health, other wildlife species, and rare species. In other words, the NPS apparently believes that deer grazing and browsing, natural changes in deer health parameters, factors affecting other wildlife species, including rare species, all constitute impairments. Yet, all of these impacts represent entirely natural components of the ecology of an area and most certainly do not constitute a use or administrative activity that is subject to the impairment standard. Though the NPS has misinterpreted the intent of its impairment standard, it must be noted that, as the NPS concedes, the selection of Alternative B will not result in any alleged impairments to park resources. Since impairments are not permissible, the NPS is effectively but erroneously claiming that its lack of action would result in an impairment because deer would continue to eat herbaceous and woody materials on CMP. This would be akin to the NPS claiming that its failure to kill predators in a national park would constitute an impairment since the predator could kill a federally protected species or that a decision to allow natural factors to control the elk population in Yellowstone represents an impairment because of the potential impact of elk herbivory on willows and beavers.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40346 **Organization Type:** Conservation/Preservation
Representative Quote: More recently, Congress reemphasized its support for the NPS and the importance of national parks reiterating its direction that "the authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various area have been established, except as may have been or shall be directly and specifically provided by Congress." Id. at 1-

1a.

Though the statute clearly limits the "impairment" standard to the regulation of public uses of the parks, the NPS has expanded the applicability of that standard to include its own administrative activities. As a consequence, though this standard largely applies to public uses of the parks, the NPS is supposed to make a determination as to whether its own actions cause an impairment. In the Draft EIS, however, the NPS appears to further expand its application of the impairment standard to include activities that naturally occur within any national parks such as grazing, wildlife health, and interspecific competition.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40348 **Organization Type:** Conservation/Preservation
Representative Quote: The authority given the Secretary to allow for the destruction of an animal is not associated with the impairment standard but, rather pertains to a determination that the animal is detrimental to the use of a park. Thus, the fact that deer may be adversely affecting forest regeneration in CMP does not justify a finding of "detriment" since forest regeneration is not considered to be a "use" of a park. Rather, the Secretary's authority to permit the destruction of animals detrimental to the use of a park was provided so that animals who pose a threat to persons using a park (e.g., grizzly bears, black bears, mountain lions, other dangerous animals, rabid animals) could be destroyed. As a consequence, the NPS, despite whatever impacts it believes deer may be having on CMP, cannot authorize the lethal control of deer in CMP unless the presence of the deer is deemed to be detrimental to the "use" of the park. No evidence is contained in the Draft EIS that would satisfy this standard and, therefore, the NPS cannot legally approve Alternatives C or D as described in the Draft EIS.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40350 **Organization Type:** Conservation/Preservation
Representative Quote: NPS policies provide further guidance on the impairment standard and in regard to the natural regulation mandate governing the management of national parks.

In the 2006 NPS Management Policies, policy 1.4.3 and 1.4.3.1 very clearly associate the impairment standard to authorized uses of the parks. Policy 1.4.4 specifies that "the impairment of park resources and values may not be allowed by the Service unless directly and specifically provided for by legislation or by the proclamation establishing the park." Policy 1.4.5 explicitly identified visitor activities, NPS administrative activities and other activities by concessionaires and others as the types of activities that can cause an impairment. Policies 1.4.6 and 1.4.7 provide additional evidence of why the impairment standard is applicable only to uses of or activities in parks and cannot be applied to impacts to park resources that may be attributable to a naturally occurring species or processes found or operating in national parks. Finally, policy 1.5 clearly states that the NPS "must ensure that park uses that are allowed would not cause impairment of, or unacceptable impacts on, park resources and values. These policies do not permit the NPS to categorize, as it has done in the Draft EIS, impacts that occur as a result of natural processes in any park ecosystem to constitute an impairment. Therefore, cannot discount the no action alternative during its decision-making process based on any claim that its selection would cause an impairment.

RESPONSE: NPS Management Policy 1.4.3 defines the fundamental purpose of the NPS as a mandate to conserve park resources and values. In addition Management Policy

1.4.4 clearly describes the prohibition on impairment of park resources and values and states that impairment of park resources and values may not be allowed by the NPS. Section 1.4.7 defines the decision-making requirements to identify and avoid impairments. It states that "[b]efore approving a proposed action that could lead to an impairment of park resources and values, an NPS decision maker must consider the impacts of the proposed action." The "no action" alternative described in the EIS is the alternative that would continue current deer management in an affirmative way. If chosen as a preferred alternative it would be the NPS decision to follow the actions of the "no action" alternative. As indicated in the plan/EIS, this would likely lead to impairment of several park resources in the long term. Consideration of the "no action" alternative is required by NEPA.

GA5000 - Impact Analysis: Scientific Data Used to Determine Impacts

Concern ID: **13837**

CONCERN STATEMENT: Commenters questioned the sufficiency of the plan/EIS, stating that the document did not contain adequate scientific data to disclose impacts or other information used in the decision making process to the public and that the document did not meet the standard of having credible, scientific data and evidence to justify the proposed action.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40354 **Organization Type:** Conservation/Preservation
Representative Quote: Though the Policies specify that the NPS must have credible scientific data and evidence to justify the removal of native plants or animals from a park - a standard that the NPS has not met in the Draft EIS, the Organic Act, as explained previously, only allows the Secretary to authorize the destruction of an animal when it is determined that the animal is detrimental to the use of a park. Thus, there must be a valid conflict between an animal and public use of a park before the Secretary can authorize the destruction of the animal. The NPS has offered no evidence of such a conflict between deer in CMP and public use of the park in the Draft EIS and, therefore, it can't proceed with any lethal removal of deer without violating federal law.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40341 **Organization Type:** Conservation/Preservation
Representative Quote: Particular deficiencies inherent to the Draft EIS include, as mentioned previously, a failure by the NPS to create a management plan that is in compliance with its own Organic Act and its associated implementing regulations and policies and with NEPA. Specific NEPA inadequacies include a failure to disclose all relevant information to facilitate both public review and meaningful participation in the decision-making process and the ability of NPS decision-makers to have all of the relevant environmental information available to them prior to rendering a decision on the plan.

RESPONSE: See response to Concern ID 13855 for additional information on the vegetation monitoring methodology.

The NPS believes that the plan/EIS is in compliance with its own Organic Act and associated implementing regulations and policies. See response to Concern ID:13842. Relevant information and credible evidence related to the need for action is provided in the plan/EIS, pages 16-19, with additional details provided in the Affected Environment description on pages 104-107 and in appendix A. Supporting

information related to various alternatives considered and dismissed and the analysis is contained throughout the document, and no information was withheld. As detailed under Concern ID 13834, the analysis in the plan/EIS was based on referenced scientific information that was summarized in the document to provide a better understanding to the general public.

MT5000 - Miscellaneous Topics: Desired Deer Density

Concern ID: **13838**

CONCERN STATEMENT: Commenters questioned the methods used to develop the target deer density presented in the plan/EIS, including concerns on the data used and the use of deer densities as a management tool.

Representative Quote(s):

Corr. ID: 11 **Organization:** The Humane Society of the United States

Comment ID: 40276 **Organization Type:** Conservation/Preservation

Representative Quote: The EIS give a brief history of land use in the park and in doing so points out that the currently forested area of Catoctin contained no trees, "over the size of a fencepost" in 1936 (EIS pg 11). Considering this highly modified, historically logged, farmed, and mined landscape not to mention the relatively recent recolonization of deer in the area it is virtually impossible to formulate a clear picture of the "natural' condition of Catoctin. Based upon this information, it is questionable as to how the park developed their vegetation goal if no data exists from the time when deer inhabited the area in so-called "natural" densities. If the baseline for vegetation community recovery is formulated from data collected in exclosures or from a time when deer densities were very low, it will be impossible for the Park to reach those plant community benchmarks short of re-exterminating the current deer population.

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40402 **Organization Type:** Conservation/Preservation

Representative Quote: What is relevant and what the NPS fails to discuss is whether such deer density estimates should dictate deer management in a national park. As previously stated, because parks are subject to different management standards which emphasize the protection of natural processes including succession, such deer density estimate are not relevant to a national park and should not be relied on to justify lethal deer control.

RESPONSE:

The overall objective of this plan is not to obtain a certain deer density but to reduce deer browse pressure to ensure adequate tree regeneration to sustain the forest. The targeted deer density establishes a population level suggested by the current research which will allow for the desired forest regeneration. Following the adaptive management principles presented on pages 71- 75, the forest response will dictate the actual amount of population reduction and the density we will need to maintain. This will be adjusted with time based on the vegetation monitoring results.

The park is not attempting to “restore” vegetation to a “natural” level of some previously existing time. The goal is to ensure tree regeneration sufficient to reach the desired condition of a sustainable eastern hardwood forest with a native and diverse forest structure. At this time, there are almost no tree seedlings that reach the sapling stage without being eaten by deer. The exclosures are being used to indicate that regeneration can be sustained when deer browse pressure is controlled. They are not being used to suggest what the park will look like in the future because

the plan will not eliminate all deer browse.

40276

The first vegetation objective on page 4 of the plan/EIS is to "reduce adverse effects of deer browsing pressure to ensure tree regeneration sufficient to reach the desired condition of a sustainable eastern hardwood forest with a native and diverse forest structure." The scientific information used to define acceptable tree regeneration was based on research done from 1973-2004 from the USFS NE Forest Station. There has been no discussion of attempting to recreate the landscape as it existed prior to its establishment as a national park.

The first wildlife objective is to maintain a viable deer population within the park while protecting other park resources (page 4). A viable deer population is defined as one that allows the forest to naturally regenerate while maintaining a healthy deer population in the park (page 26). It is expected that a deer density of 10-30 deer per square mile will allow Catoctin to achieve the first vegetation goal on page 4. **For example, the nearby Frederick City Watershed Forest has densities of 9-30 deer per square mile and has acceptable tree regeneration.

ON1000 - Other NEPA Issues: General Comments

Concern ID: **13839**

CONCERN STATEMENT: One commenter questioned the sufficiency of the plan/EIS under NEPA stating that it did not adequately evaluate impacts, is not in compliance with the Organic Act, does not disclose all relevant information, and does not consider a reasonable range of alternatives.

Representative Quote(s): **Corr. ID:** 24 **Organization:** Animal Welfare Institute
Comment ID: 40345 **Organization Type:** Conservation/Preservation
Representative Quote: The NPS has also failed to consider a reasonable range of alternatives, failed to provide a sufficient evaluation of the environmental impacts of the preferred alternatives and other alternatives, and rejected legitimate alternatives from serious consideration.

RESPONSE: CEQ guidance suggests that "in determining the scope of alternatives to be considered, the emphasis is on what is "reasonable"? Reasonable alternatives include those that are practical, or feasible from the technical and economic standpoint and use common sense" (CEQ 40 Questions 2a). In addition, even if an alternative is considered but dismissed from detailed evaluation, it is still part of the range of alternatives considered by the agency as required by NEPA (Native Ecosystem Council v. US Forest Service, 428 F.3d 1233, 1245 (9th Cir, 2005)). NPS feels that the plan/EIS adequately identifies a full range of alternatives that meet CEQ's requirements and meet project objectives, resolve the need for the plan and reduce potentially significant impacts to park resources.

Some alternatives that were suggested both internally and by the public throughout the planning process were eliminated because they did not meet project objectives to a large degree. A detailed discussion of why alternatives were eliminated from this plan can be found in the "Alternatives Eliminated from Further Consideration" section of the plan/EIS.

As for other concerns expressed by the commenter related to the adequacy of the impact analysis, NPS fully met CEQ requirements by ensuring the analysis was

concise, clear and to the point, addressed real environmental issues, was of high quality and used accurate scientific analyses where possible, was reviewed by other agencies and the public and included direct, indirect and cumulative impacts for each impact topic addressed in the plan/EIS (CEQ sections 1500.2(b), 1500.1(b), 1502.16).

All relevant information related to the scientific methodologies was disclosed directly in the document's text, provided in an appendix, or referenced appropriately.

PN5000 - Purpose And Need: Regulatory Framework

Concern ID: **13841**

CONCERN STATEMENT: Commenters questioned NPS policy prohibiting hunting in national parks and felt that this policy is against the principals of wildlife ecology. Commenters asked the park to take the necessary action to make sport hunting a part of the alternatives.

Representative Quote(s):

Corr. ID: 8 **Organization:** *Not Specified*
Comment ID: 39957 **Organization Type:** Unaffiliated Individual
Representative Quote: The council also wishes to note that the archaic policy against hunting in national parks is an obvious contradiction to the known principles of wildlife ecology. As a result of that policy and, thus, the inability to implement managed hunts, national parks throughout the country are facing, and will continue to face, problems resulting from wildlife populations which have been allowed to exceed the carrying capacity of their habitat.

Corr. ID: 22 **Organization:** Safari Club International
Comment ID: 40174 **Organization Type:** Recreational Groups
Representative Quote: SCI recognizes the current legal and policy constraints that prohibit the opening of CMP or all National Parks to sport hunting. But for all the reasons discussed above, sport hunting should be a tool available to the NPS to use for wildlife management in limited situations, for example to control wildlife overpopulations and/or the presence of harmful invasive species. SCI encourages the NPS to consider actions that might be necessary to allow sport hunting to be a cost-effective and efficient option for dealing with wildlife overpopulation and related problems in National Parks.

RESPONSE: See response to Concern ID: 13814.

Concern ID: **13842**

CONCERN STATEMENT: Commenters stated that the use of lethal removal is contradictory to the policies and mission of the NPS, which do not encourage intervention in natural processes, as well as to the Organic Act and the policies and regulations implementing that Act. Commenters also questioned the application of the authority of the NPS to intervene in natural processes under NPS Management Policy 4.4.2.1 and stated that there is no specific human activity or influence that necessitates the need for lethal take under these policies. They further stated that the plan/EIS did not show a conflict between an animal and public use that would allow the Secretary to authorize lethal take.

Representative Quote(s):

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40316 **Organization Type:** Conservation/Preservation
Representative Quote: The NPS must decide if they want to be intervening, managing and manipulating deer for the foreseeable future in CATO any other park units. Given the NPS mandate, is this justified and by what approaches and methodologies will NPS ever be able to determine what ecological end-point it seeks to achieve? Before the Final EIS is drafted, the park must have a clear picture of the end goals of deer management at the park, especially in light of the long history of human land use in and around the park and the lack of data to prove that deer will have a long-term effect on the continued existence of the forest ecosystem at CATO.

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40286 **Organization Type:** Conservation/Preservation
Representative Quote: However, the HSUS is aware that the park considers the deer populations at CATO to be "overabundant" and that such population levels may be viewed as "unnatural". This idea of native wildlife damaging its environment and necessitating lethal removal is held by some to be a logical consequence of that perception and by others to be illogical. This lethal removal scheme may be viewed as a contradiction to the central mission of NPS, which is to not intervene in natural processes unless a compelling case can be made that they have been suspended or prevented through human action. As the forest appears to regenerate itself after disturbance, it is difficult to understand how a lack of seedling under intact canopy constitutes a suspension of natural processes.

That said, NPS chooses to regulate its activities under an assumption of allowing natural process to prevail and hence is caught between two sets of standards. The NPS stands, by these and other proposed deer management actions, to intervene, interfere, and in perpetuity manipulate a natural, native biotic component of an ecologically interacting system which it is mandated to conserve. This is a radical departure from its historic management philosophy and approach and must be carefully considered and weighed for the precedent it sets.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40353 **Organization Type:** Conservation/Preservation
Representative Quote: The Policies do not specify what constitutes a "human activity" or "human influence" though the policy language suggests that these terms refer to visitor use or other similar human activities and do not include long-term human alterations to the landscape that may have created the environment for changes in the deer population within the CMP. The purposeful introduction of a native but non-endemic species into a park lake would, for example, clearly justify intervention by the NPS to restore natural ecosystem functions. In the case of CMP and its deer, however, there is no specific human influence that has caused the fluctuations in the CMP deer population. Rather, a series of human actions over more than 100 years (i.e., clearing of land for agriculture, residential and commercial development, road construction both inside and outside of the park, a decrease in hunters) have allowed deer populations to increase throughout most suburban and rural areas throughout the United States. Moreover, in the case of the CMP, its very designation as a unit of the NPS created the opportunity for natural deer population fluctuations though this action should not and cannot be classified as having negative or adverse consequences.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40407 **Organization Type:** Conservation/Preservation
Representative Quote: The NPS does not have the legal authority under its own Organic Act to engage in the mass killing of deer within CMP as it has not demonstrated that deer are detrimental to public use of the park. Since statutes trump regulations, policies, objectives, and goals, it is largely irrelevant what these secondary documents allow in regard to the management of wildlife, vegetation, or other resources within a national park.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40338 **Organization Type:** Conservation/Preservation
Representative Quote: In this case, instead of embracing its mandate, the NPS prefers to manage CMP to achieve a snapshot in time where it manipulates deer numbers to achieve what the NPS claims is a desired condition. Such a mindset is similar to the management strategies employed by the U.S. Forest Service or U.S. Fish and Wildlife Service by which ecosystems are highly manipulated to achieve some predetermined objective of what is aesthetically pleasing or biologically/ecologically desirable.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40394 **Organization Type:** Conservation/Preservation
Representative Quote: Without specific an irrefutable evidence that deer are detrimental to public use of CMP, the NPS has no legal authority to engage in the lethal control of this species and must select an alternative that relies on non-lethal management strategies.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40329 **Organization Type:** Conservation/Preservation
Representative Quote: Moreover, the NPS emphasis on the need for aggressive lethal removal of hundreds of deer over the first three years of the preferred alternative and thousands over the 15-year duration of the plan violates its own Organic Act and regulations and policies implementing that Act.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40352 **Organization Type:** Conservation/Preservation
Representative Quote: The NPS can only intervene to affect natural biological or physical processes when directed by Congress, in emergencies, "to restore natural ecosystem functioning that has been disrupted by past or ongoing human activities," or when a park plan has identified that intervention is necessary to protect other park resources, human health and safety, or facilities. Policy 4.1. While there are limited circumstances when the NPS can intervene, whenever possible it should allow "natural processes to maintain native plant and animal species and (to) influence natural fluctuations in populations of these species." Policy 4.4.2. Such interventions are also limited to circumstances where the impacts of such actions will not cause unacceptable impacts to the populations of the species or to other components and processes of the ecosystems that support them, id. and Policy 4.4.2.1, and when a population occurs in an unnaturally high or low concentration as a result of human influences. Id. The policy goes on to make clear that lethal animal control actions can be taken to reduce an animal population but only if "visitor use or other human activities cannot be modified or curtailed." Policy 4.4.2.1. However, whenever the reduction of a park plant or animal population is determined to be needed, NPS policy requires the use of "scientifically valid resource information obtained through consultation with technical experts, literature

review, inventory, monitoring, or research to evaluate the identified need for population management" Id.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40361 **Organization Type:** Conservation/Preservation
Representative Quote: As the foregoing discussion demonstrates, there remain serious questions about the NPS proposal to lethally control deer within the CMP and whether such plans are consistent with NPS statutes, regulations, and policies. Based on its statutory obligations alone, the NPS does not have the authority to kill deer within CMP unless it can prove that deer are detrimental to the use of the park.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40351 **Organization Type:** Conservation/Preservation
Representative Quote: NPS policy specifies that "natural resources will be managed to preserve fundamental physical and biological processes, as well as individual species, feature, and plant and animal communities." Policy 4.1. The intent is not to solely preserve individual species (except threatened or endangered species) or individual natural process but to "maintain all the components and processes of naturally evolving park ecosystems, including the natural abundance, diversity, and genetic and ecological integrity of the plant and animal species native to those ecosystems." Id. To achieve this standard "natural change will … be recognized as an integral part of the functioning of natural systems." Id. Natural resources, processes, systems, and values found in parks include physical processes such as weather, biological resources such as native plants, animals, and communities, and biological processes such as photosynthesis, succession, and evolution. Policy, Chapter 4, Introduction.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40331 **Organization Type:** Conservation/Preservation
Representative Quote: Given the clear intent expressed by Congress in establishing the NPS that national park units were expected to be managed in a manner far different than other federal lands (U.S. Forest Service lands, Bureau of Land Management lands, U.S. Fish and Wildlife Service lands), it is disturbing that, in this case, the NPS has elected to propose the use of sharpshooting and capture/euthanasia to address alleged adverse impacts to CMP attributable to deer. Given its natural regulation mandate, ideally the NPS should embrace the fluctuating deer population of the CMP as a natural process contributing to natural succession within the park. Indeed, instead of portraying deer as an overabundant pest allegedly causing adverse impacts to park vegetation and other species, the NPS should recognize deer as a dominant herbivore in the CMP and should consider its impacts to be inherent to the deer's role in the ecosystem.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40349 **Organization Type:** Conservation/Preservation
Representative Quote: NPS regulations provide additional guidance on whether lethal wildlife control may be permissible. Though the NPS cited to its regulations in the Draft EIS, it provided no further discussion of the regulations and their relevance to the alternatives being considered in the Draft EIS. As an initial matter, disturbing living wildlife from "its natural state" is prohibited. 36 CFR 2.1(a)(1)(i). This is consistent with the NPS natural regulation mandate. Hunting of wildlife in a national park, however, is allowed "where such activity is specifically mandated by Federal statutory law," id. at 2.2(b)(1), or where the activity "is specifically authorized as a discretionary activity under Federal statutory law ..." Id. at

2.2(b)(2). Though these specific regulations may not be applicable to activities carried out by NPS personnel, they reflect a clear intent on the part of the NPS, as directed by its Organic Act, to significantly limit the lethal control of native wildlife to those very few instances where Congress has authorized such activities and/or where the NPS has the discretion to allow such uses. As explained previously, the discretion provided by the Organic Act to allow the destruction of wildlife is limited to circumstances where an animal is determined to be detrimental to the use of a park.

RESPONSE: As a general rule, the NPS has broad authority to manage wildlife and other natural resources within the boundaries of units of the National Park System. See, generally, 16 USC § 1 (NPS "shall promote and regulate the use of Federal areas known as national parks…by such mean and measures as conform with the fundamental purpose of the parks…to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations"). In United States v. Moore, 640 F. Supp. 164, 166 (S.D. W.VA. 1986) the court found that Congress had given the Secretary great discretion in regulating and controlling wildlife within the National Park System.

In managing native wildlife, the NPS policies are first articulated in NPS Management Polices Section 4.4.2. It states that "[w]henever possible, natural processes will be relied upon to maintain native plant and animal species and influence natural fluctuations in populations of these species. The Service may intervene to manage populations or individuals of native species only when such intervention will not cause unacceptable impacts to the populations of the species or to other components and processes of the ecosystems that support them. The second is that at least one of the following conditions exists: Management is necessary because a population occurs in an unnaturally high or low concentration as a result of human influences (such as loss of seasonal habitat, the extirpation of predators, the creation of highly productive habitat through agriculture or urban landscapes) and it is not possible to mitigate the effects of the human influences."

Since the deer population at Catoctin Mountain Park is an unnaturally high concentration due to result of human influence and is severely impacting other park resources that the park is statutorily required to protect and manage, the NPS can actively manage the deer population, including reducing the size of the population.

Under this provision, the NPS is also required to "assess the results of managing plant and animal populations by conducting follow-up monitoring or other studies to determine the impacts of the management methods on nontargeted and targeted components of the ecosystem." This strategy is described in the plan/EIS including specific end points on management actions.

NPS policy further states that "[w]henever the Service removes native plants or animals, manages plant or animal populations to reduce their sizes, or allows others to remove plants or animals for an authorized purpose, the Service will seek to ensure that such removals will not cause unacceptable impacts on native resources, natural processes, or other park resources. Whenever the Service identifies a possible need for reducing the size of a park plant or animal population, the Service will use scientifically valid resource information obtained through consultation with technical experts, literature review, inventory, monitoring, or research to evaluate the identified need for population management; the Service will document it in the appropriate park management plan." NPS Management Policies Section 4.4.2.1. The information presented in the EIS reflects the scientifically valid resource information obtained, considered and incorporated during the planning process.

Concern ID: **13843**
CONCERN STATEMENT: One commenter stated that the objectives of the plan/EIS do not override the legal authority of the NPS and in this context, if deer density estimates are used to justify the action, the legal authority for use of a certain density should be provided.

Representative Quote(s):
Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40403 **Organization Type:** Conservation/Preservation
Representative Quote: Moreover, since the NPS has not proven that its objective of forest regeneration within CMP trumps its statutory obligations, the reliance on deer density estimates in this context is particularly troubling. If the NPS intends to manage the deer in CMP to achieve a certain density, it must provide a rational legal explanation for its authority to do so.

RESPONSE:
As a general rule, the NPS has broad authority to manage wildlife and other natural resources within the boundaries of units of the National Park System. See, generally, 16 USC § 1. See comment response for Concern ID:13842.

There is no legal authority for managing to specific deer density. The legal authority is that there is an allowance to manage wildlife populations and an affirmative duty to use the best available scientific information available. NPS policy states that "[w]henever the Service identifies a possible need for reducing the size of a park plant or animal population, the Service will use scientifically valid resource information obtained through consultation with technical experts, literature review, inventory, monitoring, or research to evaluate the identified need for population management; the Service will document it in the appropriate park management plan." NPS Management Policies Section 4.4.2.1. The information presented in the EIS reflects the scientifically valid resource information obtained, considered and incorporated during the planning process.

PN6000 - Purpose And Need: Land Management Laws, Exec Orders

Concern ID: **13844**
CONCERN STATEMENT: Commenters stated the use of Executive Order 7027 as justification for the proposed action is not justification for lethal take.

Representative Quote(s):
Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40356 **Organization Type:** Conservation/Preservation
Representative Quote: Though EO 7027 could not be located to review prior to preparing these comments, there is a question as to whether the forest regeneration requirement contained in the original EO remained applicable to the management of CMP once that property was transferred to NPS given natural regulation mandate contained in NPS statutes, regulations, and policies. Furthermore, by citing to CMP management objectives, goals, the CMP Resource Management Plan, and the CMP Statement for Management, the NPS claims that lethal deer control is essential for the restoration of forest regeneration which is apparently included in each of those documents as a critical management goal. What's unclear is whether those plans are consistent with NPS statutes, regulations, and policies and whether the public was involved in the process used to create those documents.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40355 **Organization Type:** Conservation/Preservation

Representative Quote: Though the Organic Act explicitly limits when the NPS can lethally remove animals from a park, the Draft EIS completely ignores this issue. Instead, the NPS claims that the original Executive Order (#7027) establishing the Catoctin Recreational Demonstration Area and it relies principally on this alleged justification to substantiate its proposed lethal deer control plan.

RESPONSE: EO 7027 was listed in the EIS as part of the legislative history of the park and referenced reforestation projects as identified in paragraph (b) of the order. There was no intention by the NPS to imply or suggest that EO 7027 was a legislated mandate or executive directive for reforestation. Reforestation projects started prior to the transfer of jurisdiction to the National Park Service would have required completion pursuant to EO 7496. Many of those projects would have remained congruent with NPS goals well into the future. New projects (post transfer to the NPS) would require compliance with NPS policies and regulations, existing at the time of their formulation.

The documents referenced by the commenter (SFM, RMP, etc.) are planning documents that are broad in scope and not easily analyzed and therefore categorically excluded from the National Environmental Policy Act (42 USC 4321. et al.) and its implementing regulations found at 40 CFR 1508 and more specifically in the Departmental Manual at 516 DM 2, Appendix 1, 1.10. Notwithstanding this requirement, Catoctin's current planning documents are regularly made available for public comment and review through copies placed at local libraries in both MD counties where the park resides and through our website at www.nps.gov/cato pursuant to the NPS policies on Civic Engagement.

Forest regeneration is an ecological process that has been lost at Catoctin. Deer exclosures have shown that regeneration can take place in the absence of deer. The proposed management action is then in accordance with the NPS Organic Act and NPS Management Policies quoted within the plan/EIS (pages 32-34). Also, there is no preset deer density. The vegetation recovery will determine deer density.

Combined with the NPS's broad authority to manage wildlife and other natural resources within the boundaries of units of the National Park System, (see comment response to Concern ID: 13842) allows the NPS to consider lethal control for deer.

PN8000 - Purpose And Need: Objectives In Taking Action

Concern ID: **13845**

CONCERN STATEMENT: Commenters stated that the plan/EIS did not adequately prove a purpose and need for lethal removal of deer, including a lack of data, and that the objectives of the plan/EIS were unclear. Commenters requested that the park state a clear picture of its end point and goals for deer management.

Representative Quote(s):

Corr. ID: 11 **Organization:** The Humane Society of the United States

Comment ID: 40289 **Organization Type:** Conservation/Preservation

Representative Quote: In summary The HSUS believes that the EIS does not provide a substantial purpose and need for lethal deer removal under current NPS management philosophy and guidelines. With little evidence to suggest that deer have truly altered this ecosystem and prevented its perpetuation, it is incumbent upon the NPS to justify the killing of native wildlife in the absence of sustained threats to the CATO ecosystem.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40344 **Organization Type:** Conservation/Preservation
Representative Quote: The lack of information also weakens the alleged purpose and need for the proposed action since the alleged need cannot be justified based on the existing data.

RESPONSE: The plan/EIS has a clearly stated purpose and need, and specific objectives (plan/EIS, pages 3-5), which define the desired goals of the plan, and which can be met by both lethal and non-lethal means (plan/EIS, Table 7, pages 79-81). Data supporting the need for the action are included in the plan/EIS, pages 16-18 as further discussed under Concern ID 13834.The park selected a lethal alternative as its preferred alternative (plan/EIS, page 96) because it was the only alternative that fully met all planning objectives (see plan/EIS table 7, page 79), with the most certainty of success and with fewer disruptions to visitor use. As discussed under Concern ID 13823, the NPS Management Policies 2006 do allow for the lethal removal of native wildlife where native ecosystems are impacted, as has occurred at Catoctin Mountain Park and has been detailed in the plan/EIS.

PN9000 - Purpose And Need: Issues And Impact Topics Selected For Analyses

Concern ID: **13846**
CONCERN STATEMENT: One commenter stated that the plan/EIS failed to consider the role of climate and its role in the ecosystem, resulting in a flaw in the plan/EIS.

Representative Quote(s): **Corr. ID:** 24 **Organization:** Animal Welfare Institute
Comment ID: 40364 **Organization Type:** Conservation/Preservation
Representative Quote: Climate data. It is indisputable that climate, and particularly the amount and timing of precipitation, has a direct and significant impact on vegetation productivity. An abundance of timely precipitation can substantially increase primary production thereby supporting a larger number of animals, like deer and other herbivores and omnivores. Precipitation can also affect the abundance and composition of floral species both positively and negatively. Indeed, drought, extreme heat, or even extreme cold can dramatically impact vegetation production, composition, and abundance.

The Draft EIS contains no information about the long or short-term climate trends affecting CMP. There's no data presented on precipitation amounts, type, or timing nor is there any analysis of how precipitation affects the production, abundance, and composition of both woody and herbaceous vegetation in CMP. This deficiency is noticeable since the NPS identifies other factors (i.e., disease, ozone) that adversely impact park trees, shrubs, and other forage species. Considering how climatic variables can impact vegetation production, composition, and abundance, the short and long term ecological implications of a warming climate on forest and forage species, and how habitat productivity directly affects the ability of the ecosystem to sustain wildlife, the lack of climate data and analysis in the Draft EIS is a significant flaw.

RESPONSE: Climate impacts on vegetation vary from season to season and year to year, but are fairly consistent across the park at any given time. Our vegetation monitoring indicates that some of the exclosures have significant regeneration while there is none in the adjacent paired open plot where the climate impacts are the same. The only real difference is the presence or absence of deer.

Similar climate events occur at the nearby Frederick City Watershed, yet 23 out of 31 sample plots had adequate tree regeneration, while only one of 26 at Catoctin had adequate regeneration.

PO4000 - Park Operations: Impact Of Proposal And Alternatives

Concern ID: **13847**

CONCERN STATEMENT: Commenters expressed concern about the costs of implementing the proposed action including how existing staff will handle additional work.

Representative Quote(s):

Corr. ID: 5 **Organization:** *Not Specified*
Comment ID: 39960 **Organization Type:** Unaffiliated Individual
Representative Quote: The park is short staffed, how will the resource management and/or law enforcement staff be able to take on the extra work of handling the contractor, or even worse, doing the herd reduction ourselves?

Corr. ID: 8 **Organization:** *Not Specified*
Comment ID: 39955 **Organization Type:** Unaffiliated Individual
Representative Quote: At a time when the National Park Service is experiencing a continuing budget tightening, the council is concerned about the Park's ability to fully implement alternatives 3, or 2, or 4, for that matter, and the adverse effect of doing so on other programs within the park.

RESPONSE:

The park recognizes that all of the action alternatives will require additional funding in order for them to be fully implemented. The park is going through the NPS budgetary process, by way of an Operations Formulation System (OFS) increase, to receive additional funding for the monitoring and contract amount for the preferred alternative for the full fifteen year plan timeframe. This is viewed as the top priority resource management project by the park. If this increase is not implemented the park will have to consider making staffing workload changes in order to begin implementation of this important project.

SE1000 - Socioeconomics: Guiding Policies, Regs And Laws

Concern ID: **13848**

CONCERN STATEMENT: One commenter question if NPS has a legal responsibility to evaluate impacts to adjacent landowners, stating that NPS does not have the legal authority to do this.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40399 **Organization Type:** Conservation/Preservation
Representative Quote: More fundamentally, the NPS should have included a discussion of whether it has a legal responsibility to address or even evaluate the alleged socioeconomic impacts to landowners adjacent to a park attributable to park wildlife. While the NPS must strive to be a "good neighbor," the NPS does not have the legal authority to lethally manage park wildlife due to alleged impacts to adjacent landowners caused by park wildlife.

RESPONSE:

Per CEQ regulations, NPS has a legal responsibility and the authority to evaluate the cumulative impacts of the proposed action and its alternatives on the affected environment during its decision-making processes. Please see the Cumulative Impacts Analysis Method section of the plan/EIS for more information.

In addition to CEQ regulations, NPS Management Policy guidance (Section 1.6 "Cooperative Conservation Beyond Park Boundaries") encourages the consideration of impacts outside park boundaries, recognizing that parks are "integral parts of large regional environments."

SE2000 - Socioeconomics: Methodology And Assumptions

Concern ID: **13849**

CONCERN STATEMENT: Commenters questioned the data used in the socioeconomic analysis, stating that the analysis relied on regional data and does not discuss any non-lethal methods that adjacent landowners have used to address deer issues. The commenter states that without specific data, the public cannot understand the impact of the proposed action.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40398 **Organization Type:** Conservation/Preservation
Representative Quote: Even if it had this data, it would have to also disclose whether the farmers have attempted to use non-lethal deer control strategies, what techniques have been tried, whether lethal control actions are used, and the total revenue generated by affected farmers so that the public can better understand the degree or severity of the alleged problem, the economic loss, and potential solutions. Similar data should have also been provided for all residential landowners, including both those who have and have not complained about deer impacts to their landscaping efforts. Without such site-specific economic loss data, the NPS reliance on estimates of potential loss of different types of agricultural crops under various hypothetical conditions associated with deer population growth, distribution and movements, and habitat use patterns is completely speculative and may inappropriately and unnecessarily affect public perception of deer. The NPS must not rely on such speculative data to justify the removal of deer from CMP and/or to predict how deer removal may impact local farmers or landowners.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40397 **Organization Type:** Conservation/Preservation
Representative Quote: Socioeconomic impacts. Consistent with its overall efforts to vilify the deer in CMP, the NPS provides evidence of deer impacts to the socioeconomics of the region as a results of alleged damage to agricultural interests and residential landscaping. Very little, if any, of this data is specific to CMP. Rather, the NPS relies on general survey and other data from Maryland generally, Frederick County, and New York. As a result, while the NPS reports that 36.3 percent of lands surrounding CMP are primarily agricultural and that 27.2 percent are residential, Draft EIS at 149, and broadly estimates potential economic losses based on deer impacts, the Draft EIS contain no specific data on crop losses among agricultural producers living adjacent to CMP. Indeed, the only general evidence disclosed of alleged impacts to farmers and residential home owners was from a public meeting held by the NPS though no specific data (number or proportion of affected farmers, landowners or owner-specific economic damage estimates) were disclosed preventing the public from understanding the extent of the concern over deer.

RESPONSE: There are no site-specific data available regarding deer control or crop/landscape loss by or either neighboring farmers or residential landowners; therefore, the analysis relied on generally available research about deer and crop loss in the northeast United States and presented data available from the local county

(Frederick County, Maryland). Basic assumptions about potential economic benefits and costs based on other studies related to deer and crop loss were considered relevant and appropriate to this analysis, particularly since these benefits and losses were not used to justify the removal of deer from the park, but only to identify the potential economic impacts for each alternative based on orders of magnitude. Further, these data were supplemented with antidotal evidence from the Alternatives Development Workshop to confirm that use of data from the local county would be applicable on lands adjacent to the park. As stated in the plan/EIS (page 266) the economic value of crop damage under each alternative could vary substantially from the estimated provided based on a number of factors and the analysis presented was meant to provide a relative measure of impact, not an absolute measure.

One objective of the analysis was to disclose that park actions such as exclosures or removal of deer could result in additional damage to the crops/landscaping of adjacent landowners by eliminating habitat within the park, which might result in deer moving into neighboring properties. As stated in the plan/EIS (page 265) deer in the park have a home range up to 0.5 miles outside of the park, which would include the neighboring property owners. The severity of deer damage to adjacent lands is unknown, although public comments indicate that some damage does occur. Therefore, whether deer would continue to use and/or rely more heavily on adjacent lands under the alternatives is speculative, but was evaluated based on best available data to help determine the level of magnitude impact to adjacent land owners, not to justify the removal of the deer.

SE4000 - Socioeconomics: Impact Of Proposal And Alternatives

Concern ID: **13850**

CONCERN STATEMENT: One commenter felt that the impact analysis for the socioeconomic analysis was not balanced by not considering potential beneficial impacts associated with natural features.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40400 **Organization Type:** Conservation/Preservation

Representative Quote: Even if the NPS can provide a justification for even considering the economic impact of deer on adjacent landowners, its analysis was entirely one-sided in that it only considered the adverse economic impact of deer. The reality is that the park itself, its deer, and other natural features likely provide a significant economic benefit to the region. At a minimum, such beneficial impacts should have been considered in conjunction with alleged adverse economic impacts so that the public could better understand the net economic impact of the park to the region.

RESPONSE:

As the commenter noted, the economic analysis focused on the largely adverse economic costs associated with deer overpopulation to neighboring property owners. The beneficial impacts of natural features related to tourism (including both a healthy deer herd and healthy forest) were addressed in the Visitor Use and Experience section of the document (e.g., plan/EIS, pp. 252-253). However, the socioeconomic impacts of deer management on tourism were considered, but dismissed (plan/EIS, page 31), because any impacts to tourism were expected to be no more than negligible. Although deer viewing plays a role in the attractiveness of the park and therefore to regional tourism, the presence of deer is not the only or the main reason that the majority of visitors come to the park and the surrounding region. Other characteristics or activities of the park (and the region) are more

important to visitors than are deer; these include natural quiet, views without development, viewing native plants and forest, viewing birds, and viewing other native animals (plan/EIS, p.140).

TE2000 - Threatened And Endangered Species: Methodology And Assumptions

Concern ID: **13851**

CONCERN STATEMENT: One commenter stated that in the plan/EIS analysis, the NPS fails to discuss if state law requires the park to manage for the protection and restoration of state-listed species.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40386 **Organization Type:** Conservation/Preservation

Representative Quote: In regard to rare (state-listed) species, AWI supports the protection and restoration of such species but does not believe that lethal deer control is required to achieve such objectives. First, the NPS has failed to discuss whether state law requires it to amend its management practices to protect and restore state-listed species. Nevertheless, all protections possible should be afforded to such species by enclosing individual plants, collections of rare species occurring together, and habitat both occupied and suitable for such species with fencing.

RESPONSE: This discussion is contained in Chapter 4 in the discussion of Sensitive and Rare Species. However for clarification, the NPS does not have a legal obligation to manage for state-listed species. However, it is required by the Organic Act to "conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations." In addition, NPS Management Policies 4.4.2.2 state that "the National Park Service will…manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible.

VE2000 - Visitor Experience: Methodology And Assumptions

Concern ID: **13852**

CONCERN STATEMENT: Commenters noted the natural experience at Catoctin Mountain Park, stating that the natural experience is why visitors come to the park and that this positive natural experience is not thoroughly considered in the plan/EIS.

Representative Quote(s):

Corr. ID: 11 **Organization:** The Humane Society of the United States

Comment ID: 40308 **Organization Type:** Conservation/Preservation

Representative Quote: In discussing the effects on visitors by the preferred lethal control option for deer management at CATO, the EIS states that the resulting forest regeneration activities would offset any negative impacts on visitors from lethal removal of deer (EIS pg 254). We find this statement to be almost delusional. Very few visitors to CATO perceive any forest regeneration problems at the Park. Visitors come to CATO to see and explore nature.

Corr. ID: 11 **Organization:** The Humane Society of the United States

Comment ID: 40314 **Organization Type:** Conservation/Preservation

Representative Quote: The EIS also indicates that deer shooting activities would be conducted in the winter, when the smallest numbers of people visit Catoctin. However, even during the "slowest" months of December and January, an average of about 20,000 people visits the Park (EIS pg 139). This is hardly a negligible number. The EIS severely downplays this potential impact to the natural experience of 10s of thousands of Park visitors.

RESPONSE: In 2002, a visitor study was conducted by the Park Studies Unit, University of Idaho. This study is included in appendix G. More information on this project is available at http://www.psu.uidaho.edu. Two of the survey elements are pertinent to the deer management plan/EIS and are discussed in the EIS on pages 139 – 141. Visitors responding to appropriateness of selected activities indicated "control of white-tailed deer population" as being one of the highest three activities rated as always appropriate. When asked to rate the importance of selected elements in planning for the preservation of the park for future generations, 85 % rated viewing native plants/forest as extremely or very important, and 70 % rated viewing deer as extremely or very important.

The following provides a sample of public comments received during the development of the plan that demonstrate the public's perception of the forest regeneration problem in response to comment 40308 . . . "Very few visitors to CATO perceive any forest regeneration problems at the Park."

1. From the first scoping meeting held November 9, 2004 and available in the Draft Public Scoping Content Analysis Report:

> Comment ID 10559 – It would seem to me that even if Alternative D or E were totally effective in reducing the deer herd to the desired size, the devastation already wrought on the vegetation in the park is so great, that native vegetation will need some help in getting re-established.
>
> Comment ID 10488 – Studies show that 20 deer per square mile reduce forest regeneration and plant species diversity.
>
> Comment ID 10484 – Well nothing was done to my knowledge and now you have watched over 25 years to see the results. The results are not pretty and much has continued to be changed and will continue until the entire forest type has changed over to only plants deer don't like to eat and that's not much.
>
> Comment ID 10522 – I fully agree with the purpose and need as stated in the Scoping report – an effective deer management plan for the park is long overdue and the timely completion of the NEPA process for this action is critical to the health of the Park and its wildlife/vegetation.
>
> Comment ID 10503 – Tree regeneration on land around the park has been adversely affected too; all young oaks are eaten by deer.

2. From the Alternatives Development Workshop held April 20, 2005 and available in the Alternatives Development Workshop Summary Report, June 10, 2005:

> Page 6 General Comment – It is important that we seek to balance the wildlife requirements of diverse species in our National Parks. Deer populations are in no way threatened; bird populations and plant populations are being threatened. I strongly support your efforts to regain balance of our natural habitats and species through a dramatic reduction of

the white-tailed deer population in Catoctin National Park.

Page 6 General Comment – Because the deer herd in the area continues to increase, you are seeing forest regeneration come to a stand still, and farmers are sustaining increasing amounts of crop and fruit tree damage.

Page 10 – I live close to the Park and see much of the same deforestation on my property. The deer population needs to be reduced.

Park visitation is slowest during the winter period and the vast majority of these visitors come on weekends. This is discussed on pages 251-253 of the EIS. Only one of the overnight facilities is open and the occupancy is very low. Traffic on trails is almost non-existent as parking areas close at dusk and several of the park roads are also closed. By conducting the deer reduction activity on winter weekday nights, visitor use interference will be negligible.

The plan/EIS, page 254, does acknowledge the potential adverse impacts to visitors from seeing lethal deer management actions, stating it would be negligible on visitor experience and that any "impacts would be offset by educational and interpretive information which would explain the purpose of the deer management activities(plan/EIS page 255)." The plan/EIS does not state that these impacts would not be perceived because of the educational opportunities, only that the negligible effects would be considered with the beneficial effects. One of the objectives of the plan/EIS is to reach the desired condition of a sustainable eastern hardwood forest with a native and diverse forest structure. The NPS believes that this would enhance the visitor experience of seeing and exploring nature due to the diversity of plant communities that would be present with a reduction in the deer population.

Commenters provided an accurate description of visitors (represented on page 139 of the plan/EIS) during the winter months; however, the plan/EIS, page 251 explains that campgrounds are closed during this time, climbing permits are not issued, and the weather affects picnicking, fish, hiking, and horseback riding. During the time when these activities are not occurring, fewer visitors would be impacted from deer management activities than at other times during the year. The plan/EIS also detailed that sharpshooting would be conducted primarily at night, when the park is closed, and outside developed areas to lessen impacts to winter visitors. Given that these activities would occur during a season and time of day when there are fewer visitors at the park, the NPS feels that the assessment of negligible to minor adverse impacts to visitor use under alternative D is accurate.

VE4000 - Visitor Experience: Impact Of Proposal And Alternatives

Concern ID: **13853**

CONCERN STATEMENT: Commenters stated the implementation of the proposed action would have a negative impact on visitor experience and that this negative impact needs to be realistically depicted in the plan/EIS. Specifically, one commenter expressed concern about the potential for visitors to enter the park during shooting activities and visitors encountering deer burial sites in the park.

Representative Quote(s):

Corr. ID: 11 **Organization:** The Humane Society of the United States

Comment ID: 40315 **Organization Type:** Conservation/Preservation

Representative Quote: Therefore, the HSUS emphasizes that the Final EIS must realistically depict the potential impact of intense lethal control of deer on visitor experience at CATO. The current draft severely downplays these impacts and does not even consider the possibility that visitor numbers may be significantly reduced during the winter months as a direct result of the proposed shootings.

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40318 **Organization Type:** Conservation/Preservation
Representative Quote: The Final EIS must also realistically depict the potential negative impacts that deer shooting would have on visitor experiences at CATO. Assuming that the average visitor is more concerned with forest regeneration than deer, dismissing tens of thousands of visitors as a negligible proportion, and downplaying the negative public perception of killing wildlife on protected lands is profoundly disingenuous.

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40309 **Organization Type:** Conservation/Preservation
Representative Quote: We believe it is safe to assume that the average visitor would be upset if, upon arriving at the Park for a hike, they saw signs indicating it was closed for deer culling. Personal experience has revealed that hikers actively seek out areas that do not have hunting or deer culling so family members and pets can hike without the fear of stray bullets.

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40310 **Organization Type:** Conservation/Preservation
Representative Quote: Related to this, the EIS does not indicate how it plans to ensure that no visitors are in the park while the proposed sharp shooting would be taking place. While it is easy to close parking lots and post signs, it is not as simple to close off foot trails that traverse the park and enter onto adjacent land, most notably Cunningham Falls State Park. Some hikers do prefer to begin their activities around dawn or plan to stop hiking right around dusk.

Additionally, the EIS makes no mention of how deer burial pits may negatively impact visitor experiences to the park. Considering that so many visitors that come to CATO do so to be in nature, it seems highly unlikely that the possibility of seeing or smelling a burial pit or carcasses of deer spread around the park would be appreciated or serve to enhance their experience.

RESPONSE: The plan/EIS does describe the expected impacts of implementing the proposed action under "Visitor Use and Experience," which is detailed under Concern ID 13852, including the impact of visitors being exposed to control activities, as well as visitors not being able to access certain areas of the park because of control activities. Further, concerns regarding closing off areas of the park are addressed in the preferred alternative by conducting activities in the winter and at night, when visitation is lower. Conducting activities at night would prevent those who hike around dusk or dawn from being in the area during management activities. The plan/EIS does not assume that all visitors are more concerned with forest regeneration than deer, but rather considers both of these aspects which are part of the overall natural environment that visitors come to the park to experience. In regards to the potential for visitation to decrease in the winter as a result of deer reduction activities, the plan/EIS did not mention this because it was felt by the

park that the measures put into effect (temporary closures and management activities occurring at night) would limit impacts to negligible to minor levels, and this would not create a noticeable decrease in visitation.

Safety concerns for visitors related to deer management activities are described in the plan/EIS, starting on page 257. As stated in this section, the park would consider visitor use areas when placing exclosures for removal activities, thereby reducing the possibility of visitor conflicts. Further, visitors would not be permitted in the exclosures to prevent any visitor safety issues.

The effects of waste/and or carcasses of shot deer on the visitor experience in the park are discussed in the plan/EIS, page 252. As the preferred method of disposal would be by donation, the number of carcasses disposed of by burial would be minimal. Further, deer burial pits would not be located near trails or in other visitor use areas. Every effort would be made to cover these as soon as possible, reducing the likelihood that a visitor would encounter them. Throughout the year, deer die at Catoctin from several causes. The carcasses are generally left in place to recycle through the ecosystem. Visitors encounter these dead deer and have never reported this to be a problem.

VR2000 - Vegetation And Riparian Areas: Methodology And Assumptions

Concern ID: **13854**

CONCERN STATEMENT: Commenters stated that the impact analysis in the plan/EIS did not, in enough detail, look at edge effects on vegetation, the successional stage of the park, fire suppression in the park, or other factors that could impact vegetation in the park such as disease or insects.

Representative Quote(s):

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40293 **Organization Type:** Conservation/Preservation
Representative Quote: There has been no detailed analysis on the edge effects at CATO nor the influence of human land use practices on the existing forest habitat. Considering the high human population density in the areas near the Park and the presence of surrounding farmlands, it is safe to assume that edge effects are having a major impact of the vegetative communities in the park.

Corr. ID: 11 **Organization:** The Humane Society of the United States
Comment ID: 40296 **Organization Type:** Conservation/Preservation
Representative Quote: Another factor which is seldom considered when assessing the plant species composition in forests with deer herbivory is the successional status of that particular forest. Research has shown that plant species diversity is higher in primary forests than in secondary forests regardless of the herbivory regime.(10) As the forest of CATO has been cleared in the past, it is secondary forest and, therefore, will not attain the levels of species diversity found in primary forests regardless of the herbivory regime.

Simulation models based upon field data have also shown that even at the most intense levels of deer herbivory, forest succession may slow down, but final forest composition is the same as would be found in unbrowsed areas.(11) In other words, while deer herbivory may influence plant species composition especially in mid-successional stages, a browsed forest will attain the same climax community as a completely unbrowsed forest over the long term.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40384 **Organization Type:** Conservation/Preservation
Representative Quote: Beyond these concessions, however, the NPS fails to discuss the relationship between these impacts and deer on CMP vegetation and/or how it can distinguish between a lack of forest regeneration caused by disease or insects versus deer. Indeed, without the disclosure of vegetation monitoring data, it is impossible for the public to determine what species are being most dramatically impacted by deer and/or if there is evidence available to distinguish between deer, disease, and insect impacts to native trees and other vegetation.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40385 **Organization Type:** Conservation/Preservation
Representative Quote: The NPS also concedes that the suppression of fires within CMP will adversely impact the health of fire-dependent vegetative communities like those that exist within CMP. Though natural fire frequency within CMP is estimated to occur within intervals of 6 to 20 years, Draft EIS at 24, current policy is to suppress fires. Draft EIS at 25. As a result of suppression over the past 60 years, there has been a dangerous buildup of a fuel load containing dead trees and limbs posing a serious threat to the remaining vegetation as a result of a particularly hot fire. The NPS claims that prescribed burning may be used as a management tool in the future but fails to disclose a burning schedule. The NPS also fails to consider the lack of fire in conjunction with disease, insects, and deer in determining the proportional impact of each on vegetation production, abundance, and composition.

RESPONSE:

Catoctin Mountain Park understands the successional history or natural development of the forest since the loss of the forest canopy through logging for charcoal and railroad tie production and agricultural clearing. The land has a long history of use and has a third cut-over forest with an average tree age of around 70 years. Through ecosystem management, Catoctin Mountain Park protects the natural processes and functions of the forest appropriate to its successional stage. One of the most important processes is forest regeneration.

Complex spatial patterns exist within Catoctin's current forest communities not only because of different disturbances that have occurred and continue to occur such as microbursts and tornados, but also because of the different environmental gradients and the geologic substrates beneath the forest.

Forest dynamics are influenced by disturbances that may affect individual trees or entire stands. These disturbances include insect outbreaks like the nonnative gypsy moth defoliation and hemlock wooly adelgid decimating the hemlocks, resulting in mortality. The entire forest is affected by deer overabundance, causing the loss of almost two decades of tree regeneration, shown by the permanent plot data (1990-present) and the significant change in species demonstrated by the paired plot (fenced and open plots) data. These accurate field data show that a critical life stage--the seedlings--for the forest is missing due to deer browsing.

Assessment of this advance regeneration includes counts of both seedlings and sprouts. Adequacy of regeneration of a forest is estimated by counting seedlings of various heights, diameters, or basal areas in a series of plots (Wenger 1984; Wenger, K. F. ed. 1984.Forestry Handbook. 2nd ed. Wiley, NY.). Adequate regeneration is defined as some proportion of plots (e.g., 61-100% (McWilliams 1992, Wenger 1984) [McWilliams, W. H. 1992. Forest Resources of Alabama. Resource Bulletin SO-170. U.S. Forest Service, Southern Forest Experiment

Station, New Orleans, LA].) in which counts or sizes are at or above a threshold determined from similar regenerated forests.

McWilliams et al. (1995; McWilliams, W. H., S. L. Stout, T. W. Bowersox, L. H. McCormick. 1995. Adequacy of advance tree-seedling regeneration in Pennsylvania's Forests. J. Appl. For. 12:187-191.) examined forest re-growth in the presence different levels of deer herbivory. Based on this work, Stout (1999) formed a series of recommendations for Cuyahoga National Recreation Area (Cuyahoga), which were followed and reinterpreted for Catoctin (Table A). While ecological histories may differ, there are many similarities between Cuyahoga and Catoctin. For Catoctin's plots, Stout recommends that 67% of the plots have counts at or exceeding 153 seedling/sprouts for high deer density conditions, and 51 seedlings/sprouts for low deer density conditions (Table B; from Stout, S. L. 1999. Assessing the adequacy of tree regeneration on the Cuyahoga Valley National Recreation Area: A literature review and recommendations. Unpublished report. USDA Forest Service, Northeastern Research Station, Irvine, PA.). The proportions are slightly variable (6.7-11.1) but consistently much lower than the recommended 67%.

A. Recommendations for minimum number of seedlings per plot

	Stout/Cuyahoga-recommended threshold	Stout
Deer Density	1 m radius plot= 0.00031416 ha	Total # seedlings/ ha
Low	10	31830.9
High	30	95492.7

ha = hectare (about 2.47 acres)

B. Recommendations converted to Catoctin plot sizes

	Stout threshold recalculated for Catoctin	
Deer Density	4 (2m x2m) sampling plots = 16m2 = #/.0016 ha	Total # seedlings /ha
Low	50.9	31812.5
High	152.7	95437.5

Therefore, at Catoctin, the threshold selected for the anticipated deer density conditions was 51 seedlings per open plot.

Every disturbance has different levels of effects on the forest structure and composition, leaving a mosaic of forest conditions. The forest must have the resilience and capacity (i.e., seedlings) to regenerate itself. While some plant communities may be in a stem exclusion stage, others are in a re-initiation stage, but in Catoctin Mountain Park, there are few to no seedlings to recruit.

Edge Effects

The forest edges are zones influenced by more open areas with shorter plants and differences in light, water, and nutrients compared to the surrounding forest. The size of a forest area that is influenced by edge varies by site. Edge exists within the forest as gaps.

Animals use the forest edge for protection and browse younger growth for food, reducing the number of young trees along the edge (Leopold, A. 1932. Game Management. Charles Scribner's Sons). It is well demonstrated in the literature how animals modify the conditions within the forest edge. Animals change the number and species of trees growing along the edges by distributing seeds in feces and fur, and through browsing, animals reduce the numbers of all species (Oliver, C.D. and B.C. Larson. 1996. Forest Stand Dynamics. John Wiley & Sons, Inc. p.327.)

Intense browsing by white-tailed deer have affected Catoctin's forest stand development, which is demonstrated by the permanent plot data, showing insufficient tree seedling recruitment and changes in forest age structure. The significant decline in tree regeneration for all species is evidence of the profound impact that deer overabundance has on Catoctin's forest.

A gradient of environmental conditions exist moving from the forest edge into a disturbed opening. Right at the edge, trees may blow over or expand root growth and produce large crowns. Regeneration follows a disturbance because of favorable microsites and the proximity to seed source. New trees initiate in the edge area around a disturbance because of the increased light and root area availability, and because less harsh environmental conditions exist at the edge compared to the open area. Seeds are the most susceptible life stage and seedlings the second.

During the years that drought occurs, fewer seeds germinate for all species. However, deer browsing accelerates the rate of decline of plant populations (Rooney, T. P. and K. Gross 2003. A demographic study of deer browsing impacts on *Trillium grandiflorum*. Plant Ecology 168:267-277.)

Fire

Fire has not had a significant effect on the forest at Catoctin Mountain Park since the park became a Recreation Demonstration Area in 1932 and records began to be kept. "Records exist of 13 fires from 1936 through 2003. Most of the fires have been caused by human carelessness." (Fire Management Plan for Catoctin Mountain Park 2004). Naturally caused fires, such as those started by lightening, are very rare. Very little is known about fire dependent plant species at Catoctin.

"Fires within the hardwood forests are generally restricted to surface fuels, and consume leaf litter and branch wood. Under most conditions, such fires are of low intensity and short duration."(Catoctin Fire Management Plan 2004) These types of fires should not have drastic effects on the survival of the tree species that are dominant in the overstory because mature trees should survive in most cases, ensuring the seed source.

"According to studies conducted by Pennsylvania State University (Abrams 1992), fire plays a significant role in development of oak forests. Relative to other hardwoods, fire favor oaks because of their thick bark, sprouting ability, resistance to the rotting after scarring, and the suitability of fire-created seedbeds for acorn germination. Periodic fire will check succession in oak forests because most successional species, such as maple, exhibit low resistance to fire." (Catoctin Fire Management Plan 2004)

However, the intent of the park is not to perpetuate a dominant oak forest. The main concern is the maintenance of a forest made up primarily of native tree species. One objective stated in the White-tail Deer Management Plan emphasizes

that Catoctin Mountain Park must ensure tree regeneration sufficient to reach the desired condition of a sustainable eastern hardwood forest with a native and diverse forest structure.

Abrams, M.D. 1992. "Fire and the Development of Oak Forests." *BioScience* 42:346-353.

Concern ID: **13855**

CONCERN STATEMENT: Commenters stated that the analysis of the impact of deer on park vegetation was inadequate because the methodology behind the vegetation monitoring plots was not provided including selection of the location of monitoring plots and the method in which various data were collected. Further, commenters stated that the document lacks data related to vegetation abundance, composition, or production and in fact, it may be interpreted in some areas that there are not negative impacts. The commenters felt that these data were necessary for the public to fully understand the impact of the proposed action.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40382 **Organization Type:** Conservation/Preservation
Representative Quote: This data deficiency is particularly alarming considering that the NPS cites several studies that reportedly documented a tree or other vegetation decline within CMP. See Draft EIS at 106. The NPS provides no explanation for why it chose not to present all of its vegetation monitoring data in the Draft EIS. Instead, the NPS apparently prefer that the public simply believe its interpretation of the studies and data instead of providing proof of such vegetative impacts in the form of monitoring data. Interestingly, though the NPS failed to disclose vegetation monitoring data, it did include water quality data in the Draft EIS (see page 115) suggesting that the NPS cannot possibly claim that disclosure of the vegetation monitoring data would be too difficult for the public to understand.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40378 **Organization Type:** Conservation/Preservation
Representative Quote: While the NPS vegetation study findings are not surprising, the NPS failed to disclose the methodologies used by the NPS in establishing its vegetation monitoring plots and the methodologies used in the vegetation monitoring studies conducted in CMP. There is no explanation, for example, of how the NPS selected locations for the vegetation monitoring plots and deer exclosures. What are the characteristics of each sites (i.e., soil type, species diversity, canopy cover, slope, aspect, leaf litter depth, presence of exotic species, precipitation patterns)? Without disclosing that type of information for each monitoring plot or exclosure, it is difficult for the public to determine if such sites are appropriate for conducting long term monitoring of the vegetation in CMP.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40381 **Organization Type:** Conservation/Preservation
Representative Quote: There is, however, evidence to suggest that maybe the situation is not as dismal as purposefully portrayed by the NPS. For example, on page 19 of the Draft EIS the NPS reports that "in general, plant diversity was higher within exclosures than in the paired plots outside the exclosures" suggesting that there may be some data that are not consistent with this general observation. Similarly, on page 139 of the Draft EIS, the NPS reports that deer browsing has decreased the flower bloom in some areas of the park suggesting that flowering plants may be holding their own in other areas of the park even though, using the NPS deer density estimates, the deer population is well above what the NPS deems

desirable.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40379 **Organization Type:** Conservation/Preservation
Representative Quote: In addition, the NPS failed to explicitly disclose the methodologies used to monitor species presence, absence, production, and abundance at each monitoring plot or exclosure. The Draft EIS, for example, contains some data on forest regeneration or lack thereof but there's no explanation as to the methodologies used to collect such data except for a minimal description of how seedlings 10-60 inches in height are sampled in the park. Draft EIS at 333. Suspiciously, though the NPS claims that deer are adversely impacting herbaceous vegetation, there is a lack of data about herbaceous vegetation in the Draft EIS.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40380 **Organization Type:** Conservation/Preservation
Representative Quote: Indeed, other than including a 1985 summary of browsing impacts to Catoctin vegetation in Appendix A, the NPS fails to present any other data (except for some limited and general forest regeneration data) pertinent to vegetation abundance, composition, or production in the Draft EIS. The evidence that it does present generally consists of quotes from research papers or broad statements suggesting the deer are eating everything in the forest. Without the disclosure of both the methodology used in each study and the resulting data, the public has no way of verifying such statements.

RESPONSE: The location of the plots was determined through a randomized block design using differences in underlying geology and vegetation cover types. Methodology for the monitoring the vegetation plots is based on the Gerald Storm and Anthony Ross "Manual for Monitoring Vegetation on Public Lands in Mid-Atlantic States." The field procedures (split panel rotation) carried out for the vegetation plots and the number of seedlings recorded in 2004-2006 has been added as an addition to Appendix F.

Concern ID: **13856**
CONCERN STATEMENT: One commenter stated that the plan/EIS does not evaluate all the factors potentially impacting vegetation such as climate change, visitor use activities, etc, and state that these and other factors could be contributing to species decline beyond the impact of deer.

Representative Quote(s): **Corr. ID:** 24 **Organization:** Animal Welfare Institute
Comment ID: 40383 **Organization Type:** Conservation/Preservation
Representative Quote: The NPS claims that park staff has noted evidence of deer browsing impacts since the 1980s, Draft EIS at 104, and that foliage damage and impacts on plant reproductive success have been identified for 24 plant species. Draft EIS at 104. It relies extensively on Langdon (1985) to suggest that such browsing impacts can impact plant reproduction, alter species composition, and cause the extirpation of palatable yet uncommon species in the park. Draft EIS at 105. The NPS goes on to claim that a comparison of vegetation surveys from the 1970s with a survey conducted in 1992 revealed that at least 12 species had been reduced or eliminated from the park. What the NPS doesn't discuss is what role other factors (i.e., plant disease, soil health, other herbivores, pollution impacts, climate change, visitor use activities, suppression of fire) may have played in leading to these alleged declines or local extirpations. In addition, the NPS has not disclosed whether any of the alleged extirpated species have been identified in the existing deer exclosures, and how the methodologies of any studies conducted to

measure presence/absence or trend in plant species may have differed thereby affecting the study results and whether such results could be legitimately compared with the results of other studies.

RESPONSE: See comments for concern #13846 related to climate impacts. The EIS (pages 21-25) recognizes and discusses several other impacts to park vegetation such as insects and disease, fire impacts, and invasive exotic plants. Visitor impacts are not considered significant since they are mostly confined to the developed areas, which comprise less than 10 % of the park.

VR4000 - Vegetation And Riparian Areas: Impact Of Proposal And Alternatives

Concern ID: **13857**

CONCERN STATEMENT: Commenters stated that the analysis of vegetation impacts in the plan/EIS needs to consider forest health into the future, and only use lethal control if there is an eminent threat.

Representative Quote(s):

Corr. ID: 11 **Organization:** The Humane Society of the United States

Comment ID: 40297 **Organization Type:** Conservation/Preservation

Representative Quote: Based upon these findings, it is the Final EIS must explain how deer herbivory will affect the health and continued survival of the forest into the future. If the Park cannot do so, it will seriously call into question the purpose of this lethal control in the absence of eminent threats to any aspect of the CATO ecosystem.

RESPONSE: The consensus of the science team is that the large deer population at Catoctin is an eminent threat to the regeneration of trees. The EIS addresses the use of adaptive management for the management of white-tailed deer at Catoctin Mountain Park. Adaptive management at Catoctin will involve the continual monitoring, through vegetation plots, of the survival of tree seedlings and monitoring of the deer population. When sufficient survival of tree seedlings is taking place it will be assumed that the deer population is low enough to allow for tree regeneration. Any lethal actions would be suspended until such time as the seedling level again drops below the threshold. This is discussed in the EIS in chapter 2 under the section entitled “Deer Density Goal and Threshold for Taking Action Under Alternatives B, C, and D” and “Adaptive Management Approaches Included in the Alternatives.” See also Appendix F and Concern ID: 13855.

VS4000 - Visitor Conflicts And Safety: Impact Of Proposal And Alternatives

Concern ID: **13858**

CONCERN STATEMENT: Commenters expressed concern with the use of guns in the park and the safety of visitors, particularly expressing concerns about stray bullets.

Representative Quote(s):

Corr. ID: 6 **Organization:** *Not Specified*

Comment ID: 39947 **Organization Type:** Unaffiliated Individual

Representative Quote: You hire sharpshooters who are shooting high powered rifles still with the possibility of a miss and who knows where that bullet is going to go when they do miss.

RESPONSE: The NPS recognizes the potential for visitor safety concerns due to the use of

sharpshooting in the park. Potential impacts and safety precautions are addressed in the plan/EIS pages 258 and 259 and further detailed under Concern ID 13853. Shooting would take place only at close range over bait piles, away from park boundaries, and at night. The area would be closed to visitors. Based on the extent of safety measures that would be implemented during sharpshooting and past experiences at other parks using this method, it is expected that no discernable effects to visitor safety would occur, including the possibility of stray bullets.

VU2000 - Visitor Use: Methodology And Assumptions

Concern ID: **13859**

CONCERN STATEMENT: One commenter stated that in order to take lethal control actions, the NPS must show that deer are detrimental to public use of the park. The commenter did not feel like this was proven in the plan/EIS.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40390 **Organization Type:** Conservation/Preservation

Representative Quote: Visitor use: As previously stated, the NPS Organic Act makes clear that the Secretary only has the discretion to approve the destruction of an animal in a park when that animal is determined to be detrimental to the use of the park. Thus, the approve lethal deer control within CMP, the NPS must prove that deer are detrimental to public use of the park. The NPS has provided no evidence that deer are indeed detrimental to public use of the park.

RESPONSE: The scientific studies conducted by NPS to support the analysis in the plan/EIS show that as long as the deer population remained high or continued to increase, tree regeneration would not be sufficient to reach the desired condition of a sustainable eastern hardwood forest with a native and diverse forest structure. Catoctin's properties were acquired with stipulations for the conservation of natural resources, specifically reforestation and forestation and the park is required by this original legislation to protect reforestation processes. NPS believes the scientific studies coupled with the requirements of the park's legislation establish the detriment to the park required by 16 U.S.C. § 3.

Concern ID: **13860**

CONCERN STATEMENT: Commenters questioned the analysis of visitor use stating that the conclusions are misleading regarding deer in the park and that by not including the survey in the plan/EIS, the public cannot determine the objectivity of the survey. Commenters further questioned how survey questions were worded and how that wording may have impacted the analysis and interpretation of the survey results.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40391 **Organization Type:** Conservation/Preservation

Representative Quote: In other words, 89% of CMP visitors ranked viewing deer as moderately to extremely important. Finally, 97% of CMP's visitors ranked viewing native plants was moderately to extremely important. Draft EIS at 245. Though visitor use surveys are notoriously unreliable in accurately predicting public preferences, interestingly the NPS did not include a copy of its survey as an appendix to the Draft EIS preventing the public from determining the objectivity of the survey questions and, therefore, the accuracy of the survey results.

Nevertheless, the NPS attempts to use the statistics obtained through its visitor use survey to identify the percentage of visitors likely to be adversely impacted if the

NPS selects a no killing alternative. This is simply inaccurate and represents an act of statistical game-playing by the NPS in its attempt to vilify deer to generate increased support for its proposal. Since the NPS never apparently polled its visitors about their opinions about deer, the alleged impacts of deer on forest regeneration, or the alleged impacts of deer on other species, it can't make any presumption about how its visitor opinions or visitor use patterns will change depending on what alternative it selects.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40392 **Organization Type:** Conservation/Preservation
Representative Quote: Interestingly, though the NPS reports that controlling the deer population was one of three management activities that received the highest "always appropriate" rating by visitor groups, Draft EIS at 140, the NPS did not disclose the actual survey data on this question nor did it disclose the actual content and context of the question. For example, it is not known if the deer control question referred to lethal or non-lethal management. As a result, it is impossible for the public to understand how visitors may have interpreted this question and, in turn, what the "always appropriate" determination may mean in regard to deer management within CMP. Moreover, the NPS apparently never asked a visitor whether he/she would continue to visit CMP if bird numbers declined, there was little evidence of forest regeneration, or if there was a reduction in the number of density of spring flowers.

RESPONSE: In 2002, a visitor study was conducted by the Park Studies Unit, University of Idaho. More information on this project including the methodology is available at http://www.psu.uidaho.edu. This survey was not part of the deer management planning effort and was never intended to address all of the specific questions that have been raised by the commenters. The pertinent questions and results will be included in the final EIS as Appendix G and referenced on page 140.

Concern ID: **13861**
CONCERN STATEMENT: One commenter stated that the analysis does not consider the upward trend in visitation, and the impact of the outdoor experience on visitor use trends.

Representative Quote(s): **Corr. ID:** 24 **Organization:** Animal Welfare Institute
Comment ID: 40393 **Organization Type:** Conservation/Preservation
Representative Quote: Thus, even if the deer population was to increase and if it adversely impacted forest regeneration, the NPS has no evidence to suggest that this would alter public use of CMP. Indeed, if anything, the fact that visitor use of CMP has trended upward with an increase in visitation by 35.7% in 2003, another increase of 12.6% in 2004, and is predicted to continue to increase by 3 percent each year, Draft EIS at 247, would suggest that that CMP visitors are more interested in an outdoor experience in a national park with the opportunity to observe wildlife in a natural setting subject to natural ecological processes than they are in avoiding such visits because of alleged deer impacts.

RESPONSE: The public use of Catoctin is driven by many factors. A survey of visitors ranked these experiences, the results of which can be found in the plan/EIS in table 19, page 140. Based on the visitor use survey, viewing native plants and Catoctin's forest was important for 97% of visitors, with 67% rating this as extremely important, while 46% rated viewing deer as extremely important. It is therefore not unreasonable to assume that continued impacts to the forest would adversely affect visitor experience in the park, even if use continues to increase.

WH2000 - Wildlife And Wildlife Habitat: Methodology And Assumptions

Concern ID: **13862**

CONCERN STATEMENT: Commenters questioned aspects of the methodology used to determine impacts on wildlife and wildlife habitat including not providing the assumptions and uncertainties regarding herd reproductive rates and the inclusion of additional information such as predator surveys.

Representative Quote(s):

Corr. ID: 2 **Organization:** Quantico Orienteering Club, Inc.
Comment ID: 39970 **Organization Type:** Recreational Groups
Representative Quote: We suggest that wildlife biologists be consulted, if this has not already been done, regarding the desirability of conducting annual or biannual surveys of bear and bobcat densities in CMP, beginning before deer management activities commence, in order to support potential future studies assessing correlations between those activities and changes in the densities of these predator species.

Corr. ID: 8 **Organization:** *Not Specified*
Comment ID: 39954 **Organization Type:** Unaffiliated Individual
Representative Quote: While favoring alternative 3, the council
believes the EIS fails to provide an adequate analysis of the assumptions and uncertainties regarding herd reproduction rates and the effect of those uncertainties on the anticipated
magnitude of herd reduction over time, and its costs.

RESPONSE:

The size of the territory for bear (7-15 square miles), winter territory for bobcat (9-20 square miles), and male coyote (8-16 square miles) are generally larger than the size of the park (9 square miles). Summer territory of bobcats (0.15-0.35 square miles) and average female coyote territory (3-3.9 square miles) are smaller than the size of the park (Whitaker, J.O. and W.J. Hamilton. 1998. Mammals of the eastern United States. Cornell University Press, Ithaca, NY. 583 pp.). While these species may occasionally take fawns and may have had some part in the recent decrease of deer density in the park, it is also likely that the diminished carrying capacity of the park's forested habitat and the larger number of deer that can be taken during the hunting season outside of the park's boundary also acted to decrease the density of deer in the park. Deer densities still remain 4 times higher than the recommended density for eastern forests.

39954

Other NCR parks with deer overpopulation problems continue to report occasional sightings of does with triplets. Given that deer reproductive rates may increase if deer management takes place since there will be less competition for resources, we expect deer reproduction will continue as it normally does. Reproductive rates will also be affected by habitat conditions outside of the park which are likely to be more favorable than within the park.

Concern ID: **13863**

CONCERN STATEMENT: Commenters stated that the methodology for conducting deer density surveys did not provide an adequate explanation of deer population numbers, density estimates, and counting methodology. They further questioned the change in surveying methodology in 2001, stating that the switch to spotlight surveying introduced error

from sampling methods. Commenters asked that the NPS provide a more substantive explanation about the methodology, benefits, and drawbacks of the deer surveying methods used to determine the impact of the proposed action.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40365 **Organization Type:** Conservation/Preservation
Representative Quote: Deer population numbers, density, and counting methodology: If the NPS selects and implements Alternative C it estimates that it will kill 1518 to 2118 deer over the lifetime of the 15 year plan. This would include the killing of 468 deer within the first three years of the plan so that the NPS can reduce deer density in CMP from 104 to 15-20 per square mile to ostensibly achieve its goal of forest regeneration. While the legitimacy of the estimated deer density needed to achieve forest regeneration and the relevance of the forest regeneration objective in light of NPS policies will be discussed in detail below, the NPS has failed to disclose sufficient data or provide an adequate explanation to justify its deer population numbers, density estimates, and it deer county methodology.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40372 **Organization Type:** Conservation/Preservation
Representative Quote: If the NPS intends to rely on these deer density estimates to justify its proposed management actions, it must provide a far more substantive explanation about this methodology, its benefits, its drawbacks, and why the NPS chose to use this particular technique to count its deer. Moreover, the NPS must explain whether the practice of conducting deer surveys in CMP along park roadways results in a bias in the deer density estimates, if the NPS corrects for that bias, how it corrects for that bias, or, if there is an inherent bias and the NPS ignores it, why it fails to take this flaw into consideration. Until and unless the NPS engages in this type of analysis, it must select non-lethal strategies (i.e., Alternative B) to manage the park's deer population.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40370 **Organization Type:** Conservation/Preservation
Representative Quote: The NPS fails to provide any rational explanation for its decision to switch deer counting methodologies in 2001 from the use of aerial censuses to distance sampling/spotlight surveys except to claim that the distance sampling/spotlight survey methodology is more accurate. Draft EIS at 117. Since the distance sampling/spotlight surveys significantly increased the estimated deer density and population numbers over the results obtained from the aerial census methodologies, the NPS has to provide some explanation for why it chose to change methodologies, the differences between the two methodologies, and whatever assumptions or inherent to both methodologies and whether they were or were not met. In 2000, for example, the NPS counted 312 deer during an aerial census in the winter yet in the spring of 2001, based on the density estimate obtained from the distance sampling/spotlight survey, a total of 1338 deer were estimated to live in CMP. Similarly, in the fall of 2004 an estimated total of 945 deer were estimated to live in CMP based on the deer density estimate obtained that fall while a few months later only 128 deer were counted during an aerial census. With these data, either the aerial census methodology significantly underestimated the deer population or the distance sampling/spotlight survey methodology significantly overestimates the deer population.

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40371 **Organization Type:** Conservation/Preservation

Representative Quote: Based on a description of the distance sampling/spotlight survey methodology given in Appendix F, there is ample reason to believe that this methodology is significantly flawed and has resulted in an overestimate of the size of the park's deer population. The information in Appendix F indicates that this methodology relies on a three person team who drive survey routes after sunset to count deer. When deer are encountered, the distance to the original location of the deer or group of deer is determined using a laser rangefinder. This methodology raises a number of concerns. First, can laser rangefinders provide accurate distance estimates in the dark particularly if the deer have moved and can no longer be used as the target for distance measurement? Second, how does the non-random use of roads or other trails passable by vehicle bias or influence the results of this methodology. Even the NPS concedes that studies have the use of roads presents a "risk of bias from unrepresentative sampling of available habitats" (citing Buckland et al. 2001; Hiby and Krishna 2001) and that few studies have been conducted to determine whether such bias exists when roads are used for sampling. Though the NPS did not disclose what CMP roads were used for counting deer using this methodology, since deer tend to be attracted to road shoulders because of the availability of increased vegetation along roadways, this methodology could easily and substantially overestimate deer density and, subsequently, deer population size.

RESPONSE:

In May of 2000, the Catoctin deer advisory committee evaluated the monitoring methods and overall management concerns related to deer and park vegetation. The aerial deer survey data and the original spotlight survey data were determined to represent indices of relative abundance, but not population density measurements. Distance sampling was recommended as the best method for determining population density at Catoctin Mountain Park and this was set up for use beginning in 2000.

The aerial surveys were based on stratified random sampling, where there are a number of blocks of area that can be chosen at random to be surveyed. Catoctin had three of these blocks but they were all surveyed the same day so the surveys were not random but analyzed as if they had been. Also, the repeated circular flight pattern flown within each block is not standard protocol for aerial surveys.

Distance Sampling may fail to detect 60-90% of the objects of interest in the survey plots and still obtain accurate estimates of population density (Buckland et al. 1993, page 19). The detection function algorithm calculates the probability of detecting an object at a given distance, provided that the 3 assumptions of Distance are met. These assumptions are that animals are detected at their initial location, the distances to the animals are exact, and that all animals on the survey line are detected. Distances to the animal's initial location are measured by laser rangefinders. The accuracy of the rangefinders is checked before the fall surveys begin. Driving speeds are kept below 10 miles per hour to increase the chances of finding deer away from the road as well as to detect deer that are on the road. The driver uses high beam headlights to see deer on the road.

At least three consecutive surveys are run and if one of several benchmarks (coefficient of variation, detection variation, and chi-square analysis of model fit) are not met then additional surveys are run until all are met. Surveys are not conducted if conditions for observing deer (fog, rain, snow, wind chill temperatures below 25) exist or if weather conditions deter deer movement (several inches of snow on the ground or winds approaching 20 miles per hour).

Collier et al. (2007) found that uncorrected spotlight counts failed to detect 44% of deer groups relative to thermal imaging and they recommended that thermal image surveys would be an improvement over uncorrected spotlight counts as indices when surveys are being conducted from roads instead of a probabilistic sampling scheme. Roberts et al (2006) found that spotlight surveys underestimated the number of deer groups by 45 % when compared to infrared digital camera systems. Distance Sampling modeling accounts for those missed deer for a fraction of the cost of purchasing thermal imagers or infrared digital cameras.

Bill McShea of the Smithsonian Institution has used digital cameras placed at random distances to the roads used in deer surveys at Catoctin. He could not find any significant differences in the number of deer detections by cameras placed 0-10, 10-50, 50-100, and 150-200 meters from the survey route. Therefore, deer are not avoiding the roads nor are they being attracted to the roads.

Buckland, S.T., D.R. Anderson, K.P. Burnham, and J.L. Laake. 1993. Distance Sampling. Chapman and Hall, London, reprinted in 1999 by the Research Unit for Wildlife Population Assessment, University of St. Andrews, Scotland. 446 pp.

Collier, B.A., S.S. Ditchkoff, J.B. Raglin, and J.M. Smith. 2007. Detection probability and source of variation in white-tailed deer spotlight surveys. Journal of Wildlife Management 71(1): 277-281.

Roberts, C.W., B.L. Pierce, A.W. Braden, R.R. Lopez, N.J. Silvy, P.A. Frank, and D. Ransom. 2006. Comparison of camera and road survey estimates for white-tailed deer. Journal of Wildlife Management 70(1): 263-267.

Concern ID: **13864**

CONCERN STATEMENT: Commenters questioned the studies used to determine impacts of deer on other wildlife and wildlife habitat, citing studies that found no overall effect to plant survival and reproduction from white-tailed deer and stating that the reported decline in bird species may have been exaggerated. Commenters also questioned the Frederick City Watershed study in regard to ground nesting birds, stating that not enough data were provided regarding that study to draw accurate conclusions.

Representative Quote(s):

Corr. ID: 11 **Organization:** The Humane Society of the United States

Comment ID: 40284 **Organization Type:** Conservation/Preservation

Representative Quote: The reality of the supposed deleterious impacts of deer herbivory has not panned out in the long term. At least one recent review of the literature concerning deer and their impacts on individual plants, their populations, and communities found that there are virtually no studies that examine the plant population and ecosystem level effects of white-tailed deer herbivory. In fact, many studies have detected no overall effects on plant survival and reproduction and so-called negative effects have only been observed on small temporal and spatial scales.(5) Proving that deer do, in fact, eat is a far cry from definitively proving that they are endangering the continued survival of a forested ecosystem.

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40376 **Organization Type:** Conservation/Preservation

Representative Quote: Finally, though the NPS, citing to Warren and Ford (1990), reports that "numerous bird species have already declined significantly in number or vanished from the park because of the effect of overbrowsing by deer on the understory and shrub cover in the forest," it fails to identify what bird species have disappeared from the park suggesting that Warren and Ford (1990) may have

exaggerated their conclusions.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40374 **Organization Type:** Conservation/Preservation
Representative Quote: Indeed, one piece of evidence the NPS points to in regards to its claim that ground nesting birds have declined in the park is a comparative study of CMP and Frederick City Watershed in which the number of bird species observed was higher in the Watershed. Draft EIS at 126. Allegedly the Watershed had a lower deer density and greater forest regeneration though the NPS did not disclose what differences were between the deer densities in the two locations, what level of forest regeneration was measured in the Watershed, the history of the Watershed and of deer use of the Watershed, the presence or absence of tree diseases within the Watershed, the type and density of predators in the Watershed, and what impact edge effects may have on bird species within the Watershed, or whether climatic patterns or soil type/health in the Watershed was more conducive to forest regeneration and forage production. Indeed, the relationship between birds, deer, vegetation, and other factors is far too complex for the NPS to claim that deer density and forest regeneration are the only factors that differ between the two facilities.

RESPONSE: The factors that differ between the Frederick City Watershed and the park are the history of forest management, the history of deer management, and geology/soils.

Regeneration plots were located in GIS-delineated mature chestnut oak stands in both areas. Forest management at the Frederick City Watershed ceased in the early 1990s. Deer have been managed at the Frederick City Watershed since the 1950s. Several hundred deer are removed from the Frederick City Watershed during hunting season. The proximity of the two areas lessens the differences they may have in the level of tree diseases, pests, predators, and climate.

The Frederick City Watershed and the eastern section of Catoctin Mountain Park are dominated by the Weverton quartzite formation. Soils in this quartzite formation tend to be thin and have low nutrient content. The western section of the park is dominated by greenstone, a greenish metamorphosed lava. The soils from greenstone tend be deeper, with more nutrients. With richer soils on the west side, it might be expected that tree regeneration would be greater in the park. However, only one of 26 plots had adequate tree regeneration at Catoctin Mountain Park compared to 23 of 31 at the Frederick City Watershed (NPS-USDI 2005h). Most of these randomly located plots were in the western section of the park.

Deer density at Catoctin Mountain Park in 2006 was 88 deer per square mile. In 2002 the density of deer at the Watershed was 17 deer per square mile. The fall 2002 Frederick City Watershed 95% confidence interval barely overlaps the 2006 Catoctin Mountain Park 95% confidence interval (23.31- 82.88; 78.01 - 104.53). At the time of the 2002 study the deer density at Catoctin Mountain Park was higher and did not overlap with the Frederick City Watershed.

Andy Royle of the USGS-BRD applied a spatial variability model to analyze the avian point count data collected at the Frederick City Watershed and Catoctin Mountain Park in 2002 (Royle et al. 2004). He found that the birds that were more significantly more common at Catoctin Mountain Park were upper canopy nesters such as cerulean warblers (Partners in Flight species of immediate concern) and red-eyed vireos; cavity nesters such as Carolina wrens; and generalists such as titmice, chickadees, robins, and cardinals.

The four species that were statistically significantly more common at the Frederick City Watershed were all warblers. These included the hooded warbler, ovenbird, black-and-white warbler, and worm-eating warbler. The latter two are on the Partners in Flight management concern list. All of them nest on the ground or at heights of less than 4 feet and their habitat is much more impacted by deer than the bird species more commonly found in the park.

National Park Service-USDI. 2005h. Vegetation characteristics and breeding bird densities at Catoctin Mountain Park and the Frederick City Watershed. National Capital Region Center for Urban Ecology. Unpublished report. On file at Catoctin Mountain Park, Thurmont, MD.

Royle, J.A., D.K. Dawson, and S. Bates. 2004. Modeling abundance effects in distance sampling. Ecology 85(6):1591-1597.

Concern ID: **13866**

CONCERN STATEMENT: One commenter stated that the plan/EIS does not provide park specific population data to support statements of species decline in the park and that data trends presented in the plan/EIS are inaccurate.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40389 **Organization Type:** Conservation/Preservation
Representative Quote: Similarly, in its evaluation of Alternative A, the NPS claims that the deer "population would continue to vary depending on conditions; however, the general trend toward increased numbers would continue." Draft EIS at 202. As Table 1 indicates, however, there is no general trend of increase in the deer population as the population size has greatly fluctuated even over the last six years. Such inaccurate statements suggest a bias on the part of the NPS against the deer as it clearly is attempting to mislead the public about the consequences of not selecting Alternative C.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40377 **Organization Type:** Conservation/Preservation
Representative Quote: The NPS fails, however, to provide any CMP-specific population data or trend evidence for any of the species that it claims are being adversely impacted by deer grazing and browsing. If foxes, hawks, owls, and skunks benefit from more open space, data should be presented documenting increases in the number of these species. Similarly, if mice, rabbits, ground-nesting birds, snakes, and frogs have been adversely impacted by deer impacts, data must be presented to substantiate such claims. Moreover, the NPS must also disclose any other factors (i.e., disease, edge effects, climate change, and predation) that may be at play in CMP that may be causing a decline in these species independent of deer. If such data is not available then the NPS cannot use this argument to justify its selection of any alternative that calls for the lethal control of the deer population.

RESPONSE: If no action is taken the deer density will remain well above the recommended level of 15-20 per square mile.

The NPS is not justifying a management action based on the effects of deer herbivory on foxes, hawks, owls, mice, rabbits, snakes, or frogs. Brooks and Healy (1988) found that long-term high deer populations may permanently alter habitat structure to the extent that changes occur in small mammal community composition.

The Service is speculating on the likely effects on these species. The Service has documented scientific evidence about the effect of deer herbivory on ground-nesting warblers in the park (see Concern ID#13864). The Service is justifying its management proposal on the effect of deer on tree regeneration which is a critical ecological process needed to maintain the forested ecosystem within the park.

**The Catoctin Mountain Park and Frederick City Watershed study areas were located close enough to each other so that climate change and predation would not be a factor. Edge effects would be more of a factor at the **Frederick City Watershed where there are more managed openings in the canopy yet deer density was one-tenth of that at Catoctin **Mountain Park in 2002 **(2005h). There have been two herd health checks at Catoctin; neither found any evidence of disease. There have not been any diseases reported from the **Frederick City Watershed.

Brooks, R.T. and Healy, W.M. 1988. Response of small mammal communities to silvicultural treatments in eastern hardwood forests of West Virginia and Massachusetts. Pages 313-318 in Management of amphibians, reptiles, and small mammals in North America. USDA Forest Service General Technical Report RM-166. Fort Collins, CO. 458 pp.

**National Park Service, USDI. 2005h. Vegetation characteristics and breeding bird densities at Catoctin Mountain Park and the Frederick City Watershed. National Capital Region Center for Urban Ecology. Unpublished report. On file at Catoctin Mountain Park, Thurmont, MD.

Concern ID: **13867**

CONCERN STATEMENT: Commenters questioned information in the plan/EIS regarding deer heard heath, stating that a decline in heath is consistent with natural regulation in a national park. Further commenters stated that the NPS has no legal or moral obligation to improve deer health and if this is to be a consideration, the legal rational for including deer health should be provided.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40396 **Organization Type:** Conservation/Preservation
Representative Quote: If the NPS elects to rely on deer health as a justification for selecting a lethal deer control alternative, it must provide a rational explanation for why it believes it is responsible for the overall health of its deer population and how this is consistent with its legal mandates.

Corr. ID: 24 **Organization:** Animal Welfare Institute
Comment ID: 40395 **Organization Type:** Conservation/Preservation
Representative Quote: Deer health. The NPS repeatedly refers to the declining health of the CMP deer population as additional evidence of why it must intervene and significantly reduce deer density and population in the park. The NPS argues the "poor herd health indicates that the habitat has been stressed and is no longer supporting healthy deer." Draft EIS at 118. It could just as easily be argued that the evidence of declining deer health is consistent with the process of natural regulation within a national park. Though the number of deer sampled over the years to assess herd health has been limited, as the overall population has fluctuated over time and as habitat conditions have changed, it is completely understandable that deer herd health would decline and, in time, will improve. This natural process does not require intervention. Rather, it requires patience, persistence, and a commitment by the NPS to comply with its own statutes, regulations, and policies. The NPS is under no legal or moral obligation to improve deer health. Indeed, assuming the

herd health is in decline the NPS should embrace this as a perfect example of how the management of parks is different than the management of other state or federal lands and explain to its visitor why natural regulation is a valid form of management.

RESPONSE: Deer herd health is being described for background information. The primary objective of this action is to ensure forest regeneration to sustain an eastern hardwood forest while maintaining a viable deer population.

However, it should also be noted that deer are a resource of the park that will be impacted by any action taken and therefore should and has been considered in the environmental consequences analysis.

Concern ID: **13870**

CONCERN STATEMENT: C. Other wildlife species. The NPS claims that the deer have adversely impacted both woody vegetation and herbaceous species and that, in turn, other species including foxes, hawks, owls, skunks, raccoons, mice, rabbits, ground-nesting birds (ovenbirds, black-and-white warblers, worm-eating warblers), snakes, and frogs may be beneficially or adversely affected. Draft EIS at 210. Despite these claims the NPS offers no CMP-specific evidence that any of these other species, including species not listed above, are either increasing or decreasing within CMP.

Representative Quote(s): **Corr. ID:** 24 **Organization:** Animal Welfare Institute

Comment ID: 40373 **Organization Type:** Conservation/Preservation

Representative Quote: C. Other wildlife species. The NPS claims that the deer have adversely impacted both woody vegetation and herbaceous species and that, in turn, other species including foxes, hawks, owls, skunks, raccoons, mice, rabbits, ground-nesting birds (ovenbirds, black-and-white warblers, worm-eating warblers), snakes, and frogs may be beneficially or adversely affected. Draft EIS at 210. Despite these claims the NPS offers no CMP-specific evidence that any of these other species, including species not listed above, are either increasing or decreasing within CMP.

RESPONSE: Boone and Dowell (1986) stated that "deer-induced changes in the Park's forest are probably adversely affecting many species of breeding birds such as ground-nesting Ovenbirds, Black-and-White Warblers, and possibly shrub-nesting species as well."

A 2002 study, "Vegetation Characteristics and Breeding Bird Densities at Catoctin Mountain Park and the Frederick City Watershed," (NPS-USDI 2005h) compared Catoctin Mountain Park and the Frederick Watershed. The results of this study indicated that ground-nesting warblers and their habitat (i.e., understory foliage cover, which included all plants, not just tree seedlings) were significantly more at the Frederick Watershed than at Catoctin Mountain Park. There were 1.44 ±0.08 Ovenbirds per census point at the Frederick Watershed compared to 0.65±0.06 per point at Catoctin Mountain Park. Understory foliage cover, measured as the number of stems in each of eight height classes from 0 to 3.0 meter, was significantly different in the following four height classes: 0.1-0.3 meter height class (21.96 average number of stems at the Frederick Watershed and 14.10 at Catoctin Mountain Park ($p = 0.0002$)); 0.3-0.5 meter height class (16.70 average number of stems at the Frederick Watershed and 6.51 at Catoctin Mountain Park ($p = 0.013$); 0.5-1.0 meter height class (17.23 average number of stems at the Frederick Watershed and 6.25 at Catoctin Mountain Park ($p = 0.006$)); and 1.0-1.5 meter height class (14.01 average number of stems at the Frederick Watershed and 8.39 at Catoctin Mountain Park ($p = 0.002$)). The remaining four height classes (0-0.1, 1.5-2.0, 2.0-2.5, 2.5-3.0 m) were not significant.

Royle et al. (2004) used avian point count and vegetation data from the 2002 study to demonstrate a link between habitat structure (such as understory foliage cover) and Ovenbird density. Using understory foliage cover as a covariate (the best model had Akaike Information Criterion = 340.27), they found that Ovenbird density increased with increasing understory foliage cover.

Boone, D. and B. Dowell. 1986. Catoctin Mountain Park Bird Survey 1985 - 1986, U.S. National Park Service. Unpublished report.

National Park Service, USDI. 2005h. Vegetation characteristics and breeding bird densities at Catoctin Mountain Park and the Frederick City Watershed. National Capital Region Center for Urban Ecology. Unpublished report. On file at Catoctin Mountain Park, Thurmont, MD.

Royle, J.A., D.K. Dawson, and S. Bates. 2004. Modeling abundance effects in distance sampling. Ecology 85(6):1591-1597.

WH4500 - Wildlife and Wildlife Habitat: (CATO Deer Herd) Impact Of Proposal And Alternatives

Concern ID: **13868**

CONCERN STATEMENT: One commenter expressed concern about the decline in deer heath and the potential impact it could have on visitor experience.

Representative Quote(s):

Corr. ID: 31 **Organization:** Quality Deer Management Association

Comment ID: 40570 **Organization Type:** Recreational Groups

Representative Quote: In addition to safety concerns, we understand that many segments of the public enjoy watching this highly visible deer population. However, when deer densities surpass the carrying capacity of the habitat, deer and habitat health decline. This situation is neither good for the deer population nor for the habitat or other wildlife species. We feel it is important for the Park administration and the public to be aware of this when considering management options.

RESPONSE:

The primary objective in reducing the deer population is to provide for sustainable forest regeneration while maintaining a viable deer population.

NPS agrees that the habitat and health decline of the deer population is a concern at Catoctin Mountain Park. Chapter 1 of the plan/EIS explains the purpose, need, and objectives of this plan/EIS to support forest regeneration and provide long-term protection, conservation, and restoration of both deer at a healthy population level and other native species in the park. The analysis in the plan/EIS, pages 202-203 and 244-247, discloses impacts that would be expected to both deer and the forest if the deer population was allowed to continue to grow with no additional management. The plan/EIS does find that under the no action alternative (continuation of current management) there would be adverse, long-term major impacts to the health of the deer heard. These impacts contributed to the decision that the no action alternative would not be the preferred or environmentally preferred alternative.

WH8000 - Wildlife and Wildlife Habitat (CATO Deer Herd): Affected Environment

Concern ID: **13869**

CONCERN STATEMENT: One commenter stated that the analysis of deer population numbers should be passed on 2005 densities rather than 2004 for estimates on how many deer would be removed under the proposed action.

Representative Quote(s):

Corr. ID: 24 **Organization:** Animal Welfare Institute

Comment ID: 40388 **Organization Type:** Conservation/Preservation

Representative Quote: Deer population numbers. Throughout the Draft EIS, the NPS repeatedly relies on its 2004 estimated deer density and deer population estimate when evaluating the impacts of its proposed action and its alternatives. For example, the NPS estimates that it may remove up to half of the deer (or 468 deer) in the park during the first year of the proposed kill if the preferred alternative is selected. Draft EIS at 63. These numbers reflect the 2004 deer density estimate of 104 rather than the 2005 deer density estimate of 75 which (assuming the distance sampling/spotlight survey methodology is accurate) corresponds to a park-wide deer population of 676.

RESPONSE: The 2004 numbers were used at the time of publication for baseline purposes and because of the uncertain publication date of the plan/EIS. The plan/EIS has been updated to include estimates from 2005 and 2006.

The results of the 2006 and future surveys will be used to determine the number of removals.

Index A: Index of Authors, Organizations and Codes

ID	Author	Organization	Codes
Conservation/Preservation Organizations			
11	Nolfo-Clements, Lauren	The Humane Society of the United States	AE12000, AL2071, AL2077, AL4014, AL4021, GA1000, MT4000, MT5000, PN5000, PN8000, VE2000, VE4000, VR2000, VR4000, WH2000
24	Schubert, D.J.	Animal Welfare Institute	AE12000, AL2061, AL2100, AL4000, AL4011, AL4014, AL4021, AL4027, GA1000, GA4000, GA5000, MT1000, MT5000, ON1000, PN5000, PN6000, PN8000, PN9000, SE1000, SE2000, TE2000, VR2000, VR4000, VU2000, WH2000, WH4000, WH4500, WH8000, WH9000,
Recreation Organizations			
2	Lennon, Greg	Quantico Orienteering Club, Inc.	AL4021, AL4024, WH2000
7	Reece, Susan	National Rifle Association	AL2041, AL4021, PO4000
8	Gilford, James	Frederick County Sportsman's Council	AL2041, AL4024, PN5000, PO4000, WH2000
22	Cunningham, Ralph	Safari Club International	AL2041, AL2047, AL4000, AL4021, AL4024, PN5000, PO4000
31	Adams, Kip	Quality Deer Management Association	AL2041, AL4000, AL4002, AL4011, AL4024, AL4031, WH4500
Unaffiliated Individuals			
1	Shorb, Tammy	AWL	AL2077, AL5000, AL4027, MT4000
3	Ferendo, Richard		AL2041, AL4021
4	N/A, Jeff		AL4024, MT4000
5	Steintl, Roger		AL4011, PO4000
6	N/A, Dustin		AL2041, VS4000

9	Moore, Eva		AE12500, AL4024
10	Taylor, Andrew		AL2041, AL4024, AL4027
12	Unknown	Maryland Department of Public Safety	AL2041, AL2047, AL4024
13	O'Brien, A.		AL4024, MT1000
14	Kilby, Bill		AL2130
15	Dean, Philip		AL4000, AL4024, MT4000
16	Warrenfeltz, Eldon	West Virginia Air National Guard	AL2041
17	Sullivan, Kevin	USDA, Wildlife Services	MT1000
18	Paul, Ellen		AE12500, AL4011, AL4024, CC1000, MT4000, PN2000, PN5000
19	Unknown		AL4014, CC1000, VS4000
20	Ford, John		AL4024, CC1000
23	Kept Private		AL4014
25	Kept Private		AL4011, CC1000
26	Gertler, Edward		MT4000
27	Hawes, Leeah		MT4000
28	Hawes, Leeah		AL1500
29	Lawhon, Catherine		AL4024, MT4000
30	Moore, Eva		AL1500, AL4024

Index B: Index by Code

Code	Description	Organization	ID
AE12000	Affected Environment: Wildlife And Wildlife Habitat	Animal Welfare Institute	24
		The Humane Society of the United States	11
AE12500	Affected Environment: Wildlife and Wildlife Habitat (Non-Substantive)	Unaffiliated Individual	9, 18
AL1500	Alternatives: Elements Common To All Alternatives (Non-Substantive)	Unaffiliated Individual	28, 30
AL2041	Alternatives Eliminated: Managed Hunt	Maryland Department of Public Safety	12
		National Rifle Association	7
		Quality Deer Management Association	31
		Safari Club International	22
		West Virginia Air National Guard	16
		Unaffiliated Individual	3, 6, 8, 10
AL2047	Oppose Eliminating Managed Hunt	Maryland Department of Public Safety	12
		Safari Club International	22
AL2061	Alternatives Eliminated: Use the Deer Population as a Research Model	Animal Welfare Institute	24
AL2071	Alternatives Eliminated: Surgical Sterilization of Does	The Humane Society of the United States	11
AL2077	Oppose Eliminating Surgical Sterilization of Does Alternative	AWL	1
		The Humane Society of the United States	11
AL2100	Alternatives Eliminated: Ecosystem Management Alternative	Animal Welfare Institute	24
AL2130	Alternatives Eliminated: Bow Hunting Only	Unaffiliated Individual	14
AL4000	Alternatives: New Alternatives Or Elements	AWL	1
		Animal Welfare Institute	24
		Quality Deer Management Association	31
		Safari Club International	22
		Unaffiliated Individual	15

Code	Description	Organization	ID
AL4002	Alternatives: Alternative A - No Action	Quality Deer Management Association	31
AL4011	Alternatives: Alternative B - Combined Non-lethal Actions (Large exclosures, increased use of repellents, and reproductive control of does)	Animal Welfare Institute	24
		Quality Deer Management Association	31
		Unaffiliated Individual	5, 18, 25
AL4014	Support Alternative B - Combined Non-lethal Actions (Large exclosures, increased use of repellents, and reproductive control of does)	Animal Welfare Institute	24
		The Humane Society of the United States	11
		Unaffiliated Individual	19, 23
AL4021	Alternatives: Alternative C - Combined Lethal Actions (Sharpshooting and Capture and Euthanasia)	Animal Welfare Institute	24
		National Rifle Association	7
		Quantico Orienteering Club, Inc.	2
		Safari Club International	22
		The Humane Society of the United States	11
		Unaffiliated Individual	3
AL4024	Support Alternative C - Combined Lethal Actions (Sharpshooting and Capture and Euthanasia)	Maryland Department of Public Safety	12
		Quality Deer Management Association	31
		Quantico Orienteering Club, Inc.	2
		Safari Club International	22
		Unaffiliated Individual	4, 8, 9, 10, 13, 15, 18, 20, 29, 30
AL4027	Oppose Alternative C - Combined Lethal Actions (Sharpshooting and Capture and Euthanasia)	AWL	1
		Animal Welfare Institute	24
		Unaffiliated Individual	10
AL4031	Alternatives: Alternative D - Combined Lethal and Non-lethal Actions	Quality Deer Management Association	31

Code	Description	Organization	ID
CC1000	Consultation and Coordination: General Comments	Unaffiliated Individual	18, 19, 20, 25
GA1000	Impact Analysis: Impact Analyses	Animal Welfare Institute	24
		The Humane Society of the United States	11
GA4000	Impact Analysis: Impairment Analysis-General Methodology	Animal Welfare Institute	24
GA5000	Impact Analysis: Scientific Data Used to Determine Impacts	Animal Welfare Institute	24
MT1000	Miscellaneous Topics: General Comments	USDA, Wildlife Services	17
		Unaffiliated Individual	13, 21
MT4000	Miscellaneous Topics: Deer Management	AWL	1
		The Humane Society of the United States	11
		Unaffiliated Individual	4, 15, 18, 26, 27, 29
MT5000	Miscellaneous Topics: Desired Deer Density	Animal Welfare Institute	24
		The Humane Society of the United States	11
ON1000	Other NEPA Issues: General Comments	Animal Welfare Institute	24
PN2000	Purpose And Need: Park Purpose And Significance	Unaffiliated Individual	18
PN5000	Purpose And Need: Regulatory Framework	Animal Welfare Institute	24
		Safari Club International	22
		The Humane Society of the United States	11
		Unaffiliated Individual	8, 18
PN6000	Purpose And Need: Land Management Laws, Exec Orders	Animal Welfare Institute	24
PN8000	Purpose And Need: Objectives In Taking Action	Animal Welfare Institute	24
		The Humane Society of the United States	11
PN9000	Purpose And Need: Issues And Impact Topics Selected For Analyses	Animal Welfare Institute	24
PO4000	Park Operations: Impact Of Proposal And Alternatives	National Rifle Association	7
		Safari Club International	22
		Unaffiliated Individual	5, 8

Code	Description	Organization	ID
SE1000	Socioeconomics: Guiding Policies, Regs And Laws	Animal Welfare Institute	24
SE2000	Socioeconomics: Methodology And Assumptions	Animal Welfare Institute	24
SE4000	Socioeconomics: Impact Of Proposal And Alternatives	Animal Welfare Institute	24
TE2000	Threatened And Endangered Species: Methodology And Assumptions	Animal Welfare Institute	24
VE2000	Visitor Experience: Methodology And Assumptions	The Humane Society of the United States	11
VE4000	Visitor Experience: Impact Of Proposal And Alternatives	The Humane Society of the United States	11
VR2000	Vegetation And Riparian Areas: Methodology And Assumptions	Animal Welfare Institute	24
		The Humane Society of the United States	11
VR4000	Vegetation And Riparian Areas: Impact Of Proposal And Alternatives	Animal Welfare Institute	24
		The Humane Society of the United States	11
VS4000	Visitor Conflicts And Safety: Impact Of Proposal And Alternatives	Unaffiliated Individual	6, 19
VU2000	Visitor Use: Methodology And Assumptions	Animal Welfare Institute	24
WH2000	Wildlife And Wildlife Habitat: Methodology And Assumptions	Animal Welfare Institute	24
		Quantico Orienteering Club, Inc.	2
		The Humane Society of the United States	11
		Unaffiliated Individual	8
WH4000	Wildlife And Wildlife Habitat: Impact Of Proposal And Alternatives	Animal Welfare Institute	24
WH4500	Wildlife and Wildlife Habitat: (CATO Deer Herd) Impact Of Proposal And Alternatives	Animal Welfare Institute	24
		Quality Deer Management Association	31
WH8000	Wildlife and Wildlife Habitat (CATO Deer Herd): Affected Environment	Animal Welfare Institute	24
WH9000	Wildlife and Wildlife Habitat (Unique and Important Wildlife Habitat): Affected Environment	Animal Welfare Institute	24