DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT
FOR
REDUCING VULTURE DAMAGE THROUGH AN INTEGRATED WILDLIFE DAMAGE MANAGEMENT PROGRAM IN THE COMMONWEALTH OF VIRGINIA

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS), Wildlife Services (WS) program responds to requests for assistance from individuals, organizations and agencies experiencing damage caused by wildlife. Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions may be categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003 1995). To evaluate and determine if any potentially significant impacts to the human environment from WS' planned and proposed program would occur, an environmental assessment (EA) was prepared. The EA documents the need for vulture damage management in the Commonwealth of Virginia and assessed potential impacts of various alternatives for responding to damage problems. WS' proposed action is to implement an Integrated Wildlife Damage Management (IWDM) program on all land classes in Virginia. Comments from the public involvement process were reviewed for substantial issues and alternatives which were considered in developing this decision.

The EA analyzes the potential environmental and social effects for resolving vulture damage related to the protection of agriculture, property, and threats to public health and safety on private and public lands in Virginia. Virginia has an area of 26,090,880 acres; in Fiscal Year (FY) 2002, Virginia WS had agreements to conduct vulture damage management on about 14,917 acres or less than 0.00057% of the land area (Management Information System (MIS) 2002).

WS is the Federal program authorized by law to reduce damage caused by wildlife (Animal Damage Control Act of March 2, 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, Related Agencies Appropriations Act of 1988, Public Law 100-102, Dec. 27, 1987. Stat. 1329-1331 (7 U.S.C. 426c), and the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act of 2001, Public Law 106-387, October 28, 2000. Stat. 1549 (Sec 767). Wildlife damage management is the alleviation of damage or other problems caused by or related to the presence of wildlife and is recognized as an integral part of wildlife management (The Wildlife Society 1992). WS uses an Integrated Wildlife Damage Management (IWDM) approach, commonly known as Integrated Pest Management (WS Directive 2.105) in which a combination of methods may be used or recommended to reduce damage. WS wildlife damage management is not based on punishing offending animals but as one means of reducing damage and is used as part of the WS Decision Model (Slate et al. 1992, USDA 1997, WS Directive 2.201). The imminent threat of damage or loss of resources is often deemed sufficient for wildlife damage management actions to be initiated (U.S. District Court of Utah 1993). Resource management agencies and individuals have requested WS to conduct vulture damage management to protect agriculture and property in Virginia. Resource owners have requested WS conduct vulture damage management to protect human health and safety. All Virginia WS wildlife damage management is in compliance with relevant laws, regulations, policies, orders and procedures, including the Endangered Species Act of 1973.

Virginia WS works and consults with the Virginia Department of Game and Inland Fisheries (VDGIF), Virginia Department of Agriculture and Consumer Services (VDACS), and United States Department of Interior (USDI), Fish and Wildlife Service (USFWS) to reduce wildlife damage. The VDGIF has the responsibility to manage all wildlife in Virginia, including federally listed threatened and endangered (T&E) species and migratory birds, which is a joint responsibility with the USFWS. Memoranda of Understanding (MOUs) signed between APHIS-WS and the VDGIF and VDACS clearly outline the responsibility, technical expertise and coordination between agencies. A Multi-agency Team with representatives and consultants from each of the aforementioned agencies participated to assess the impacts of WS vulture damage management in Virginia. The VDGIF, VDACS and USFWS worked with Virginia WS to determine whether the proposed action is in compliance with relevant management plans, laws, regulations, policies, orders, and procedures.

Consistency

Wildlife damage management conducted in Virginia will be consistent with MOUs and policies of APHIS-WS, the VDGIF, VDACS, and USFWS, and the EA. The agencies may, at times, restrict damage management that concerns public safety or resource values.

The analyses in the EA demonstrate that Alternative 1 (*Integrated Wildlife Damage Management / Vulture Damage Management Program* (Proposed Action): 1) best addresses the issues identified in the EA, 2) provides safeguards for public health and safety, 3) provides WS the best opportunity to reduce damage while providing low impacts on nontarget species, 4) balances the economic effects to agriculture and property, and 5) allows WS to meet its obligations to the VDGIF, USFWS, and other agencies or entities.

Monitoring

The Virginia WS program will annually provide to the VDGIF and USFWS the WS take of target and nontarget animals to help insure the total statewide take (WS and other take) does not impact the viability of vulture populations as determined by the VDGIF or USFWS. In addition, the EA will be reviewed each year to ensure that the issues and the analysis are sufficient.

The largest number of vultures removed by Virginia WS to resolve damage problems in any year was 562 vultures in FY 2002 (MIS, unpub. data). In 2001, 159 vultures were taken (Table 1). Also, WS dispersed 6,130 vultures with harassment methods in FY2002. However, the public involvement process for this EA and media campaigns conducted by some advocacy groups resulted in an increased public awareness of Virginia WS damage management assistance. As a result, there is a potential for increased requests for assistance with vulture damage problems and the potential requirement for the removal of a larger number of vultures. Even with an anticipated increase in requests for services it is unlikely that WS would remove 4,000 vultures (2,500 black and 1,500 turkey vultures) annually in Virginia; however, this number was chosen for the analysis to demonstrate the low impact to the vulture population in Virginia.

Criteria for Qualitative Determinations

WS conducted a qualitative analysis on the impacts of the vulture population in Virginia using the qualitative evaluation approach described in the Animal Damage Control Programmatic Environmental Impact Statement (USDA 1997). This approach uses a magnitude rating for total harvest (take) based solely on state population trend data for the species. This approach was used because population estimates for vultures were non-existent. The criteria for judging total take magnitude based on animal population trends are as follows:

- If the population is increasing, the magnitude is considered low.
- If the population is stable, the magnitude is considered moderate.
- If the population is decreasing, the magnitude is considered high.

For qualitative analysis, WS kill magnitude is based on the fraction of total take attributed to the WS program activities. Magnitude ratings for the WS kill are based on the following criteria:

- If WS kill is less than or equal to 33 percent of the total take, the magnitude is considered low.
- If WS kill is greater than 33 percent but less than or equal to 66 percent of the total take, the magnitude is considered moderate if the total take rating is high, or low if the total take rating is moderate.
- If WS kill is greater than 66 percent of the total take, the magnitude is considered equivalent to the total take rating.

Analysis of Potential Impacts

For analysis purposes and to consider the scenario of additional requests, WS conducted an analysis for removing up to 4,000 vultures annually in Virginia (Table 1). WS also conducted an analysis of vultures taken for the two most recent years (2001 and 2002) (Table 1). Black and turkey vulture populations were increasing annually in Virginia since at least 1966 according

to the Breeding Bird Survey data (Sauer et al. 2001) and since at least 1991 according to Christmas Bird Count data (*see* pages 41 – 43 in EA). Kiff (2000) and WS (*see* EA Section 4.1.1.1) determined that these survey instruments were adequate for detecting broad population trends.

The maximum take of 4,000 vultures annually by WS was analyzed and the magnitude of take was found low (Table 1). If 4,000 vultures (2,500 black and 1,500 turkey vultures) were killed by WS, the magnitude of the WS vulture take would be based solely upon the population trend for black and turkey vultures in Virginia because total WS take would probably exceed 66 percent of total take authorized by the USFWS. Therefore, the magnitude of the WS take and total take would be considered low because both black and turkey vulture populations have been increasing during the breeding and wintering periods, especially in the last 10 years. It is more likely that the number of vultures taken by WS would range from 200 to 1,000 annually. And the magnitude of this take would also be considered low. There is wide variation in the estimated annual take because the number of requests to disperse or depopulate a vulture roost is expected to vary annually.

A take of 562 vultures by WS in 2002 represented 43% of the authorized take permitted by the USFWS (Table 1). The magnitude of WS take was considered low since WS take was greater than 33% but less than 66% of the total take authorized by the USFWS in 2002 and the magnitude of the total take was low.

A take of 159 vultures by WS in 2001 represented 12% of the authorized take permitted by the USFWS (Table 1). The magnitude of WS take was considered low since WS take was less than or equal to 33% of the total take authorized by the USFWS in 2001 and the magnitude of total take was considered low (USDA 1997).

Table 1. Analysis of take and impact upon the vulture population in Virginia. Criteria are from USDA (1997) and data from United States Department of Agriculture, Wildlife Services and the United States Department of Interior, Fish and Wildlife Service.

	Year		
	2002	2001	Theoretical year
Take authorized by USFWS[B]	1293	1295	4,600[A]
WS[C] take	562	159	4000
Others take	122[A]	122	122[A]
Total take	684	281	4122
Vulture population trend and magnitude	Increasing, low	Increasing, low	Increasing, low
WS take as % of authorized take and magnitude	43, low	12, low	87, low

A. Estimated.
B. United States Department of Interior, Fish and Wildlife Service.
C. United States Department of Agriculture, Wildlife Services.

Public Involvement

Issues related to the proposed action were initially developed by an interdisciplinary team involving the VDGIF and USFWS. This Multi-agency team refined the issues and identified preliminary alternatives. An invitation for public comment letter on the pre-decisional EA was sent to 403 individuals or organizations identified as interested in Virginia WS or VDGIF projects. Notice of the proposed action and invitation for public involvement on the pre-decisional EA was placed in four newspapers (Richmond Times-Dispatch, The Virginia Pilot, The Roanoke Times, and The Washington Times) with circulation throughout Virginia. There was a 34-day comment period for the public to provide input on the pre-decisional EA. One hundred twenty comment letters were received from the public after review of the pre-decisional EA. Single comment letters with 2 signatures were counted as two separate letters. An analysis of the comment letters revealed that 11 were submitted by organizations and 109 from individuals; 32 of the 120 comment letters were from Virginia; comment letters came from 28 states, the District of

Columbia, and 2 foreign countries; and most of the comment letters from individuals were form letters taking information or positions from websites, Internet chatrooms, or other sources. All comments were analyzed to identify substantial new issues, alternatives, or to redirect the program. All letters and responses are maintained in the administrative file located at the Virginia WS State Office, P.O. Box 130, Moseley, Virginia 23120. Wildlife Services response to specific comments and issues are included in Appendix A of this Decision and FONSI.

Major Issues

The EA describes the alternatives considered and evaluated using the identified issues. The following issues were identified as important to the scope of the analysis (40 CFR 1508.25).

- Effects on target bird species populations
- Effects on nontarget wildlife species populations, including T&E species
- Effects on human health and safety
- Effects on aesthetics
- Humaneness of lethal bird control methods

Affected Environment

The areas of the proposed action include agricultural areas (e.g., livestock farms) where black vultures could prey on livestock. The areas could also include property in or adjacent to subdivisions and business and industrial parks where vultures roost or loaf. Additionally, the public and local health officials have concerns about large quantities of fecal droppings associated with vulture roosts when roosts are near human habitation and where children play. The proposed action could also include private and public property.

Alternatives That Were Fully Evaluated

The following Alternatives were developed by the Multi-agency Team to respond to the issues. A detailed discussion of the effects of the Alternatives on the issues is described in the EA; below is a summary of the Alternatives.

- Alternative 1 - **Integrated Wildlife Damage Management/ Vulture Damage Management Program (Proposed Action) -** The proposed action is for the WS program in the Commonwealth of Virginia to continue the current Integrated Wildlife Damage Management (IWDM) program that will respond to requests for Vulture Damage Management (VDM) to protect property, livestock, pets, human health and safety, and agricultural resources in the Commonwealth of Virginia. An IWDM approach would be implemented which would allow use of any legal technique or method, used singly or in combination, to meet requestor needs for resolving conflicts with turkey or black vultures (Appendix B of the EA). Cooperators requesting assistance would be provided with information regarding the use of effective nonlethal and lethal techniques. Lethal methods used by WS would include shooting and live trapping followed by euthanasia. Nonlethal methods used by WS may include habitat alteration, husbandry practices, wire barriers and deterrents, tactile repellents, harassment, and scaring devices. In many situations, the implementation of nonlethal methods such as habitat alteration, husbandry practices, harassment, scare devices, and mechanical repellents would be the responsibility of the requestor to implement. VDM by WS would be allowed in the State, when requested, on private property sites or public facilities where a need has been documented and upon completion of an *Agreement for Control*. All management actions would comply with appropriate federal, state, and local laws.

- Alternative 2 - **Nonlethal VDM Only By WS** - Under this alternative, only nonlethal direct control activities and technical assistance would be provided by WS to resolve vulture damage problems. Persons receiving technical assistance could still resort to lethal methods that were available to them. Requests for information regarding lethal management approaches would be referred to VDGIF, VDACS, USFWS, local

animal control agencies, or private businesses or organizations. Individuals or agencies might choose to implement WS nonlethal recommendations, implement lethal methods or other methods not recommended by WS, contract for WS nonlethal direct control services, use contractual services of private businesses, use volunteer services of private organizations, or take no action. In some cases, control methods employed by others could be contrary to the intended use or in excess of what is necessary. Appendix B of the EA describes a number of nonlethal methods available for use or recommendation by WS under this alternative.

- Alternative 3 - **Technical Assistance Only** - This alternative would not allow for WS operational VDM in Virginia. WS would only provide technical assistance and make recommendations when requested. Producers, property owners, agency personnel, or others could conduct VDM using traps**,** shooting, or any nonlethal method that is legal. Appendix B of the EA describes a number of methods that could be employed by private individuals or other agencies after receiving technical assistance advice under this alternative.

- Alternative 4 - **Lethal VDM Only By WS -** Under this alternative, only lethal direct control services and technical assistance would be provided by WS. Technical assistance would include making recommendations to the USFWS regarding the issuance of permits to resource owners to allow them to take vultures by lethal methods. Requests for information regarding nonlethal management approaches would be referred to VDGIF, VDACS, USFWS, local animal control agencies, or private businesses or organizations. Individuals or agencies might choose to implement WS lethal recommendations, implement nonlethal methods or other methods not recommended by WS, contract for WS lethal direct control services, use contractual services of private businesses, use volunteer services of private organizations, or take no action. In some cases, control methods employed by others could be contrary to the intended use or in excess of what is necessary. Not all of the methods listed in Appendix B of the EA as potentially available to WS would be legally available to all other agencies or individuals.

- Alternative 5 - **No Federal WS VDM** - This alternative would eliminate WS involvement in VDM in Virginia. WS would not provide direct operational or technical assistance, and requesters of WS services would have to conduct their own VDM without WS input.

Compliance with other federal laws

Executive Order 13186 – "Responsibilities of Federal Agencies to Protect Migratory Birds" was signed on January 10, 2001 and requires: "Each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations, is directed to develop and implement, a Memorandum of Understanding with the Fish and Wildlife Service that shall promote the conservation of migratory bird populations." WS has developed a draft Memorandum of Understanding (MOU) with the USFWS as required by this Executive Order and is currently waiting for USFWS approval. WS will abide by the MOU once it is finalized and signed by both parties.

Finding of No Significant Impact

The analysis in the EA indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment as a result of this proposed action. I agree with this conclusion and therefore find that an EIS need not be prepared. This determination is based on the following factors:

1. Vulture damage management, as conducted by WS in Virginia, is not regional or national in scope.

2. The proposed action would pose minimal risk to public health and safety.

3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected.

4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to wildlife damage management, this action is not highly controversial in terms of size, nature, or effect.

5. Based on the analysis documented in the EA and the accompanying administrative file, the effects of the proposed damage management program on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks.

6. The proposed action would not establish a precedent for any future action with significant effects.

7. No significant cumulative effects were identified through this assessment. The number of vultures taken by WS, when added to the total known take, falls within a low magnitude of take.

8. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources.

9. WS determined that the proposed vulture damage management program would have no effect on listed birds, mammals, invertebrates, plants, reptiles, amphibians, fish, or plants or their critical habitats in Virginia. An informal Section 7 consultation with the USFWS (Letter from K. Mayne, USFWS, to M. Lowney, WS, November 20, 2002) confirmed that the proposed action would not likely adversely affect any federally listed or proposed T&E species or their designated critical habitat.

10. The proposed action would be in compliance with all federal, state, and local laws imposed for the protection of the environment.

Decision and Rationale

I have carefully reviewed the EA and the input from the public involvement process. I believe that the issues identified in the EA are best addressed by selecting Alternative 1 (*Integrated Wildlife Damage Management / Vulture Damage Management Program* (Proposed Action) in the EA and applying the associated mitigation and monitoring measures discussed in Chapter 3 of the EA. Alternative 1 would provide the greatest effectiveness and selectivity of methods available, the best cost-effectiveness, and has the potential to even further reduce the current low level of risk to the public and pets. WS will continue to use currently authorized wildlife damage management methods in compliance with all the applicable mitigation measures listed in Chapter 3 of the EA. I have also adopted the Pre-Decisional EA *"Management of Vulture Damage in the Commonwealth of Virginia"* with the Decision and Appendix A (Response to Comments) as the final. Most of the comments identified from public involvement were minor and did not change the analysis.

For additional information regarding this decision, please contact Martin Lowney, APHIS-WS, P. O. Box 130, Moseley, Virginia 23120, telephone (804) 739-7739.

/s/ 01/15/03

Charles S. Brown, Regional Director Date
APHIS-WS Eastern Region

APPENDIX A

Response to Comments
on the
Environmental Assessment for the

MANAGEMENT OF VULTURE DAMAGE IN THE COMMONWEALTH OF VIRGINIA

Wildlife Services (WS) received 120 comments letters from the pubic involvement process and review of the pre-decisional environmental assessment (EA). The National Environmental Policy Act (NEPA) requires that proper consideration be given to all reasonable points of view, particularly as they may relate to the issues being considered. In this light, it is important to consider and address concerns or criticisms that may arise. Appendix A is a summary of comments, particularly criticisms and concerns, received from review of the pre-decisional EA, with the corresponding WS responses.

Public involvement under provisions of NEPA is intended to gather substantive information and ideas from the public on proposed federal actions in order to help managers make better decisions. The public involvement process is not counting votes supporting or opposing management actions. While quantitative information is gathered and is important to assessing attitudes, that is only part of the information analyzed.

Many comments were statements of opinion registering opposition to the proposed action. Some comments were statements requesting assistance with vulture damage or problems caused by vultures. Some comments were about the ecological role of vultures, opposition to some methods, and potential impact of West Nile Virus on vulture populations. All responses were reviewed for major issues. Comments addressed a wide range of topics, however, patterns emerged that indicated common points of concern that are summarized below as "*Issues*". These issues and the program's response to each are discussed below.

Issue 1: **Wildlife Services should use nonlethal methods only or nonlethal methods before lethal methods.**

Program response: Using nonlethal methods alone is addressed in Chapter 3 and 4 of the EA as alternative 2. Also, some people want nonlethal methods used before offending vultures are killed. Wildlife Services policy (ADC Directive 2.101) states preference is given to nonlethal methods when practical and effective. The use of nonlethal methods alone fails to reduce damage or problems in some situations. For example, the use of nonlethal methods alone has failed to reduce black vulture predation on livestock and therefore WS is put in a situation to recommend lethal methods 47% of the time to stop this problem (Section 1.3.4.3 of EA). Lowney (1999) reported nonlethal methods frequently were ineffective at alleviating black vulture predation on livestock. Moreover, if the WS is precluded from implementing methods that reduce vulture damage the public may take the matter into their own hands. Unfortunately, some people in Virginia with vulture damage have taken matters into their own hands and illegally shot or poisoned vultures to alleviate damage. Requiring WS to use nonlethal methods alone will most likely lead to more killing of vultures than necessary by the public; a potential increase in accidental killing of nontarget species by the public, and further loss of aesthetic value for vultures. Chapter 4 of the EA discusses the impact of using nonlethal methods alone in detail.

The Fish and Wildlife Service requires applicants for migratory bird depredation permits to make a reasonable effort using nonlethal methods before the agency will approve a permit to kill vultures. The conditions on the permit require the applicant to use an integrated wildlife damage management program, including using appropriate nonlethal methods. Therefore, all persons with vulture damage who request a USFWS depredation permit to kill vultures have either considered or used nonlethal methods and have found them ineffective at alleviating vulture damage. Many nonlethal methods such as husbandry,

exclusion, and some harassment is best done by the landowner or resource owner. It would be illogical for WS to further implement nonlethal methods in some instances if nonlethal methods have already been tried by landowners or resource owners and these nonlethal methods were ineffective. In these instances, WS may choose to implement lethal methods to stop the vulture damage.

In summary, some segments of the public prefer nonlethal methods be used to resolve vulture damage. However, nonlethal methods used alone are ineffective at alleviating vulture damage all the time. The best approach to reducing vulture damage is an integrated wildlife damage management approach which uses any and all practical and effective methods.

Issue 2: **Some people believe lethal methods are ineffective**.

Program response: Some people believe lethal methods are ineffective because other vultures fill the void left by removing local vultures. It is the goal of the WS program to reduce property and agriculture damage, or threats to human health and safety from vultures through the use of any legal nonlethal or lethal methods used sequentially or simultaneously. Lethal methods have been effective at dispersing vulture roosts and protecting livestock (Sections 1.3.7.1; 1.3.7.2; 1.3.7.3, 1.3.7.4, 1.3.7.5, 1.3.7.6, and 1.3.7.7 of the EA).

Local populations of vultures will move among several roost sites and not use all roost sites each night (Sweeney and Fraser 1986, Rabenhold 1986, 1987, 1987a, Coleman and Fraser 1989). The Virginia WS program typically uses a measured response of removing a few vultures at a time from a local population when implementing lethal methods at a roost site. This type of measured response assures that only the number of vultures necessary to reduce damage to an acceptable level are lethally removed from the local population. Observing some vultures using an area after lethal methods have been implemented is not a measure of program effectiveness. Program effectiveness is based upon the reduction in site specific damage, threats, or conflicts.

As appropriate, the Virginia WS program will typically choose to implement a measured response versus total elimination of a local vulture population when using lethal methods. Our goal is to reduce vulture damage, not total elimination of the local vulture population. However, in certain limited situations WS may determine it is necessary to depopulate a local vulture population to effectively reduce associated damage and conflicts. We would expect other members of the local vulture population to re-use a roost where lethal methods were used at some time in the future because not all vultures in the local population may have been exposed to the site specific integrated wildlife damage management program. If a total local population elimination approach was used, we would expect some vultures to colonize the area in the near future due to the increasing vulture population in Virginia.

Issue 3: **Wildlife Services should educate the public about vultures and vulture damage management methods.**

Program response: Education is an important component of wildlife damage management. Wildlife Services is committed to educating the public about vultures and vulture damage management. We developed a 9-page leaflet about vultures and vulture damage management because none existed (Lowney 1998). We provided 995 leaflets to the public about vultures and vulture damage management methods from 1997 – 2001. Also, one of our employees published a technical paper (Lowney 1999) about vulture damage in Virginia to educate other wildlife biologists and the public about vultures and vulture damage. Section 3.2.2.3 of the EA discusses some of the education efforts conducted by Virginia Wildlife Services. We have given presentations at conferences and workshops and staffed exhibit booths at fairs and professional meetings to inform the public and biologists about vultures and vulture damage management.

Issue 4: **Vultures play an ecological role.**

Program response: WS recognizes the important ecological role that vultures provide to the environment. Vultures fill an ecological niche as obligate scavengers (Rea 1983, Coleman and Fraser 1987). The diet of black and turkey vultures primarily consists of carrion (Rea 1983, Coleman and Fraser 1987, Rabenhold 1987) with black vultures infrequently killing and consuming livestock and wildlife (Roads 1936, McIlhenny 1939, Sprunt 1946, Lovell 1947, 1952, Parmalee 1954, Mrovsovsky 1971, Lowney 1999). Some people believe these scavenging activities have beneficial impacts to society.

Vultures do eat a small number of the animals killed by vehicles or other causes. Opossum, grey and red fox, crows, ravens, bald eagles, and other animals also scavenge these same dead animals. The consumption of dead animals by vultures may speed up the nutrient cycle in cold weather months and reduce odor and flies from decaying carcasses in summer months. Some people minimize this benefit since the vultures only consume most of the soft tissue and leave the hair, bone, and some soft tissue behind. The consumption of dead animals only minimizes the odor and fly problem that a few people may experience. Vultures eat a small percentage of all the dead animals in Virginia. Most dead animals rot, are scavenged by other animals, or are cleaned up by people. Nonetheless, there may be a small benefit to society from vultures eating dead animals.

Dead animals may have bacteria or viruses that are pathogenic or zoonotic. Some people believe vultures provide a benefit to society by reducing or removing pathogenic bacteria or viruses from the environment by eating dead animals. Houston and Cooper (1975) demonstrated that some bacteria were killed in the digestive tracts of griffon vultures (*Gyps africanus*) probably due to the low pH of the stomach. The pH of the stomach in griffon vultures ranged from a score of 1-2 which is very acidic. The pH of the crop of griffon vultures measured 7 – 7.5, thus bacteria would not be killed in the crop (Houston and Cooper 1975). Some of the bacteria killed included a bacillus (*Aeromonas formicans*) and *Bacillus anthracis (*Houston and Cooper 1975). Darling and Bates (1912) also found that anthrax bacilli (*Bacillus anthracis*) did not survive the digestive tract of turkey vultures. However, anthrax survived the digestive tract of the hooded vulture *(Necrosyrtes monarchus)(*Urbain and Nouvel 1946 cited in Houston and Cooper 1975*)* and in the digestive tract of a buzzard *(Buteo brachypterus)(*Blancou and Rajaonarison 1972 cited in Houston and Cooper 1975). Bacteria that survived the digestive tract of the griffon vulture were *Escherichia coli, Citrobacter freundii, Proteus vulgaris*, spores from *Bacillus anthracis*, and *Streptococcus pyogenes* (Houston and Cooper 1975). Winsor et al. (1981) found *E. coli, Proteus mirabilis, Edwardsiella tarda, Plesiomongas shigelloides, Salmonella,* and *Salmonella arizonae* in the lower digestive tract of turkey vultures. Bullock (1956) demonstrated anthrax spores could survive the digestive tract of vultures.

Houston and Cooper (1975) believed vultures consume and destroy large quantities of various bacteria before they form spores resistant to digestion when feeding upon a carcass. However, Houston and Cooper (1975) point out while some bacteria are being destroyed in the vultures digestive tract, these same bacteria could be transmitted on their feathers and feet. Therefore, while vultures could reduce the spread of most infections in a locality, they also could introduce infections into new areas (Houston and Cooper 1975). The microflora of these birds suggests turkey vultures are reservoirs of enteric bacterial pathogens (Winsor et al. 1981).

Houston and Cooper (1975) believed few viruses could survive the digestive tract of griffon vultures due to the low pH of the stomach. Hog cholera, a virus, survives best at a pH of 5 – 5.5 (Torrey 1956) and most likely would not survive the stomach acid of vultures.

In summary, the digestive tract (stomach) of vultures appears to destroy some bacteria and most viruses. However, some bacteria and particularly spores, can survive the acidic pH of the stomach and be found in feces. The pH of the crop is neutral and probably has no effect on bacteria or viruses thus vulture vomit may contain pathogenic bacteria or viruses. Vultures also have the ability to mechanically spread bacteria and viruses on their feet and feathers. Additional research is needed to quantify these risks.

Issue 5: **There is a lack of a definitive population estimate for black and turkey vultures.**

Program response: There is no definitive population estimate for black and turkey vultures as there is no definitive population estimate for many bird species. Whereas there is no definitive population estimate, state and federal wildlife agencies use population trend data. Population trend data is available from the Breeding Bird Survey administered by the U.S.D.I., Geological Survey and Fish and Wildlife Service and the Christmas Bird Count administered by the Audubon Society. These survey instruments are appropriate for detecting broad population trends for vultures (Kirk and Mossman 1998, Kiff 2000). Other surveys are maintained by universities and other advocacy groups. Section 4.1.1.1 of the EA discusses these survey instruments.

Issue 6: **The impact of West Nile Virus on vulture populations needs to be analyzed.**

Program response: Dead and dying vultures have been found as part of nationwide West Nile Virus surveillance and some tested positive for the virus. While a few vultures die from West Nile Virus, there has been no population impact in the Breeding Bird Survey or Christmas Bird Count (E. Porter, West Nile Virus Coordinator, USDA-APHIS-WS, pers. commun.). Finding vultures possibly affected with West Nile Virus is rare. In New York state, of 1,282 birds found and tested in 2002, none were vultures (E. Porter, West Nile Virus Coordinator, USDA-APHIS-WS, pers. commun.). Bernard et al. (2001) found no positive vultures among 3,403 birds examined while surveying for West Nile Virus positive birds in New York state in 2000. There are few cases of West Nile Virus positive vultures in the national database and there has been none reported in Virginia (D. Gaines, Virginia Dept. of Health, Richmond, VA). Cars are a more significant mortality factor for vultures than West Nile Virus (D. Gaines, Virginia Dept. of Health, Richmond, VA). The impact of West Nile Virus on black and turkey vultures is negligible.

Issue 7: **Research is needed for effective nonlethal methods and population estimates.**

Program response: Wildlife Services agrees that research is needed to develop effective and practical methods to alleviate vulture damage. Also, research is needed to develop a population model and population estimate for black and turkey vultures. The National Wildlife Research Center, the research arm of Wildlife Services, has been actively researching methods to reduce vulture damage. Over the last three years research has produced methodologies that use vulture effigies to disperse vulture roosts (Avery et al. 2002, Tillman et al. 2002) and tested lasers to disperse vulture roosts. NWRC has also tested artificial effigies to replace the use of taxidermic vultures, started DNA analysis of black and turkey vulture populations to examine geographic relationships among populations, and is initiating a study for cues that attract vultures to vinyl or plastic products they damage.

Issue 8: **The Migratory Bird Treaty Act does not allow for the take of vultures.**

Program response: The Migratory Bird Treaty Act of 1918 and its Conventions with Great Britain, Mexico, Japan, and the Soviet Union permits sport hunting of migratory birds and the take of migratory birds for other reasons, including scientific, educational, propagative, and other specific purposes consistent with conservation principles of the various conventions and federal regulations. Vultures may be taken under the Act for depredation purposes. Within the bounds of the Migratory Bird Treaty Act and its Conventions, the Fish and Wildlife Service has promulgated regulations allowing the taking of migratory birds for depredation control purposes (i.e. Title 50 Code of Federal Regulations, Part 21, Sections 41-46).

Issue 9: **Habitat encroachment and loss has contributed to vulture conflicts.**

Program response: During a 13-year period from 1988 – 2000, black vultures populations have increased 3-fold and turkey vulture populations have increased 2-fold in Virginia (Section 4.1.1.1 in EA). During this same period, the human population in Virginia increased from 6.2 million in 1990 to over 7.2 million people in 2002, a 14% increase. Much of the conflict between vultures and people occurs because of increasing numbers of all three species trying to occupy the same space.

Coleman and Fraser (1989) showed the importance of forested areas as important vulture habitat for roosting and nesting and open habitat for feeding. Except in localized areas in the mid-west and south where forested areas were converted to housing and agricultural uses there has been no habitat loss for vultures (Kiff 2000). Turkey and black vulture populations have been expanding their range northward since the 1920's and increasing their populations since the 1970's after DDT was banned (Kiff 2000). The black and turkey vulture population increases in the 1980's and 1990's have been statistically significant as indicated by the Breeding Bird Survey and Christmas Bird Count (Sauer et al. 2001, Kiff 2000). Kiff (2000) reported that widespread landscape level habitat changes probably favored black and turkey vultures in the United States and Canada. While the loss of many large hollow trees in the southeast due to modern timber harvesting was a negative effect on black vulture nesting habitat (Kiff 2000), their populations continued to increase.

Issue 10: **Why do roosts occur in urban/suburban areas?**

Program response: Wildlife Services has been asking this question for many years. Thompson et al. (1990) has described

characteristics of roost sites and Wright et al. (1986) described characteristics of roost trees used by vultures. These sites often appear the same as numerous sites adjacent to urban/suburban areas where vultures choose not to roost. Thompson et al. (1990) found vulture roost sites had a greater density of conifers and larger trees than random sites in southern Pennsylvania, northern Maryland, and northeastern Virginia. Wright et al. (1986) recommended preserving forest stands with conifers for vulture roosts in Pennsylvania.

WS and Virginia Department of Agriculture and Consumer Services surveyed 61 vulture roost sites located throughout Virginia in 1997 and 54 roost sites in 1996. Of the 115 roosts surveyed in Virginia, 52% were in mixed pine and hardwood, 20% in hardwood, 19% in pine, 7% on radio towers, 1% on buildings, and 1% at a landfill (Lowney 1998, Lowney and Eggborn, unpublished data). Sweeney and Fraser (1986) describe a winter vulture roost of more than 900 birds in southwestern Virginia lacking in conifers. These results are different than those in Pennsylvania probably due to the lower latitude and larger sample size in Virginia. Also, Kirk and Mossman (1998) and Buckley (1999) report vultures using communication towers as roost sites.

We theorize that one reason vultures roost in urban/suburban areas is lack of persecution or continuous harassment by people. We tend to find the larger vulture roosts in Virginia in urban/suburban areas, parks, and secure areas where shooting is prohibited and harassment activities limited.

We believe more research is needed to try to identify roost characteristics which may explain why some vultures choose to roost in urban/suburban areas. This information would be used to modify roosts sites to cause vultures to roost in other areas where there would be fewer human conflicts.

Issue 11: **Wildlife Services should provide no assistance for special interest groups or a single constituency.**

Program response: We received this comment from an environmental organization and members of environmental organizations and found the comment short sighted. Environmental organizations are a special interest group that sometime receives services from the Wildlife Services program. Wildlife Services provides assistance to environmental organizations that have requested assistance because other wildlife was killing threatened and endangered birds, disrupting nesting bird colonies or harming species of their concern. Moreover, Congress has instructed Wildlife Services to assist the public, local and states governments, institutions, and organizations to alleviate wildlife damage. We will serve all who request assistance, within budget constraints.

Issue 12: **Localized population reduction would affect migratory vultures and the population impact would be broader than the EA considered.**

Program response: The EA considered the possible impact on those vultures that may migrate to Virginia to spend the winter. Vultures migrating to Virginia to winter would primarily be turkey vultures. We specifically looked at Christmas Bird Count data in Section 4.1.1.1 of the EA to analyze winter populations of turkey and black vultures. We also analyzed the national population trend for black and turkey vultures in Section 4.1.1.1 of the EA.

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