

**DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT**

**ENVIRONMENTAL ASSESSMENT: REDUCING PIGEON, STARLING, HOUSE SPARROW,
BLACKBIRD, RAVEN AND CROW DAMAGE THROUGH AN INTEGRATED WILDLIFE
DAMAGE MANAGEMENT PROGRAM IN THE STATE OF WEST VIRGINIA**

**United States Department of Agriculture
Animal and Plant Health Inspection Service
Wildlife Services**

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I. INTRODUCTION

The United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) program prepared an Environmental Assessment (EA) to analyze the potential environmental and social effects of resolving damage to property, agricultural commodities, natural resources, and threats to human safety associated with rock pigeons (feral pigeons) (*Columba livia*), European starlings (*Sturnus vulgaris*), house sparrows (*Passer domesticus*), red-winged blackbirds (*Agelaius phoeniceus*), brown-headed cowbirds (*Molothrus ater*), common grackles (*Quiscalus quiscula*), common ravens (*Corvus corax*), and American crows (*Corvus brachyrhynchos*) in West Virginia (USDA 2002)¹. The EA documents the need for bird damage management in the State and assesses potential impacts on the human environment of four alternatives to address that need. WS' proposed action in the EA implements an integrated bird damage management program in the State to fully address the need for bird damage management while minimizing impacts to the human environment.

II. PUBLIC INVOLVEMENT

The pre-decisional EA² was made available to the public for review and comment by a legal notice published in 19 newspapers in West Virginia. A copy of the pre-decisional EA was also mailed directly to agencies, organizations, and individuals with probable interest in the proposed program. WS received one comment letter during the 30-day public comment period. The comment letter was received from the West Virginia Division of Natural Resources (WVDNR) in support of the proposed action. The comments were reviewed for substantive issues and alternatives which were considered in developing the Decision for the EA. After consideration of the analysis contained in the EA and review of public comments, a Decision and Finding of No Significant Impact (FONSI) for the EA was issued on May 15, 2002. The Decision and FONSI selected the proposed action to implement an integrated bird damage management program in West Virginia using multiple methods to adequately address the need for bird damage management.

To facilitate public participation in the development of this new Decision and summary report, this document along with the EA and the 2002 Decision/FONSI will be made available for public review and comment through a legal notice published in the *Charleston Daily Mail* announcing a comment period for

¹Copies of the EA and 2002 Decision/FONSI are available for review from the State Director, USDA/APHIS/WS, 730 Yokum Street, Elkins, WV 26241 or by visiting the APHIS website at http://www.aphis.usda.gov/wildlife_damage/nepa.shtml.

²Before a Decision for the EA is issued, the EA is considered pre-decisional. After the development of the EA by WS and consulting agencies and after public involvement in identifying new issues and alternatives, WS issues a Decision. Based on the analysis in the EA after public involvement, a decision is made to either publish a Notice of Intent to prepare an Environmental Impact Statement or a Finding of No Significant Impact will be noticed to the public in accordance to the NEPA, the Council of Environmental Quality regulations, and APHIS' NEPA implementation regulations.

a minimum of 30 days. In addition, a notice of availability will also be posted on the APHIS website at http://www.aphis.usda.gov/wildlife_damage/nepa.shtml and notice letters will be directly mailed to agencies, organizations, and individuals with probable interest in the proposed program announcing the availability and requesting comment on this new Decision. Comments received during the public involvement process will be fully considered for new substantive issues and alternatives. Unless new substantial issues and/or alternatives are brought to WS' attention, this new Decision will take effect upon the close of the comment period.

III. PURPOSE

This summary report and new Decision/FONSI are being prepared to: 1) facilitate planning and interagency coordination, 2) streamline program management, 3) ensure WS' activities remain within the scope of analyses contained in the EA, and 4) clearly communicate to the public the analysis of individual and cumulative impacts of the current program since 2002. This summary report and new Decision/FONSI ensures WS' actions comply with the National Environmental Policy Act (NEPA), with the Council on Environmental Quality (40 CFR 1500), and with APHIS' NEPA implementing regulations (7 CFR 372). All bird damage management activities, including disposal requirements, are conducted consistent with: 1) the Endangered Species Act of 1973, 2) the Migratory Bird Treaty Act, 3) Executive Order (EO) 12898³, EO 13045⁴, EO 13112⁵, and EO 13186⁶, 4) the Federal Insecticide, Fungicide, and Rodenticide Act, and 5) federal, state, and local laws, regulations, and policies.

IV. MONITORING

The WS program in West Virginia annually reviews program activities to determine impacts on issues identified to ensure that program activities are within the scope of analysis contained in the EA. The annual monitoring reports document WS' activities while discussing any new information that becomes available since the completion of the EA and the last monitoring report. If WS' activities, as identified in the annual monitoring reports, are outside the scope of the analyses in the EA or if new issues are identified from available information, further analysis would occur and the EA would be supplemented to the degree as identified by those processes pursuant to NEPA or a notice of intent to prepare an Environmental Impact Statement (EIS) would occur.

This summary report and new Decision will evaluate WS' activities to resolve and prevent damage caused by starlings, pigeons, house sparrows, red-winged blackbirds, common grackles, brown-headed cowbirds, common ravens, and American crows in West Virginia under the proposed action described in the EA since the Decision and FONSI were signed in 2002. WS will continue to coordinate activities to alleviate or prevent damage with the WVDNR and the United State Fish and Wildlife Service (USFWS) to ensure WS' activities are considered as part of the management objectives for those species. WS will also continue to provide the number of birds taken during WS' activities to the USFWS to ensure the magnitude of take by WS is within allowable harvest levels in West Virginia.

³ Executive Order 12898 promotes the fair treatment of people of all races, income levels and cultures with respect to the development, implementation and enforcement of environmental laws, regulations and policies.

⁴ Executive Order 13045 ensures the protection of children from environmental health and safety risks since children may suffer disproportionately from those risks.

⁵ Executive Order 13112 states that each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law; 1) reduce invasion of exotic species and the associated damages, 2) monitor invasive species populations, provide for restoration of native species and habitats, 3) conduct research on invasive species and develop technologies to prevent introduction, and 4) provide for environmentally sound control, promote public education on invasive species.

⁶ Executive Order 13186 directs federal agencies to protect migratory birds and strengthen migratory bird conservation by identifying and implementing strategies that promote conservation and minimize the take of migratory birds through enhanced collaboration between WS and the USFWS, in coordination with state, tribal, and local governments. A National-level MOU between the USFWS and WS is being developed to facilitate the implementation of Executive Order 13186.

V. RELATIONSHIP OF THIS DOCUMENT TO OTHER ENVIRONMENTAL DOCUMENTS

WS' Programmatic Final Environmental Impact Statement: WS has developed a programmatic Final Environmental Impact Statement (FEIS)⁷ that addresses the need for wildlife damage management in the United States (USDA 1997). The FEIS contains detailed discussions of potential impacts to the human environment from wildlife damage management methods used by WS. Pertinent information available in the FEIS has been incorporated by reference into the EA and this Decision.

VI. AFFECTED ENVIRONMENT

The proposed action could be conducted on private, federal, state, tribal, and municipal lands in West Virginia to resolve damage to agricultural commodities, natural resources, property, and to reduce threats to public health and safety. The affected environment includes, but is not necessarily limited to, areas in and around buildings and parks, bridges, industrial sites, urban/suburban woodlots, and airport hangars, where pigeons, starlings, sparrows, and blackbirds may roost, loaf, or nest. Damage management activities may also be conducted at agricultural fields, vineyards, orchards, farmyards, grain mills, and grain handling areas (e.g., railroad yards) where pigeons, starlings, sparrows and/or blackbirds destroy crops, feed on spilled grains, or contaminate food products for human or livestock consumption. Additionally, the area of the proposed action would include airports and surrounding property where pigeons, starlings, sparrows, and blackbirds represent a threat to aviation safety.

WS has reviewed the affected environment during evaluations of programs activities under the proposed action through annual monitoring reports and this summary report. The affected environment has not changed since the implementation of the proposed action and continues to be as addressed in the EA.

VII. MAJOR ISSUES

Issues are concerns of the public and/or professional community raised regarding potential adverse effects that might occur from a proposed action. Such issues must be considered in the NEPA decision-making process. Issues relating to the reduction of wildlife damage were raised during the scoping process for WS' programmatic FEIS (USDA 1997) and were considered in the preparation of the EA (USDA 2002). Issues related to managing damage associated with pigeon, starling, house sparrow, and blackbird damage management were developed by WS in consultation with the USFWS, the WVDNR, and the West Virginia Department of Agriculture. The pre-decisional EA and Decision were also made available to the public for review and comment to identify additional issues.

The EA fully describes the issues identified during the scoping process for WS' programmatic FEIS and during the development of the EA. The following issues were identified as important to the scope of the analysis (40 CFR 1508.25):

Issue 1 – Effects on target bird species

A common issue when addressing damage caused by wildlife are the potential impacts of management actions on the population of target species. Methods used to resolve damage can involve altering the behavior of target species and may require the use of lethal methods when appropriate. Under the proposed action, WS provided technical and direct damage assistance using methods described in Appendix B of the EA in an integrated approach in which all or a combination of methods were employed to resolve a request for assistance (USDA 2002).

⁷Copies of WS' programmatic FEIS are available from USDA/APHIS/WS Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD 20737-1234.

WS continued to provide both technical assistance and direct damage management as part of an integrated damage management approach to preventing and resolving damage caused by pigeons, starlings, house sparrows, and blackbirds in West Virginia from federal fiscal year (FY)⁵ 2002 through FY 2008. Technical assistance was provided to cooperators through the dissemination of information regarding damage management techniques to prevent damage, through methods demonstrations, and through site visits. Through technical assistance, WS made recommendations on the appropriate methods available for use that a requestor could employ to resolve damage or reduce threats without WS' direct involvement.

Operational assistance occurs when WS is directly involved with employing methods to resolve, alleviate, or reduce threats. As directed by the selected alternative, WS applies multiple methods as part of an integrated damage management program to resolve requests for assistance. WS' technical assistance and direct operational programs are also discussed in the EA (USDA 2002) and in WS' programmatic FEIS (USDA 1997).

The integrated approach of managing damage associated with pigeons, starlings, house sparrows, and blackbirds uses both non-lethal and lethal methods to resolve requests for assistance. Although non-lethal methods can disperse birds from areas where application occurs, those birds are generally unharmed. Therefore, no adverse affects are often associated with the use of non-lethal methods. However, methods used to lethally take pigeons, starlings, house sparrows, and blackbirds can result in local reductions in those species' populations in the area where damage or threats of damage were occurring. Rock pigeons, European starlings, and house sparrows are non-native species to North America and are afforded no protection under the Migratory Bird Treaty Act nor are those species protected by State law and regulations (West Virginia Code § 20-2-5 (18)). Red-winged blackbirds, brown-headed cowbirds, common grackles, common ravens, and American crows are afforded protection from take (killing) under the Migratory Bird Treaty Act. Normally, authorized take of those bird species afforded protection under the Migratory Bird Treaty Act can only occur after issuance of a depredation permit issued by the USFWS pursuant to the Act. However, when red-winged blackbirds, brown-headed cowbirds, common grackles, common ravens, and American crows are found committing or about to commit damage to resources or posing a threat to human safety, take can occur without a depredation permit under a Depredation Order (50 CFR 21.43). Take of blackbirds by WS occurs pursuant to the Depredation Order in West Virginia.

WS' activities to address damage caused by pigeons, starlings, house sparrows, and blackbirds using an integrated approach to resolve requests for assistance from FY 2002 through FY 2008 are summarized by FY below:

WS' Bird Damage Management Activities in West Virginia during FY 2002

WS received requests for assistance to manage damage and threats associated with pigeons, starlings, and American crows during FY 2002 in West Virginia. Damage and threats occurred primarily from accumulations of fecal droppings under roosting areas that can damage property and pose a risk to human safety where fecal matter occurs in public-use areas. Fecal droppings are also aesthetically displeasing and require continual clean-up. During FY 2002, WS conducted six technical assistance projects involving damage or threats posed by pigeons in the State, five technical assistance projects were conducted involving damage and threats associated with starlings, and four projects were conducted by WS involving damage and threats associated with American crows.

To address requests for direct operational assistance, WS employed lethal methods to take eight crows with firearms and DRC-1339 to lethally take 100 crows during FY 2002. A total of 1,206 pigeons were lethally taken during FY 2002 to resolve damage and threats to human safety. WS employed cage traps

to live-capture 1,106 pigeons which were subsequently euthanized by cervical dislocation, 88 pigeons were lethally taken with firearms, and 12 were taken by other non-chemical methods (e.g., hand-caught, mist nets). During FY 2002, WS employed DRC-1339 to lethally take 686 starlings in West Virginia to resolve requests to manage damage and reduce threats to human safety.

WS' Bird Damage Management Activities in West Virginia during FY 2003

Similar to FY 2002, requests for assistance in FY 2003 were primarily to resolve damage and threats associated with accumulations of fecal droppings caused by roosting and loafing pigeons, starlings, and crows in the State. Technical assistance was provided to those requesting assistance with bird damage without WS' direct involvement. WS conducted 10 technical assistance projects involving pigeons, nine projects involving starlings, two projects associated with red-winged blackbirds, one project involving common ravens, one project involving American crows, and one technical assistance project involving a mixed species flock of blackbirds.

During FY 2003 to resolve damage and threats at the request of cooperators, WS employed DRC-1339 to take 75 crows in the State and 660 starlings. To alleviate damage and threats associated with pigeons, WS used cage traps to live-capture 1,336 pigeons. Pigeons live-captured were subsequently euthanized by cervical dislocation. In addition, WS used shooting with firearms to lethally take 39 pigeons and employed DRC-1339 to take 600 pigeons.

WS' Bird Damage Management Activities in West Virginia during FY 2004

WS continued to provide both technical and operational assistance in FY 2004 to those requesting assistance with managing damage and threats associated with pigeons, starlings, sparrows, and blackbirds in the State. Damages reported and verified by WS in FY 2004 occurred from pigeons where excessive fecal material accumulated under roosting areas that required constant cleaning, caused economic damage, was aesthetically displeasing, and when accumulations occurred in areas of human activity, posed a threat to human safety from disease transmission.

Technical assistance was provided to those interested through the dissemination of handouts and information regarding damage management techniques, species identification, methods demonstrations, and site visits. Through technical assistance, WS made recommendations on the appropriate methods available for use that a requestor can employ to resolve damage or reduce threats without WS' direct involvement. During FY 2004, six technical assistance projects were conducted involving pigeons, one project involving damage caused by red-winged blackbirds was conducted, two technical assistance projects were conducted for mixed species flocks of blackbirds, one project was conducted for house sparrows, and 22 projects involving 182 participants were conducted to address damage and threats associated with starlings.

Operational assistance occurs when WS is directly involved with employing methods to resolve, alleviate, or reduce threats associated with pigeons, starlings, sparrows, and blackbirds. As directed by the selected alternative, WS continued to apply multiple methods as part of an integrated damage management program to resolve requests for assistance in FY 2004. As part of an integrated management program, 462 pigeons were lethally removed by shooting and trapping to resolve requests for assistance in FY 2004. In addition, 500 pigeons were lethally taken using DRC-1339. WS employed DRC-1339 to lethally take 1,911 starlings in FY 2004 to alleviate damage and used DRC-1339 to lethally take 50 crows.

WS' Bird Damage Management Activities in West Virginia during FY 2005

WS continued to provide both technical and operational assistance in FY 2005 to those requesting assistance with managing damage and threats associated with birds in the State. Damages reported and verified by WS in FY 2005 occurred primarily from pigeons and starlings where excessive fecal material accumulated under roosting areas that required constant cleaning, caused economic damage, was aesthetically displeasing, and when accumulations occurred in areas of human activity, posed a threat to human safety from disease transmission.

During FY 2005, WS conducted bird damage management activities at one location to alleviate damage to agricultural resources, three locations to alleviate damage to property, three locations to reduce threats to human safety. As directed by the selected alternative, WS continued to apply multiple methods as part of an integrated damage management program to resolve requests for assistance in FY 2005. As part of an integrated management program, 303 pigeons were lethally removed by shooting and trapping to resolve requests for assistance in FY 2005. To resolve damage to property and to reduce threats to human safety, 65 European starlings and 20 pigeons were lethally removed using DRC-1339 during FY 2005.

WS' Bird Damage Management Activities in West Virginia during FY 2006

WS continued to provide both technical and operational assistance in FY 2006 to those requesting assistance with managing damage and threats associated with pigeons, starlings, house sparrows, and blackbirds in West Virginia. Similar to previous years, requests for WS' assistance occurred primarily from those cooperators experiencing damage and threats associated with excessive fecal material accumulating under roosting areas.

Through technical assistance, WS made recommendations on the appropriate methods available for use that a requestor could employ to resolve damage or reduce threats without WS' direct involvement. During FY 2006, WS conducted four technical assistance projects addressing damage caused by pigeons involving 37 participants. WS also conducted three technical assistance projects with 75 participants involving damage caused by starlings in FY 2006.

WS continued to apply multiple methods as part of an integrated damage management program to resolve requests for direct assistance in FY 2006. As part of an integrated management program, 647 pigeons were lethally removed to resolve requests for assistance in FY 2006 by shooting and trapping. Most pigeons were live-captured using cage traps and euthanized by cervical dislocation. To resolve damage to property and to reduce threats to human safety, 50 pigeons were lethally taken using DRC-1339 in the State.

WS' Bird Damage Management Activities in West Virginia during FY 2007

WS continued to provide both technical and operational assistance in FY 2007 to those requesting assistance with managing damage and threats associated with birds in the State. Damages reported and verified by WS in FY 2007 were similar to damages occurring from excessive fecal material accumulating under roosting areas in previous years.

Through technical assistance, WS made recommendations on the appropriate methods available for use that a requestor could employ to resolve damage or reduce threats without WS' direct involvement. During FY 2007, WS provided information on resolving pigeon damage during three technical assistance projects involving five participants. WS also conducted three technical assistance projects in FY 2007 involving starlings with the participation of 47 people. WS conducted three projects involving crow damage and three projects involving damage and threats associated with house sparrows. In addition, WS

conducted one technical assistance project in FY 2007 that addressed damage caused by red-winged blackbirds and one assistance project that identified damage associated with a mixed species flock of blackbirds involving 45 participants.

WS continued to apply multiple methods as part of an integrated damage management program to resolve requests for assistance in FY 2007. As part of an integrated management program, 635 pigeons were lethally removed by shooting and were euthanized after being live-captured in cage traps to resolve damage and threats. WS also employed DRC-1339 to lethally take 525 European starlings during FY 2007.

WS' Bird Damage Management Activities in West Virginia during FY 2008

Similar to previous years, damages reported and verified by WS in FY 2008 occurred primarily from excessive fecal material accumulating under roosting areas. Through technical assistance, WS made recommendations on the appropriate lethal and non-lethal methods available for use that a requestor can employ to resolve damage or reduce threats without WS' direct involvement. During FY 2008, 25 technical assistance projects were conducted; seven projects were conducted for pigeons, eleven for starlings, one for house Sparrows, one for blackbirds, and five were conducted for crows.

Through direct operational assistance, WS continued to apply multiple methods as part of an integrated damage management program to resolve requests for assistance in FY 2008. As part of an integrated management program, 1,242 pigeons and 10 starlings were lethally removed by shooting and trapping to resolve requests for assistance in FY 2008. To resolve requests for assistance to reduce threats to human safety and damage to property, WS used DRC-1339 to remove 2,955 starlings and six pigeons in FY 2008.

Pigeon, starling, house sparrow, and blackbird population impact analysis from WS' activities

As discussed in the EA, pigeons, starlings, and house sparrows are all non-native species in North America that often compete with native species for food and nesting habitat (USDA 2002). The communal nesting behavior and roosting behavior of those three species along with the close association of those species with human activities often raises concerns about economic damage to agricultural resources, property, natural resources, and threats to human safety. Therefore, a reduction in populations of those species could be viewed as benefiting the native environment in West Virginia. Rock pigeons, European starlings, and house sparrows are afforded no protection under the Migratory Bird Treaty Act nor afforded any protection by the State. As discussed previously, a Depredation Order allows red-winged blackbirds, common grackles, brown-headed cowbirds, common ravens, and American crows to be taken without a depredation permit when they are found committing or about to commit damage or posing a safety hazard. All take by WS occurred pursuant to the Migratory Bird Treaty Act and the Depredation Order.

Of primary concern is the magnitude of take on a species' population from the use of lethal methods. Lethal methods are employed to remove an individual or those individuals responsible for causing damage and only after requests for such assistance are received by WS. The use of lethal methods would therefore result in local population reductions in the area where damage or threats were occurring. The number of target species removed from the population using lethal methods under the proposed action would be dependent on the number of requests for assistance received, the number of individuals involved with the associated damage or threat, and the efficacy of methods employed.

The analysis for magnitude of impact from lethal take generally follows the process described in Chapter 4 of WS' programmatic FEIS (USDA 1997). Magnitude is described in WS' programmatic FEIS as "...a

measure of the number of animals killed in relation to their abundance.” Magnitude may be determined either quantitatively or qualitatively. Quantitative determinations are based on population estimates, allowable harvest levels, and actual harvest data. Qualitative determinations are based on population trends and harvest data when available. Generally, WS only conducts damage management involving species whose population densities are high and only after they have caused damage. WS’ take is monitored by comparing numbers of animals killed with overall populations or trends in populations to assure the magnitude of take is maintained below the level that would cause significant adverse impacts to the viability of native species populations (USDA 1997).

From FY 2002 through FY 2008, the WS program in West Virginia lethally removed 7,046 pigeons, 6,812 starlings, and 233 crows to alleviate damage and threats at the request of a cooperator. No take of red-winged blackbirds, brown-headed cowbirds, common grackles, or ravens has occurred by WS in West Virginia since FY 2002.

Table 1 - Take of birds by the WS’ program in West Virginia from FY 2002 through FY 2008

Fiscal Year	Rock Pigeons	European Starlings	American Crows
2002	1,206	686	108
2003	1,975	660	75
2004	962	1,911	50
2005	323	65	0
2006	697	0	0
2007	635	525	0
2008	1,248	2,965	0
Total	7,046	6,812	233

The EA evaluated an annual take of up to 10,000 pigeons by WS to resolve requests for assistance to manage damage (USDA 2002). WS’ highest level of take occurred in FY 2003 when 1,975 pigeons were taken. WS’ annual take of pigeons has been within the level of take analyzed in the EA. The Partners in Flight (PIF) landbird population database estimated the pigeon population in West Virginia to be 100,000 birds (Rich et al. 2004). Trend data from pigeons observed on routes during the Breeding Bird Survey (BBS) indicates the number of pigeons observed in the State during the breeding season has declined an estimated -1.8% annually since 1966 (Sauer et al. 2008). Pigeons in the northeast region of the United States (USFWS Region 5) are showing a downward trend estimated at -0.7% annually since 1966 (Sauer et al. 2008). Pigeons overwintering in West Virginia have shown a general increasing to stable trend since 1966 according to the Christmas Bird Count (CBC) (National Audubon Society 2002). Take from other sources is currently not known and is not reported by the State nor the USFWS since pigeons are considered a non-native species and reporting of take to the State or the USFWS is not required. Based on the best available population estimate and WS’ highest level of pigeon take, take of pigeons by WS in FY 2003 represented 2.0% of the estimated population of pigeons in the State. Although survey data for pigeons in West Virginia shows downward trends, populations have been relatively stable since 1997 (Sauer et al. 2008). WS’ removal of pigeons occurs where damages are occurring which could result in a reduction of pigeons at localized sites. However, WS’ activities are limited and are not adversely affecting populations of pigeons statewide in West Virginia.

WS’ total take of starlings from FY 2002 through FY 2008 was 6,812 birds. WS’ total take of starlings from FY 2002 through FY 2008 is below the estimated annual take analyzed in the EA. The PIF population database estimates the starling population in West Virginia to be one million birds (Rich et al. 2004). Trend data from routes surveyed during the BBS indicates starlings are showing a declining population trend in West Virginia estimated at -0.4% annually since 1966 (Sauer et al. 2008). Regionally (USFWS Region 5), the number of starlings observed during the BBS are showing a statistically

significant decline estimated at -1.7% annually since 1966 (Sauer et al 2008). Starlings overwintering in West Virginia are showing a slightly declining to stable trend since 1966 (National Audubon Society 2002). Similar to pigeons, take by other entities is currently not available since starlings are affording no protection under federal or state laws and regulations. The highest level of take by WS occurred in FY 2008 when 2,965 starlings were lethally taken to alleviate damage. Based on the best available population information, WS' take of 2,965 starlings represents 0.3% of the estimated population. WS' activities to alleviate damage associated with starlings are not adversely affecting starling populations in the State based on the limited take occurring by WS.

The EA evaluated an annual estimated take of up to 1,000 American crows by WS in West Virginia based on previous requests for assistance (USDA 2002). WS' lethal take of crows from FY 2002 through FY 2008 totaled 233 crows. No crows have been taken by WS since FY 2004 in the State. WS' annual take from FY 2002 through FY 2004 was within the level of take analyzed in the EA. Crows can also be taken during a regulated harvest season in the State. During the regulated hunting season for crows in the State, an unlimited number of crows can be harvested. The number of crows harvested in the State during the regulated harvest season is currently unknown. As state previously, crows can also be taken without a depredation permit under the Depredation Order when found committing or about to commit damage to resources or posing a risk to human safety. Take of crows under the Depredation Order are currently not required to be reported to the USFWS and/or the WVDNR. Therefore, the number of crows taken under the depredation order is also currently unknown. The PIF population database estimated the crow population in West Virginia to be 260,000 birds (Rich et al. 2004). BBS trend data from 1966 to 2007 indicates the number of American crows observed during the breeding season in West Virginia is showing a statistically significant decline estimated at -0.7% annually (Sauer et al. 2008). Regionally, the number of crows observed during the BBS is showing a statistically significant increase estimated at 0.7% annually since 1966 (Sauer et al. 2008). The number of crows observed wintering in West Virginia have shown a general stable to increasing trend since 1966 (National Audubon Society 2002). WS' take of crows from FY 2002 through FY 2008 totaled 233 birds which represents 0.09% of the estimated population in the State. WS' activities to reduce American crow damage are not contributing to the decline of crows in the State. WS' limited take of crows annually has not adversely affected crow populations in the State.

WS' activities to alleviate damage or threats associated with pigeons, starlings, sparrows, and blackbirds have not changed from those analyzed in the EA. WS' take from FY 2002 through FY 2008 of pigeons, starlings, and crows was within the scope analyzed in the EA (USDA 2002). Although trending data for several of the species addressed by WS to alleviate damage are showing declines, WS' activities do not result in wide-scale removal of those species. Therefore, the magnitude of WS' take is low when compared to the overall populations of those species. However, any decline in populations of pigeons and starlings could be considered as benefiting native wildlife through a reduction in competition for resources. The magnitude of take by WS on pigeon, starling, sparrow, and blackbird populations will continue to be minor and will not threaten the viability of those species' populations.

Issue 2 - Effects on other wildlife species, including T&E species

The issue of non-target species effects, including effects on threatened and endangered species arises from the use of non-lethal and lethal methods identified in the alternatives. The use of non-lethal and lethal methods has the potential to inadvertently disperse, capture, or kill non-target wildlife. WS' minimization measures and Standard Operating Procedures are designed to reduce the effects of damage management activities on non-target species' populations which were discussed in the EA (USDA 2002). To reduce the risks of adverse affects to non-target wildlife, WS selects damage management methods that are as target-selective as possible or applies such methods in ways that reduces the likelihood of capturing non-target species. Before initiating management activities, WS also selects locations which

are extensively used by the target species and employs baits or lures which are preferred by those species. Despite WS' best efforts to minimize non-target take during program activities, the potential for adverse affects to non-targets exists when applying both non-lethal and lethal methods to manage damage or reduce threats to human safety.

Non-lethal methods have the potential to cause adverse affects on non-targets primarily through exclusion, harassment, and dispersal. Any exclusionary device erected to prevent access of target species also potentially excludes species that are not the primary reason the exclusion was erected. Therefore, non-target species excluded from areas may potentially be adversely impacted if the area excluded is large enough. Auditory and visual dispersal methods used to reduce damage or threats caused by target species are also likely to disperse non-targets in the immediate area the methods are employed. Therefore, non-targets may be dispersed from an area while employing non-lethal dispersal techniques. However, like target species, the potential impacts on non-target species are expected to be temporary with target and non-target species often returning after the cessation of dispersal methods.

The lethal take of non-targets from using those methods described in the EA is unlikely with take never reaching a magnitude that a negative impact on populations would occur. Any potential non-targets live-captured using non-lethal methods would be handled in such a manner as to ensure the survivability of the animal if released. The potential adverse affects associated with non-lethal methods are negligible and, in the case of exclusion and harassment methods, often temporary. The use of firearms is selective for target species since animals are identified prior to application; therefore no adverse impacts are anticipated from the use of those methods. The use of chemical methods, when used according to label directions, poses minimal hazards to non-target wildlife (USDA 1997).

While every precaution is taken to safeguard against taking non-targets during operational use of methods and techniques for resolving damage and reducing threats caused by wildlife, the use of such methods can result in the incidental take of unintended species. Those occurrences are minimal and should not affect the overall populations of any species. WS' take of non-target species during activities to reduce damage or threats to human safety caused by pigeons, starlings, sparrows, and blackbirds is expected to be extremely low to non-existent. WS will continue to monitor annually the take of non-target species to ensure program activities or methodologies used do not adversely impact non-targets. WS' activities are not likely to adversely affect the viability of any wildlife populations from damage management activities.

The EA concluded that WS' damage management activities would have no adverse affects on other wildlife species (non-target), including threatened and endangered species throughout the State when those activities were conducted within the scope analyzed in the EA. As discussed in Issue 1, the primary methods used during direct operational assistance by WS from FY 2002 through FY 2008 to resolve requests for assistance were shooting with firearms, the live-capture of pigeons and starlings in cage traps which were subsequently euthanized by cervical dislocation, and DRC-1339. No take of non-target species is known to have occurred from WS' activities to resolve requests for assistance from FY 2002 through FY 2008 and no adverse affects were noted or brought to WS' attention from the use of any methods employed by WS.

Threatened & Endangered (T&E) Species: A review of T&E species listed by the USFWS showed that additional listings of T&E species in West Virginia have occurred since the completion of the EA in 2002. Those species listed since the completion of the EA include the ring pink (mussel) (*Obovaria retusa*), Madison Cave isopod (*Antrolana lira*), American burying beetle (*Nicrophorus americanus*), Eskimo curlew (*Numenius borealis*), and gray wolf (*Canis lupis*). Of those species listed since the completion of the EA, only the Madison Cave isopod is listed as currently occurring in West Virginia. For those species not currently listed as occurring in West Virginia, WS' bird damage management

activities will have no effect on those species based on the absence of those species in the State.

The Madison Cave isopod is a subterranean freshwater crustacean found only in Virginia and West Virginia where it can be found in underground lakes and deep karst aquifers (USFWS 1996, West Virginia Wildlife 2005). When initially discovered in 1958 populations of the isopod were only known to occur in the Shenandoah Valley of Virginia but were more recently discovered at two sites in Jefferson County, West Virginia (West Virginia Wildlife 2005). Current threats to isopod are groundwater contamination and development in areas where populations are known to occur. Although the EA discusses habitat modification to resolve bird damage or threats, those activities do not cause major ground disturbances that would result in habitat loss, sedimentation, or allow for an increase in the amount of contaminants leaching into underground aquifers. Habitat modification often occurs from recommendation by WS to thin or prune trees to discourage roosting and loafing of birds and rarely requires completely removing trees. Therefore, the recommendation or use of habitat modification to alleviate damage caused by roosting and loafing birds will have no effect on the Madison Cave isopod.

Of additional concern is the potential for chemical methods to leach into ground water when used to alleviate damage or reduce threats associated with birds. WS' use of chemical methods described in the EA are applied to target specific birds identified as responsible for causing damage or posing a threat and are not widely broadcast over large geographical areas. Application of chemicals for target bird species are not often applied on the surface of the ground which would prevent leaching of chemicals into the soil. Chemical methods are also often applied so that treated bait is consumed in one feeding and any uneaten bait must be retrieved after application. Chemical methods used to alleviate damage or reduce threats associated with birds that were addressed in the EA that by their use patterns could result in leaching include avitrol, methyl anthranilate, mesurol, anthraquinone, alpha-chloralose, egg oiling (corn oil), and DRC-1339.

Methyl anthranilate and anthraquinone are formulated as bird repellents that are most often applied as a liquid or fog through broadcast application where the potential exists for the chemical to penetrate soil and subsequently leach into groundwater. For those species addressed in the EA, methyl anthranilate and anthraquinone are most likely to be used as a fog or applied in areas where birds roost and/or loaf. WS has not employed chemical repellents as part of direct operational assistance provided to those requesting assistance with managing damage caused by birds in West Virginia. When receiving a request, WS has recommended the use of chemical repellents as part of an integrated approach to addressing damage and threats associated with birds as part of technical assistance projects. The number of requestors that have used those repellents recommended by WS is unknown. Most formulations of methyl anthranilate and anthraquinone repellents are used as taste aversion methods and require ingestion of the chemical to achieve the desired dispersing capabilities. The applicability of those formulations to disperse roosting and loafing birds is limited, except for fogging applications. Fogging applications are more appropriate for dispersing roosting birds by converting the liquid formulation into an aerosol that irritates the mucus membranes and eyes of birds. Therefore, the use of those chemicals as fogging agents is more applicable to roosting birds where liquid formulations are more applicable to food sources and/or water sources. Many formulations allow for the broad application of the chemicals over a large area (e.g., golf courses, airports) which increases the potential for leaching to occur.

The United States Environmental Protection Agency (EPA) determined the need for environmental fate and groundwater data was not warranted for registration of anthraquinone given the non-toxic results indicated by previous research (EPA 1989). The EPA (1989) also determined that the risks to non-targets were non-existent to minimal based on the lack of toxicity, the use pattern of the chemical, and application methods. Toxicity data available to the EPA indicated anthraquinone is "...at most, slightly toxic to aquatic invertebrates..." (EPA 1989). According to data reviewed by EPA, anthraquinone is not persistent in the environment which often requires the product to be re-applied. Repeated application

could lead to an increase in threats of the chemical leaching in underground water. Given the minimal toxicity hazards to wildlife and the volatility associated with anthraquinone, the use of or recommendation of repellents containing anthraquinone will have no effect on the Madison Cave isopod.

Methyl anthranilate is a food grade flavor and fragrance additive that is derived from a variety of flowers and fruits. Methyl anthranilate has a grape odor and has shown some repellent properties when ingested by birds. The United States Food and Drug Administration currently classifies methyl anthranilate as “generally regarded as safe”. Similar to anthraquinone, the EPA determined that the need for environmental fate and groundwater data was not warranted for registration of methyl anthranilate as a bird repellent given the non-existent to minimal toxicity of the chemical to humans and wildlife (EPA 2001). Methyl anthranilate is also slightly toxic to aquatic organisms which are addressed in the allowed application of the product which is outlined in the product label (EPA 2001). The EPA also indicates that methyl anthranilate is volatile in the environment which decreases the risks to toxicity (EPA 2001). Based on the available information, the use of or recommendation of products containing methyl anthranilate will have no effect on the Madison Cave isopod.

Other chemical methods available to manage damage caused by birds include avitrol, mesurol, alpha, chloralose, DRC-1339, and corn oil (for egg oiling). Avitrol, mesurol, alpha chloralose, and DRC-1339 are formulated on baits which are applied to manage damage caused by birds. Corn oil is directly applied to eggs to render the egg unviable and prevent hatching. For a full discussion of those methods, please see the EA (USDA 2002). Corn oil would be applied to eggs in nests of target bird species. None of the target bird species are ground nesters and corn oil would not be applied in excessive amounts which would cause runoff of the oil from the eggs to the ground. A limited amount of oil is used to coat the outside of the egg to prevent oxygen exchange. Therefore, the use of corn oil will have no effect on the Madison Cave isopod.

Since avitrol, mesurol, alpha-chloralose, and DRC-1339 are formulated on and applied using various bait types and are not applied as a liquid, the greatest risks of the chemical entering the soil and leaching would occur from baits being exposed to rainfall or an event where exposure of the bait to water occurs since the chemicals are water soluble. If chemicals dissolve into water (wash off) of treated bait, the chemical could enter the soil. Mesurol is injected inside raw eggs of quail, chickens, ducks, or geese and is used to reduce predation of crows on the eggs of protected, threatened, and endangered species. Mesurol is not currently registered for use in West Virginia. The use of mesurol to prevent egg predation requires consultation with the USFWS when used to ensure threatened and endangered species do not consume treated eggs. If mesurol becomes registered in the State and WS is requested to use mesurol to reduce crow predation on threatened and endangered species, WS would consult with the USFWS pursuant to Section 7 of the Endangered Species Act.

Avitrol is a registered flock dispersing product for use to disperse pigeons, house sparrows, crows, starlings, and blackbirds at nesting, feeding, loafing, and roosting sites on or in the area of structures, feedlots, landfills, and airports (EPA 2007). The active ingredient in Avitrol is 4-Aminopyridine which blocks potassium ion channels in nerve fibers. Avitrol is primarily applied in urban areas to prevent pigeon and sparrow damage with limited use at cattle feedlots for sparrows. Application of avitrol treated bait varies but rates range from 0.0001 to 0.002 pound of active ingredient per acre (EPA 2007). The EPA estimates usage in the United States is less than 250 pound annually (EPA 2007). The amount of avitrol applied in West Virginia is unknown. WS has not used avitrol since 2002 to manage damage caused by birds. However, avitrol is likely to be recommended by WS to those requesting assistance with managing damage caused by birds. The EPA found no reports of 4-Aminopyridine being detected in surface water or ground water from those monitoring programs that include searches for the active ingredient. Based on EPA evaluation, 4-Aminopyridine poses minimal risks of long-term environmental exposure with no drinking water exposure (surface and ground water) expected (EPA 2007). Based on

the information, WS' use or recommendation of Avitrol to manage damage caused by birds will have no effect on the Madison Cave isopod.

Alpha-chloralose is a central nervous system depressant used as an immobilizing agent to capture and remove pigeons, waterfowl, and other birds. Personnel applying the bait are present at the site of application during baiting to retrieve the immobilized birds. Unconsumed baits are removed from the site following each treatment. The solubility and mobility of alpha-chloralose are believed to be moderate and environmental persistence is believed to be low. Bioaccumulation in plants and animal tissue is believed to be low. Toxicity to aquatic organisms is unknown (Woronecki et al. 1990), but the compound is generally not soluble in water and, therefore, should remain unavailable to aquatic organisms. Other supporting rationale for this determination included relatively low total annual use and a limited number of potential exposure pathways. Alpha-chloralose is currently approved for use by WS as an Investigational New Animal Drug by the FDA, rather than as a pesticide. WS has not employed alpha-chloralose to live-capture pigeons in West Virginia since completion of the EA. However, alpha-chloralose could be used in limited situations to live-capture pigeons in the State. Based on the limited use of alpha-chloralose by WS, the limited mobility of the chemical, and the requirement that all bait be retrieved, WS' use of alpha-chloralose will have no effect on the Madison Cave isopod.

DRC-1339 is an avicide used to lethally take pigeons, starlings, and blackbirds that is formulated as a powder and applied to various baits that are often broadcast on the ground in areas where target birds have been acclimated to feed at the location through pre-baiting. The active ingredient in DRC-1339 is 3-Chloro-p-toluidine hydrochloride which causes irreversible kidney and heart damage in sensitive bird species. DRC-1339 is the primary chemical method employed by WS to manage damage caused by pigeons, starlings, and blackbirds. The EPA estimates that 110 pounds of the active ingredient is applied annually in the United States (EPA 1995). Label requirements of DRC-1339 require application rates to not exceed 0.1 pounds of active ingredient per acre (EPA 1995). Since FY 2002, WS has used 919 grams of DRC-1339 to alleviate damage caused by pigeons and starlings in the State. DRC-1339 is considered very highly toxic to freshwater invertebrates. During the re-registration process for DRC-1339, the EPA reported that acute risks to aquatic invertebrates existed and that label requirements of DRC-1339 would include risk mitigation measures to reduce the likelihood that the active ingredient would be available as runoff (EPA 1995). DRC-1339 binds strongly with organic matter in soil which limits the mobility of the chemical if the chemical enters the soil. Uneaten treated bait must also be retrieved after each application which further reduces the risks of run-off occurring. Based on the limited use of the chemical and the mitigation measures included as part of the label requirements of DRC-1339, WS' use or recommendation of DRC-1339 to manage damage and threats associated with pigeons, starlings, and blackbirds will have no effect on threatened and endangered species in the State.

In all cases, the likelihood of chemicals entering the soil after formulation occurs onto bait and then leaching into underground aquatic environments is extremely low. Based on the information available, WS' use or recommendation of chemical methods will have no effect on threatened and endangered species in the State.

Issue 3 - Effects on public health and safety

Management activities conducted by WS to resolve damage or threats associated with pigeons, starlings, sparrows, and blackbirds have not resulted in any injuries or illness to any members of the public or to WS' personnel. WS' program activities had a positive impact in those situations that reduced the risks of potential injury, illness, and loss of human life from injurious bird species associated with aircraft strikes and diseases transmission. The EA concluded that an integrated approach to wildlife damage management had the greatest potential of successfully reducing potential risks to human health and safety.

Program activities and methods, and their potential impacts on human health and safety have not changed from those analyzed in the EA. Impacts of the program on this issue are expected to remain insignificant.

Issue 4 - Impacts to stakeholders, including aesthetics

As analyzed in the EA, WS would employ methods when requested that would result in the dispersal, exclusion, or removal of individuals or small groups of pigeons, starlings, and sparrows to resolve damage and threats. In some instances where individuals of those species are dispersed or removed, the ability of interested persons to observe and enjoy those individuals would likely decline temporarily. The presence of pigeons, starlings, sparrows, and blackbirds in areas where those individuals were dispersed will likely increase upon cessation of damage management activities.

Even the use of exclusionary devices can lead to the dispersal of birds if the resource being damaged was acting as an attractant. Thus, once the attractant has been removed or made unavailable, birds will likely disperse to other areas where resources are more vulnerable.

The use of lethal methods would result in temporary declines in local populations resulting from the removal of those birds responsible for causing damage. WS' goal is to respond to requests for assistance and to manage only those birds responsible for the resulting damage. Therefore, the removal of birds would result in localized declines depending on the number of birds removed and population densities in surrounding areas. However, the overall populations of those target species would not be impacted. Based on the localized decline in the presence of birds, the EA concluded the effects on aesthetics would be variable depending on the stakeholders' values towards wildlife. However, the ability to view and enjoy pigeons, starlings, sparrows, and blackbirds in the State would still remain if a reasonable effort is made to locate those species outside the area in which damage management activities occurred.

Conflicts with pigeons, starlings, sparrows, and blackbirds were reduced at each location that WS provided direct management assistance thereby improving the aesthetic values of affected properties. Program activities and methods and their potential impacts on aesthetics have not changed from those analyzed in the EA. Impacts of the program on aesthetics are expected to remain insignificant.

Issue 5 – Humaneness and animal welfare concerns of methods used

As analyzed in the EA, humaneness, in part, appears to be a person's perception of harm or pain inflicted on an animal. People may perceive the humaneness of an action differently. The challenge in coping with this issue is how to achieve the least amount of animal suffering.

Some individuals believe any use of lethal methods to resolve damage associated with wildlife is inhumane because the resulting fate is the death of the animal. Others believe that certain lethal methods can lead to a humane death. Others believe most non-lethal methods of capturing wildlife to be humane because the animal is generally unharmed and alive. Still others believe that any disruption in the behavior of wildlife is inhumane. With the multitude of attitudes on the meaning of humaneness, the analyses must consider the most effective way to address damage and threats caused by wildlife in a humane manner. WS is challenged with conducting activities and employing methods that are perceived to be humane while assisting those persons requesting assistance to manage damage and threats associated with wildlife. The goal of WS is to use methods as humanely as possible to effectively resolve requests for assistance to reduce damage and threats to human safety. WS continues to evaluate methods and activities to minimize the potential pain and suffering of those methods when attempting to resolve requests for assistance.

As mentioned previously, some methods have been stereotyped as "humane" or "inhumane". However,

many “humane” methods can be inhumane if not used appropriately. For instance, a cage trap is generally considered by most members of the public as “humane”. Yet, without proper care, live-captured wildlife in a cage trap can be treated inhumanely if not attended to appropriately.

Therefore, WS’ mission is to effectively address requests for assistance using methods in the most humane way possible that minimizes the stress and pain of the animal. WS’ personnel are experienced and professional in their use of management methods and methods are applied as humanely as possible.

The EA concluded that the methods used by WS to manage damage caused by pigeons, starlings, house sparrows, and blackbirds are relatively humane, but that some persons will view some methods used as inhumane. WS will continue to adhere to minimization measures and protocols discussed in the EA (USDA 2002) and WS’ programmatic FEIS (USDA 1997) to ensure methods and techniques to resolve damage and threats are employed as humanely as possible. Impacts of the program on humaneness and animal welfare are expected to remain insignificant.

VIII. ISSUES NOT CONSIDERED IN DETAIL

WS has reviewed the issues not considered in detail as described in the EA and has determined that the analysis provided in the EA has not changed and is still appropriate. Effects on those issues continue to be insignificant.

IX. ALTERNATIVES ANALYZED IN DETAIL

The following four alternatives were developed in response to the issues identified in the EA and through public involvement:

- Alternative 1: Integrated Bird Damage Management Program (Proposed Action/No Action)
- Alternative 2: Non-lethal Bird Damage Management Only by WS
- Alternative 3: Technical Assistance Only
- Alternative 4: No Federal WS Bird Damage Management

The EA contains a detailed description and discussion of the alternatives and the effects of the alternatives on the issues identified (USDA 2002). Appendix B of the EA provides a description of the methods that could be used or recommended by WS under each of the alternatives. WS has reviewed the alternatives analyzed and determined the analyses in the EA are still appropriate for those alternatives.

X. ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Several alternatives were also considered to address the issues but were not analyzed in detail with the rationale discussed in the EA (USDA 2002). WS has reviewed the alternatives analyzed but not in detail and determined the analyses in the EA are still appropriate for those alternatives considered.

XI. ADDITIONAL PIGEON DAMAGE MANAGEMENT METHODS

Since the completion of the EA, a product with the reproductive inhibitor known as nicarbazin has been registered for use in the State to manage pigeon populations by reducing the likelihood that eggs laid by pigeons will hatch. Nicarbazin is a complex of two compounds, 4,4'-dinitrocarbanilide (DNC) and 4,6-dimethyl-2-pyrimidinol (HDP) that interferes with the formation of the vitelline membrane that separates the egg yolk and egg white which prevents the development of an embryo inside the egg (EPA 2005). The active component of nicarbazin is the DNC compound with the HDP compound aiding in absorption of DNC into the bloodstream (EPA 2005). Nicarbazin was first developed to treat outbreaks of the fungal

disease coccidiosis⁸ in broiler chickens and has been approved as a veterinary drug by the United States Food and Drug Administration (FDA) since 1955 for use in chicken feed to prevent coccidiosis (EPA 2005).

Nicarbazin, as a reproductive inhibitor for pigeons, has been registered with the Environmental Protection Agency (EPA) as a pesticide pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) under the trade name OvoControl[®] P (Innolytics, LLC, Rancho Sante Fe, CA). OvoControl[®] P (EPA Reg. No. 80224-1) is a restricted-use pesticide registered for use in West Virginia for reducing the egg hatch of urban pigeons. The formulation for pigeons contains 0.5% of the active ingredient nicarbazin by volume as ready-to-use baits for pigeons in urban areas only. Urban areas have been defined by the EPA as municipalities and surrounding areas with a population of 50,000 or more people. Baiting can only occur by applicators certified by the State and only on rooftops or other flat paved or concrete surfaces such as buildings, office parks, malls, hospitals, bridges, airports, tunnels, and commercial sites.

Since OvoControl[®] P is commercially available to those with a certified applicators license, the use of the product could occur under any of the alternatives discussed in the EA and therefore, the effects of the use would be similar across all the alternatives. Under the proposed action, WS could use or recommend nicarbazin under the trade name OvoControl[®] P as part of an integrated approach to managing damages associated with pigeons. WS' use of nicarbazin under the proposed action would not be additive to the overall amount that could be used since the use of the product could occur by other entities (e.g., pest management companies) in the absence of WS' use of the product.

Population management from the use of reproductive inhibitors occurs through a reduction in the recruitment of new birds into the population by limiting reproductive output. A reduction in the population occurs when the number of birds being recruited into the population can not replace those individuals that die from other causes each year. The lack of recruitment back into the population equates to a net loss in the number of individuals in the population. Although not generally considered a lethal method since no direct take occurs, reproductive inhibitors can result in the reduction of a target species' population. WS' use or recommendation of nicarbazin would target local pigeon populations identified as causing damage or threatening human safety. Although a reduction in pigeon populations would likely occur from constant use of nicarbazin, the actual reduction in the population annually would be difficult to derive prior to the initiation of the use of nicarbazin.

One of the difficulties in calculating an actual reduction in a targeted population prior to application of the bait is that consumption of nicarbazin treated bait as currently formulated does not appear to completely eliminate egg hatch in pigeons. Current studies on the use of nicarbazin as a reproductive inhibitor for pigeons has shown variability in hatch rates of pigeons fed treated baits. In addition, pigeons must consume bait treated with nicarbazin daily in the correct dosage throughout the breeding season to achieve the highest level of effectiveness in reducing egg hatch. Pigeons can breed year-around with peak breeding occurring from February through October (Johnston 1992). Giunchi et al. (2007) found that when pigeons were fed treated baits (800 parts per million (ppm)) the number of hatchlings produced declined between 13% and 48% compared to a control group. When pigeons were fed doses of nicarbazin treated bait daily in cage studies at the levels currently found in OvoControl[®] P (5,000 ppm), Avery et al. (2008) found that the rate of egg hatch was reduced by 59% in captive pigeons. In simulating a 50% reduction in egg hatch, Giunchi et al. (2007) predicted through modeling that a population of 5,000 pigeons would be reduced by half if a 50% reduction in pigeon egg hatch occurred annually over a five-year period. The same population would rebound back to 5,000 individuals within five years if egg hatch returned to normal.

⁸Coccidiosis is a fungal pathogen known to infect birds and livestock causing diarrhea, dehydration, and can prevent proper growth of livestock. For more information on coccidiosis, see the EA (USDA 2003).

Since the effects of nicarbazin on egg hatch are reversible if no longer provided for consumption (Avery et al. 2006, Giunchi et al. 2007, Avery et al. 2008), the reduction in the local pigeon population from the use of nicarbazin can be maintained at appropriate levels where damages or threats are resolved by increasing or decreasing the amount of nicarbazin treated bait available to target pigeons. Although localized pigeon populations would likely be reduced from the use of nicarbazin, the extent of the reduction would be variable given the uncertainty in effectiveness of nicarbazin to reduce egg hatch in pigeons. When pigeons were provided nicarbazin in cage trials at dosage levels found formulated in OvoControl® P (5,000 ppm), not all eggs laid were infertile with 41% of the eggs producing apparently healthy chicks (Avery et al. 2008).

Label requirements of OvoControl® P restrict the application of the product to urban areas where treated bait can be placed on rooftops or other flat, concrete surfaces which further limits the extent of the products use for reducing pigeon populations. Based on current information, WS' use or recommendation of nicarbazin formulated under the trade name OvoControl® P will not adversely affect pigeon populations in the State since WS' activities will not be additive to those activities that could occur in the absence of WS' use of the product. The resultant reduction in the pigeon population from the use of nicarbazin would be highly variable given the variability in the effectiveness of the product to reduce egg hatch in pigeons. However, given that the effects of nicarbazin are only temporary if birds are not fed an appropriate dose of nicarbazin daily, the reduction in the population could be fully reversed if treated bait is no longer supplied and other conditions (e.g., food, disease) are favorable for population growth. As discussed previously, any reduction in local pigeon populations could be viewed as benefitting other native wildlife since pigeons can compete with native bird species for food and shelter.

The potential adverse affects to non-target wildlife are also a concern from the use of nicarbazin to manage pigeon populations. Exposure of non-target wildlife to nicarbazin could occur either from direct ingestion of the bait by non-target wildlife or from secondary hazards associated with wildlife consuming birds that have eaten treated bait. Several label restrictions of OvoControl® P are intended to mitigate risks to non-target wildlife from direct consumption of treated bait (EPA 2005). Daily observation of bait sites for pigeon and non-target activity must occur during a five to fourteen day acclimation period. The required acclimation period habituates pigeons to feeding in one location at a certain time period. Once pigeons are acclimated and no targets are observed feeding on the bait, observations for non-targets must continue to occur once weekly until application of treated bait ends. During the observation periods, the applicator must be present on site until all bait has been consumed. Non-target risks are further minimized by requirements that bait only be placed on rooftops in urban areas and if not practical, baiting is limited to paved and/or on hard concrete surfaces. All unconsumed bait must also be retrieved daily which further reduces threats of non-target consuming treated bait.

In addition, nicarbazin is only effective in reducing the hatch of eggs when blood levels of DNC are sufficiently elevated in a bird species. When consumed by birds, nicarbazin is broken down into the two base components of DNC and HDP which are then rapidly excreted. To maintain the high blood levels required to reduce egg hatch, birds must consume nicarbazin daily at a sufficient dosage that appears to be variable depending on the bird species (Yoder et al. 2005, Avery et al. 2006). For example, to reduce egg hatch in Canada geese (*Branta canadensis*), geese must consume nicarbazin at 2,500 ppm compared to 5,000 ppm required to reduce egg hatch in pigeons (Avery et al. 2006, Avery et al. 2008). In pigeons, consuming nicarbazin at a rate that would reduce egg hatch in Canada geese did not reduce the hatchability of eggs in pigeons (Avery et al. 2006). With the rapid excretion of the two components of nicarbazin (DNC and HDP) in birds, non-targets birds would have to consume nicarbazin daily at sufficient doses to reduce the rate of egg hatching.

Secondary hazards also exist from wildlife consuming pigeons that have ingested nicarbazin. As

mentioned previously, once consumed, nicarbazin is rapidly broken down into the two base components DNC and HDP. DNC is the component of nicarbazin that limits egg hatchability while HDP only aids in absorption of DNC into the bloodstream. DNC is not readily absorbed into the bloodstream and requires the presence of HDP to aid in absorption of appropriate levels of DNC. Therefore, to pose a secondary hazard to wildlife, ingestion of both DNC and HDP from a pigeon carcass would have to occur and HDP would have to be consumed at a level to allow for absorption of the DNC into the bloodstream. In addition, an appropriate level of DNC and HDP would have to be consumed from a pigeon carcass daily to produce any negative reproductive affects to other wildlife since current evidence indicates a single dose does not limit reproduction. To be effective nicarbazin (both DNC and HDP) must be consumed daily during the duration of the reproductive season to limit the hatchability of eggs. Therefore, to experience the reproductive affects of nicarbazin, a pigeon that had consumed nicarbazin would have to be consumed daily and a high enough level of DNC and HDP would have to be available in the pigeon carcass and consumed for reproduction to be affected. Based on the risks and likelihood of wildlife consuming a treated pigeon daily and receiving the appropriate levels of DNC and HDP daily to negatively impact reproductively, secondary hazards to wildlife from the use of nicarbazin are extremely low (EPA 2005).

Although some risks to other non-target species besides bird species does occur from the use of OvoControl® P, those risks are likely to be minimal given the restrictions on where bait can be applied (e.g., on rooftops, on pavement at airports). Although limited toxicological information for nicarbazin exists for wildlife species besides certain bird species, available toxicology data indicates nicarbazin is relatively non-toxic to other wildlife species (World Health Organization 1998, EPA 2005, California Department of Pesticide Regulation 2007). Given the use restriction of OvoControl® P and the limited locations where bait can be applied, the risks of exposure to non-targets would be extremely low.

WS has reviewed the list of threatened and endangered species listed in West Virginia and determined that the use of nicarbazin under the trade name OvoControl® P will have no effect on those species listed in the State. Restricting the use of the product to rooftops and paved concrete areas where pigeons are conditioned to feed along with the bait-type (pellets) of the product and the limited availability of the product during application ensures the use of nicarbazin will have no effect on threatened and endangered species. WS will continue to monitor pigeon damage management activities and those species listed in the State to ensure compliance with the Endangered Species Act.

Threats to human safety from the use of OvoControl® P will likely be minimal if labeled directions are followed. The use pattern of OvoControl® P will also ensure threats to public safety are minimal. Label requirements require treated bait to be applied on rooftops of buildings or other areas restricted to public access (e.g., airports). The EPA has characterized OvoControl® P as a moderate eye irritant. The FDA has established a tolerance of nicarbazin residues of 4 parts per million allowed in uncooked chicken muscle, skin, liver, and kidney (21 CFR 556.445). The EPA characterized the risks of human exposure as low for a similar product used to reduce egg hatch in Canada geese. The EPA also concluded that if human consumption occurred, a prohibitively large amount of nicarbazin would have to be consumed to produce toxic effects (EPA 2005). Based on the use pattern of the OvoControl® P and if label instructions are followed, risks to human safety will be low with the primary exposure occurring to those handling and applying the product. Safety procedures required by the label, when followed, will minimize risks to handlers and applicators.

The use of nicarbazin on the aesthetic values of pigeons occurs primarily from the inability of those interested to enjoy viewing, feeding, and photographing pigeons along with knowing pigeons are free-ranging. The aesthetic value of a local pigeon population would likely lessen from a reduction in a population that would result from the use of nicarbazin. As previously mentioned, the rate of population decline would be variable from the use of nicarbazin since effectiveness of the product varies. However,

the rate of decline in a localized pigeon population is likely to occur at a gradual rate compared to other lethal removal programs that target localized pigeon populations. Giunchi et al. (2007) predicted through modeling that a population of 5,000 pigeons would be reduced by half if a 50% reduction in pigeon egg hatch occurred annually over a five-year period. However, damage would continue to occur from those pigeons which could affect the aesthetic value of property and threaten human safety if pigeon populations remain sufficient for extended periods of time. Overall, the aesthetic value of a localized pigeon population would be similar to the use of other lethal methods discussed in the EA since a population decline would occur.

The use of nicarbazin would generally be considered as a humane method of managing local populations of pigeons. Nicarbazin reduces the hatchability of eggs laid by pigeons and appears to have no adverse affects on pigeons consuming bait daily and does not appear to adversely affect those chicks that do hatch from parents fed nicarbazin (Avery 2006, Avery 2008). Nicarbazin has been characterized as a veterinary drug since 1955 by the FDA for use in broiler chickens to treat outbreaks of coccidiosis with no apparent ill effects to chickens. Based on current information, the use of nicarbazin would generally be considered humane based on current research.

Overall, the use of nicarbazin would have no adverse affects on non-target wildlife that may consume bait or consume pigeons that have consumed bait, will not adversely affect human safety given the use restriction of the product that are found on the label, which if followed, will minimize human exposure to the product, will not adversely affect the aesthetic values of pigeons since pigeons are common in the State and the population decline would be gradual, and the product would likely be considered humane since only the hatching rate of eggs laid would be reduced after consumption with no apparent adverse affects to the pigeons consuming bait or the chicks that do hatch from eggs. WS' potential use of OvoControl® P under the proposed action would not adversely affect any aspect of the issues identified and would allow for additional methods to be available for use in an integrated approach to managing damage caused by pigeons. If wide-scale use of nicarbazin is planned by WS, further analysis pursuant to the National Environmental Policy Act would likely be warranted and would occur to the degree necessary to evaluate the planned use of the product.

XII. ANALYSIS

WS has reviewed the potential environmental impacts and the scope of analysis contained in the EA. The EA and the associated Decision/FONSI determined that activities conducted pursuant to and within the scope of analyses would not have significant impacts on the quality of the human environment. After review of the EA, the associated Decision/FONSI, and information contained in this summary report, WS has determined that the environmental impacts on the quality of the human environment from those activities conducted pursuant to the EA and its Decision/FONSI will continue to be insignificant and that no substantive changes in the analyses are necessary.

WS' pigeon, starling, sparrow, and blackbird damage management activities in West Virginia, based on the information found within this report, fall within the scope of analysis in the EA. No substantive changes have occurred in activities conducted or methods used since implementing the EA decision during the reporting period. Program activities have not changed from those described and analyzed in the EA. The EA discusses program procedures, protection measures, and mitigations that the WS program implements during direct control activities to provide an assurance of quality and consideration for environmental impacts.

XIII. DECISION AND RATIONALE

I have carefully reviewed the EA, the comments received during the public involvement process, the 2002

Decision/FONSI, and the information in this summary and new Decision document. I find the proposed program to be environmentally acceptable, addressing the issues and needs while balancing the environmental concerns of management agencies, landowners, advocacy groups, and the public. The analyses in the EA adequately addresses the identified issues which reasonably confirm that no significant impact, individually or cumulatively, to wildlife populations or the quality of the human environment are likely to occur from the proposed action, nor does the proposed action constitute a major federal action that would warrant the development of an EIS. Therefore, the analysis in the EA remains valid and does not warrant the completion of an EIS.

Based on the EA, the issues identified are best addressed by continuing Alternative 1 (Proposed Action/No Action) and applying the associated mitigation measures discussed in Chapter 3 of the EA. Alternative 1 successfully addresses (1) pigeon, starling, sparrow, and blackbird damage management using a combination of the most effective methods and does not adversely impact the environment, property, and/or non-target species, including T&E species; (2) it offers the greatest chance at maximizing effectiveness and benefits to resource owners and managers while minimizing cumulative impacts on the quality of the human environment that might result from the program's effect on target and non-target species' populations; (3) it presents the greatest chance of maximizing net benefits while minimizing adverse impacts to public health and safety; and (4) it offers a balanced approach to the issues of humaneness and aesthetics when all facets of those issues are considered. Further analysis would be triggered if changes occur that broaden the scope of WS' damage management activities, that affect the natural or human environment, or from the issuance of new environmental regulations.

The rationale for my decision is based on several considerations. This decision takes into account public comments, social/political and economic concerns, public health and safety, the best available science, and program activities conducted since the selected alternative was implemented. The foremost considerations are that: 1) pigeon, starling, sparrow, and blackbird damage management will only be conducted by WS at the request of landowners/managers, 2) management actions are consistent with applicable laws, regulations, policies and orders, and 3) no adverse impacts to the environment were identified in the analysis. As a part of this new Decision, the WS program in West Virginia will continue to provide effective and practical technical assistance and direct management techniques that reduce damage.

The WS program in West Virginia will implement the proposed action in compliance with all applicable standard operating procedures and minimization measures described in Chapter 3 of the EA (USDA 2002). If no substantive issues or alternatives are identified after publication of a legal notice making the EA, the 2002 Decision/FONSI, and this Decision available to the public for review and comment, this new Decision will take effect at the close of the public notification period. New issues or alternatives raised after publication of public notices will be fully considered to determine whether the EA and this Decision should be revisited and, if appropriate, revised, or if a Notice of Intent to prepare an EIS should be issued.

FINDING OF NO SIGNIFICANT IMPACT

The analysis in the EA, the 2002 Decision/FONSI, and this Decision 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. Pigeon, starling, house sparrow, and blackbird damage management, as conducted by WS in West Virginia, is not regional or national in scope.

2. The proposed action would pose minimal risk to public health and safety. Risks to the public from WS' methods were determined to be low in a formal risk assessment (USDA 1997).
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. Built-in mitigation measures that are part of WS' standard operating procedures and adherence to laws and regulations will further ensure that WS' activities do not harm the environment.
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, the 2002 Decision/FONSI, 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 the assessment in the EA, the 2002 Decision/FONSI, and this summary report. The number of pigeons, starlings, house sparrows, and blackbirds killed by WS, when added to the total known take of these species, would fall within population management objectives supported by the West Virginia Wildlife Resources Commission and the U.S. Fish and Wildlife Service. The EA discussed cumulative effects of WS on target and non-target species populations and concluded that such impacts were not significant for this or other anticipated actions to be implemented or planned within the State.
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 has determined that the proposed project would not adversely affect any federal or West Virginia State listed threatened or endangered species.
10. The proposed action would be in compliance with all federal, state, and local laws.



Charles S. Brown, Director-Eastern Region
USDA/APHIS/WS
Raleigh, North Carolina

4/20/09
Date

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