

**AMENDMENT TO**  
**the**  
**ENVIRONMENTAL ASSESSMENT**

Reducing Bird Damage  
through an  
Integrated Wildlife Damage Management Program  
in the  
State of Vermont

**Prepared By:**

**UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE  
WILDLIFE SERVICES**

**In Cooperation With:**

**THE VERMONT DEPARTMENT OF FISH AND WILDLIFE (VTFW)  
AND THE UNITED STATES FISH AND WILDLIFE SERVICE (USFWS)**

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## Introduction

An environmental assessment (EA) was prepared by the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) in 2004 to evaluate and support a decision regarding the location, timing, and methods of WS' bird damage management (BDM) that may be conducted pursuant to requests for such service on public and private lands in Vermont. The Decision and Finding of No Significant Impact (FONSI) issued June 14, 2004 allows WS to conduct BDM in response to bird-caused damage to property, agricultural and natural resources, livestock and threats to public health and safety throughout Vermont. To facilitate planning, interagency coordination, and the streamlining of program management, and to clearly communicate with the public the analysis of individual and cumulative impacts of program activities since 2004, WS has decided to prepare an amendment to the EA. For the purpose of this document, EA will refer to the 2004 BDM EA (USDA 2004). The purpose of this amendment is to supplement information/analysis provided in the 2004 EA (USDA 2004) and Decision/FONSI.

The EA evaluated the need for WS' BDM activities and the relative effectiveness of four alternatives to meet that need, while accounting for the potential environmental effects of these activities. Copies of the EA and FONSI are available for review from the NH/VT State Director, USDA-APHIS-WS, 59 Chenell Drive, Suite 7, Concord, NH 03301.

Wildlife Services is the Federal program authorized by law to reduce damage caused by wildlife (Act of March 2, 1931 (46 Stat. 1468; 7 U.S.C. 426-426b) as amended, and the Act of December 22, 1987 (101 Stat. 1329-331, 7 U.S.C. 426c)). Wildlife damage management is the alleviation of damage or other problems caused by or related to the presence of wildlife which has been recognized as an integral part of wildlife management (The Wildlife Society 1992). WS uses an 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). All WS' wildlife damage management activities, including disposal of euthanized animals, are in compliance with relevant laws, regulations, policies, orders and procedures, including the Endangered Species Act of 1973.

The EA and this Amendment analyzes the effects of WS' activities in Vermont to manage damage and conflicts caused by bird species or species groups that include, but are not limited to, the following: feral pigeon (*Columbia livia*), European starling (*Sturnus vulgaris*), House sparrow (*Passer domesticus*), herring gull (*Larus argentatus*), ring-billed gull (*Larus delawarensis*), greater black-backed gull (*Larus marinus*), double-crested cormorant (*Phalacrocorax auritus*), Canada goose (*Branta canadensis*), snow goose (*Chen caerulescens*), mallard duck (*Anas platyrhynchos*), domestic waterfowl (ducks and geese), red-winged blackbird (*Agelaius phoeniceus*), brown-headed cowbird (*Molothrus ater*), common grackle (*Quiscalus quiscula*), American crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), black vulture (*Coragyps atratus*), killdeer (*Charadrius vociferus*), wild turkey (*Meleagris gallopavo*), snow bunting (*Plectrophenax nivalis*), great blue heron (*Ardea herodias*), downy woodpecker (*Picoides pubescens*), hairy woodpecker (*Picoides villosus*), pileated woodpecker (*Dryocopus pileatus*), Great Horned Owl (*Bubo virginianus*), Barred Owl (*Strix varia*), rough-legged hawk (*Buteo lagopus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), broad-winged hawk (*Buteo platypterus*), red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), Northern goshawk (*Accipiter gentilis*), Northern saw-whet owl (*Aegolius acadicus*), long-eared owl (*Asio otus*), common barn owl (*Tyto alba*), and Eastern screech owl (*Otus asio*). In addition, WS disease monitoring activities may include any migratory bird species authorized for such purpose by the US Fish and Wildlife Service (USFWS) and Vermont Fish and Wildlife Department (VTFW).

## Purpose of the Amendment

The Amendment examines potential environmental impacts of WS' proposed and amended program as it relates to: 1) conducting disease surveillance in avian populations, particularly HP H5N1 AI, 2) increasing

gull damage management activities to restore vegetation and wildlife diversity on islands in Vermont under the VTFW Champlain Islands Wildlife Management Area Long-Range Management Plan, and 3) new data that have become available from research findings and data gathering since the issuance of the 2004 Decision/FONSI and the monitoring report covering activities conducted in FY 2005.

### **Need for Action**

A description of conflicts and damage associated with birds in Vermont is provided in the EA (USDA 2004). Additional information related to conflicts and damage associated with resident Canada geese and double-crested cormorants can be found in the FEISs that have been prepared for each of these bird species (USFWS 2003, USFWS 2005). Since the completion of the EA in 2004, WS has expanded program activities to include disease monitoring efforts such as those associated with avian influenza.

Avian influenza (AI) is naturally found in certain species of waterfowl and shorebirds<sup>1</sup>. However, the occurrence of highly pathogenic H5N1 AI has raised concern regarding the potential impact on wild bird, domestic poultry, and human health should it be introduced into the United States. Numerous potential routes for introduction of the virus into the United States exist including: illegal movement of domestic or wild birds, contaminated products, infected travelers, and the migration of infected wild birds. Wild birds, in particular waterfowl and shorebirds, are considered to be the natural reservoirs for AI.

Gradual mutation of the virus can occur and a particular subtype can adapt to infect other species of wild and domestic birds. The virus can also change if a host is simultaneously infected with another type A influenza virus. In such situations, mixing of the genetic material from the two virus strains can occur, resulting in the formation of a new virus strain. These changes could result in the production of a strain that causes illness and death in susceptible hosts, including humans.

It is thought that a change occurred in a low pathogenicity AI virus of wild birds, allowing the virus to infect chickens, followed by further change into the HP H5N1 AI. High Pathogenicity H5N1 AI has been circulating in Asian poultry and fowl resulting in death to these species. High Pathogenicity H5N1 AI likely underwent further change allowing infection in additional species of birds, mammals, and humans. More recently, this virus moved back into wild birds resulting in significant mortality of some species of waterfowl, gulls, and cormorants. This is only the second time in history that HPAI has been found in wild birds.

Wild migratory bird movements are generally not controllable, but are very predictable on a daily (local) and seasonal (large scale) basis. Local movements within or between feeding, and roosting areas are frequently well known by state and local wildlife management authorities and others familiar with local bird populations. Long range movements associated with seasonal migration in flyways are also well known for many species, especially waterfowl and shorebird species of particular interest in HP H5N1 AI detection and surveillance. Flyways generally do not overlap, but Alaska and areas in Eastern Siberia represent a situation where the summer range of major flyways do overlap.

In North America, the Pacific Flyway extends from Arctic Canada, Alaska, and Eastern Siberia through coastal and western regions of Canada, the United States and Mexico, and on to Central and South America. Many migratory species that nest in Arctic Siberia, Alaska, and Canada follow the Pacific Flyway south to wintering areas. Birds from both Eastern Siberia and Alaska intermingle in both the Pacific and Central Flyways. The overlap at the northern ends of these flyways establishes a geographic location for potential disease transmission across continents and for mixing, change and exchange of genetic material among strains from Eurasia and North America. If HP H5N1 AI virus spreads to North America by migratory birds, the virus would most likely arrive first in Alaska and spread south through the flyways by this route (USDA 2005). Given the adaptation of HP H5N1 AI to wild birds, there is concern that migrating birds will introduce the virus into new regions of the world, including North America.

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<sup>1</sup> More than 40 species of wild birds have been shown to be susceptible to the HP H5N1 AI virus. While not all species infected necessarily exhibit disease, the current strain(s) circulating in Asia have been shown to cause morbidity and mortality in a wide variety of birds.

In the VTFW Champlain Islands Wildlife Management Area Long-Range Management Plan from January 2006, the agency identified the following management objectives:

1. Reduction (or elimination if necessary) of cormorant and ring-billed gull nesting to restore the island's native vegetation and habitats. Management could be intensive at times and include lethal and non-lethal control measures to eliminate or reduce impacts by nesting birds.
2. Restore native plant communities and wildlife habitats. Due to the damage caused by the cormorant and gull colony over the years, this island has lost nearly all of its native vegetation and wildlife. Colonial waterbird and waterfowl species documented to have previously nested and utilized Young Island include: black-crowned night-heron, caspian tern, snowy egret, cattle egret, mallard, black duck, merganser spp. and canada goose. Restoration activities could include diskling, liming, fertilizing, herbicide applications, and plantings of native trees, shrubs, forbs, and grasses.
3. Conduct research. Several research projects have taken place on the island since the 1960s. These have included studies on waterfowl, colonial waterbirds, and plant ecology. A current research proposal is being planned to address the impacts of cormorant management on the Great Lakes and Lake Champlain. The study will investigate the impacts of control activities on other colonial waterbirds and how it affects cormorant distribution within Lake Champlain and the region. These types of research activities are likely to continue in the future.
4. Promote low impact wildlife-based recreation. Recreation, except for waterfowl hunting in the fall, is very low due to the stench and abundance of guano, and noise from the gull and cormorant colony. Birdwatchers occasionally visit the island to view the nesting colony. Duck hunting blinds are erected along the shoreline during the fall waterfowl season. All recreation activities will be passive and non-motorized and will include fishing, hunting, trapping, wildlife viewing, and hiking. No overnight camping will be allowed.

The VTFW has requested WS' assistance in managing and dispersing nesting ring-bill gulls to restore vegetation and wildlife diversity on islands identified in the Champlain Islands Wildlife Management Area Long-Range Management Plan. This amendment will analyze environmental impacts of increasing ring-bill gull management activities to achieve management objects.

### **Summary of WS' Bird Damage Management Activities**

For the reporting period of October 2004 – September 2006, WS provided direct damage management and technical assistance in response to requests for BDM assistance in Vermont. Tables 1-3 provide updated bird damage management information for the WS VT program through FY 2006. Tables 2 list the number of individual birds and/or nest/eggs by species managed by WS under Depredation Orders, Migratory Bird Permits issued to WS, and under Migratory Bird Permits issued to WS cooperators. The following is a summary of WS BDM activities by Fiscal Year (FY) intervals during the reporting period.

#### **Fiscal Year 2004**

An example of WS' technical BDM assistance in Vermont in FY 2004 included providing free, technical management information (including 188 leaflets) to 162 requesters. Examples of WS' direct BDM assistance in Vermont during the reporting period included: (1) protection of human health and safety and reduction of property damage at one solid waste processing facility by implementation of gull damage management projects, (2) protection of livestock and cattle/dairy feed at one VT facility through implementation of a starling management program, (3) reduction of bird-aircraft strikes, and enhancement of public safety at two Vermont airports and (4) reduction of Canada goose damage to agricultural commodities.

#### **Fiscal Year 2005**

An example of WS' technical BDM assistance in Vermont in FY 2005 included providing free, technical management information (including 49 leaflets) to 247 requesters. Examples of WS' direct BDM assistance in Vermont during the reporting period included: (1) protection of human health and safety and reduction of property damage at one solid waste processing facility by implementation of gull damage management projects, (2) protection of livestock and cattle/dairy feed at multiple VT facilities through implementation of a starling management program, (3) reduction of bird-aircraft strikes, and enhancement of public safety at two Vermont airports (4) reduction of Canada goose damage to agricultural commodities and (5) mitigating pigeon damage to multiple State operated facilities.

**Fiscal Year 2006**

Examples of WS' technical BDM assistance in Vermont in FY 2006 included providing free, technical management information (including 53 leaflets) to 239 requesters. Examples of WS' direct BDM assistance in Vermont during the reporting period included: (1) protection of human health and safety and reduction of property damage at one solid waste processing facility by implementation of gull damage management projects, (2) protection of livestock and cattle/dairy feed at multiple VT facilities through implementation of a starling management program, (3) reduction of bird-aircraft strikes, and enhancement of public safety at two Vermont airports (4) reduction of Canada goose damage to agricultural commodities and (5) mitigating pigeon damage to multiple State operated facilities.

**Table 1\*. Annual number of incidents for technical assistance involving birds for Vermont Wildlife Services during FY 1998-2006.**

<b>Fiscal Year</b>	<b>Agriculture</b>	<b>Human Health and Safety</b>	<b>Property</b>	<b>Natural Resources</b>	<b>Total</b>
1998	17	16	103	0	136
1999	6	7	89	3	105
2000	18	298	93	3	412
2001	22	390	80	2	494
2002	59	1033	92	8	1192
2003	28	296	72	7	403
2004	14	92	68	5	179
2005	29	138	71	9	247
2006	16	167	53	3	239
<b>Total</b>	<b>209</b>	<b>2,437</b>	<b>721</b>	<b>40</b>	<b>3,407</b>

\* Data presented in this table were taken from NH/VT WS Annual Program Reports and represents the number of technical assistance projects conducted by the VT WS program and do not include data from operational projects conducted during the time period covered.

**Relationship of this Environmental Assessment to Other Environmental Documents**

**ADC Programmatic Environmental Impact Statement.** WS conducted a NEPA process and developed a Final Environmental Impact Statement (FEIS) on the national APHIS/WS program (USDA 1997). The FEIS contains detailed discussions of potential environmental impacts from various wildlife damage management methods. Pertinent information available in the FEIS has been incorporated by reference into the EA and this Amendment. The FEIS may be obtained by contacting: USDA APHIS WS Operational Support Staff, 4700 River Rd., Unit 87, Riverdale, MD 20737-1234.

**Final Environmental Impact Statement: Resident Canada Goose Management.** The USFWS has issued a FEIS on the management of resident Canada geese (USFWS 2005). This Amendment is tiered to that FEIS. Pertinent and current information available in the FEIS has been incorporated by reference into

this Amendment. The FEIS may be obtained by contacting the Division of Migratory Bird Management, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, MBSP-4107, Arlington, Virginia 22203 or by downloading it from the USFWS website at <http://www.fws.gov/migratorybirds/issues/cangeese/finaleis.htm>.

**Final Environmental Impact Statement: Double-crested Cormorant Management in the United States.** The USFWS has issued a FEIS on the management of double-crested cormorants (DCCO) (USFWS 2003). WS was a formal cooperating agency in the preparation of the FEIS and has adopted the EIS to support WS' program decisions for its involvement in the management of DCCO damage. WS completed a Record of Decision (ROD) on November 18, 2003 (68 Federal Register 68020). The EA and this Amendment is tiered to that FEIS. Pertinent and current information available in the EIS has been incorporated by reference into this Amendment. The FEIS may be obtained by contacting the Division of Migratory Bird Management, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, MBSP-4107, Arlington, Virginia 22203 or by downloading it from the USFWS website at <http://migratorybirds.fws.gov/issues/cormorant/cormorant.html>. WS ROD may be viewed at <http://www.aphis.usda.gov/ws/eafrontpage.html>

**Final Environmental Assessment: Of a U.S. Fish and Wildlife Service Action to Issue a Migratory Bird Depredation Permit For the Take of Cormorants and Gulls on Lake Champlain Islands, Vermont.** The USFWS has issued a FEA on the issuance of a migratory bird depredation permit for the take of double-crested cormorants and several gull species on islands in Lake Champlain (USFWS 1999). The FEA analyzes the potential environmental impacts of USFWS action of issuing a permit for the take of cormorants and gulls in the Lake Champlain region of Vermont. A Decision/FONSI was again signed in 2003 for the aforementioned FEA.

#### **Site Specificity**

The EA and this Amendment analyzes the potential impacts of BDM and addresses activities on all public and private lands in Vermont under Memorandum of Understandings (MOU), Cooperative Agreements, and in cooperation with the appropriate public land management agencies. It also addresses the impacts of BDM in areas where additional agreements may be signed in the future. Because the proposed action is to reduce damage and because the program's goals and directives are to provide services when requested, within the constraints of available funding and workforce, it is conceivable that additional BDM efforts could occur. Thus, the EA and this Amendment anticipates this potential expansion and analyzes the impacts of such efforts as part of the program.

Planning for the management of bird damage must be viewed as being conceptually similar to federal or other agency actions whose missions are to stop or prevent adverse consequences from anticipated future events for which the actual sites and locations where they will occur are unknown but could be anywhere in a defined geographic area. Examples of such agencies and programs include fire and police departments and emergency clean-up organizations. Although some of the sites where bird damage will occur can be predicted, other specific locations or times where such damage may occur in any given year cannot be predicted. The EA and this Amendment addresses major issues as they relate to specific areas whenever possible, however, many issues apply wherever bird damage and resulting management occurs, and are treated as such. The standard WS' Decision Model (Slate et al. 1992) would be the site-specific procedure for individual actions conducted by WS in Vermont (*see* Chapter 3 of the EA for a description of the Decision Model and its application).

The analyses in the EA and this Amendment are intended to apply to any action that may occur *in any locale* and at *any time* within the state of Vermont. In this way, APHIS-WS believes it meets the intent of NEPA with regard to site-specific analysis and that this is the only practical way for WS to comply with NEPA and still be able to accomplish the mission of the program.

#### **Authority and Compliance**

**Wildlife Services Legislative Authority.** The USDA is directed by law to protect American agriculture

and other resources from damage associated with wildlife. The primary statutory authorities for the WS program are the Act of March 2, 1931 (46 Stat. 1468; 7 U.S.C. 426-426b) as amended, and the Act of December 22, 1987 (101 Stat. 1329-331, 7 U.S.C. 426c), which provides that:

*“The Secretary of Agriculture may conduct a program of wildlife services with respect to injurious animal species and take any action the Secretary considers necessary in conducting the program. The Secretary shall administer the program in a manner consistent with all of the wildlife services authorities in effect on the day before the date of the enactment of the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2001.”*

Since 1931, with the changes in societal values, WS policies and its programs place greater emphasis on the part of the Act discussing “bringing (damage) under control”, rather than “eradication” and “suppression” of wildlife populations. In 1988, Congress strengthened the legislative directive and authority of WS with the Rural Development, Agriculture, and Related Agencies Appropriations Act. This Act states, in part:

*“That hereafter, the Secretary of Agriculture is authorized, except for urban rodent control, to conduct activities and to enter into agreements with States, local jurisdictions, individuals, and public and private agencies, organizations, and institutions in the control of nuisance mammals and birds and those mammals and birds species that are reservoirs for zoonotic diseases, and to deposit any money collected under any such agreement into the appropriation accounts that incur the costs to be available immediately and to remain available until expended for Animal Damage Control activities.”*

**Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711; 40 Stat. 755), as Amended.** The Migratory Bird Treaty Act (MBTA) provides USFWS regulatory authority to protect families of bird species that are listed (50 CFR 10.13). The law prohibits the “take” of these species by any entity, unless permitted by USFWS; under this law, people can obtain permits to take migratory birds that are causing damage to resources.

The USFWS issues permits upon request to reduce migratory bird damage in certain situations. WS provides on-site assessments for persons experiencing migratory bird damage to obtain information on which to base damage management recommendations. Damage management recommendations could be in the form of technical assistance or operational assistance. In severe cases of migratory bird damage, WS provides recommendations to the USFWS for the issuance of depredation permits to private entities or other agencies. The ultimate responsibility for issuing such permits rests with the USFWS.

A recent court case involving mute swans held that the MBTA must provide protection to individual non-native species found within the United States that belong to families of birds already protected under the Act. As a result, many other species in addition to the mute swan became eligible for protection under the MBTA that had previously been excluded. Thus, the Migratory Bird Treaty Reform Act of 2004 was passed to clarify the original intent of the MBTA, the conservation and protection of migratory birds native to North America, and directed USFWS to establish a list of non-native bird species found in the United States. Species on this list will not be afforded MBTA protection. Certain species in North America are already not protected under the MBTA because neither the species nor their family was listed in the MBTA; European starlings and house sparrows are examples. Species such as the feral pigeon are included in the list of species excluded from protections under MBTA, through the Migratory Bird Treaty Reform Act of 2004. All actions conducted in the EA and this Amendment will be in compliance with the regulations of the MBTA, as amended.

**The “*Environmental Status Quo*” for managing damage and conflicts associated with State managed or unprotected wildlife species.**

As defined by NEPA implementing regulations, the “*human environment* shall be interpreted comprehensively to include the natural and physical environment *and the relationship of people with that environment*” (40 CFR 1508.14). Therefore, when a federal action agency analyzes its potential impacts on the “human environment,” it is reasonable for that agency to compare not only the effects of the federal

action, but also the potential impacts that occur or will occur in the absence of the federal action. This concept is applicable to situations involving federal assistance in managing damage associated with state-resident wildlife species or unprotected wildlife species.

Unprotected wildlife species, such as most non-native invasive species, are not protected under state or federal law. Most State-resident wildlife species are managed under State authority or law without any federal oversight or protection. In some states, with the possible exception of restrictions on methods (e.g., firearms restrictions, pesticide regulations), unprotected wildlife species and certain resident wildlife species are managed with little or no restrictions allowing them to be killed or taken by anyone at any time.

When a non-federal entity (i.e. State wildlife agencies, State agriculture agencies, State health agencies, municipalities, counties, private companies, individuals, etc.) takes a management action on a State-resident wildlife species or unprotected wildlife species, the action is not subject to NEPA compliance due to the lack of federal involvement in the action. Under such circumstances, the environmental *baseline* or *status quo* must be viewed as an environment that includes those species *as they are managed or impacted by non-federal entities in the absence of the federal action being proposed*. Therefore, in those situations in which a non-federal entity has decided that a management action directed towards a state protected or unprotected wildlife species will occur and even the particular methods that will be used, WS' involvement in the action will not affect the *environmental status quo*. WS' decision-making ability is restricted to one of two alternatives - either taking the action using the specific methods as decided upon by the non-federal entity, or taking no action at all at which point the non-federal entity may take the same action anyway, since most methods available for use in BDM activities are available to non-federal entities.

The inability to change the *environmental status quo* in the types of situations described above presents a clear question of whether there is enough federal control over the action to be taken to make direct assistance by WS a federal action requiring compliance with the National Environmental Policy Act. This lack of federal control over the decision to be made is even clearer when the non-federal entity has committed to taking the same actions in the absence of any federal assistance from WS. Clearly, under these circumstances, by any analysis we can envision, WS would have virtually no ability to affect the *environmental status quo* by selecting any possible alternative, even the alternative of no federal action by WS.

Therefore, based on the discussion above, it is clear that in those situations where a non-federal cooperator has already made the decision to remove or otherwise manage rock/feral pigeons, European starlings, House sparrows, domestic waterfowl and any other bird species that is not protected by the MBTA to stop damage with or without WS assistance, WS participation in carrying out the action will not affect the *environmental status quo*. In some situations, however, certain aspects of the human environment may actually benefit more from WS's involvement than from a decision not to assist. For example, if a cooperator believes WS has greater expertise to selectively remove a target species than a non-WS entity; WS management activities may have less of an impact on target and non-target species than if the non-federal entity conducted the action alone. Thus, in those situations, WS involvement may actually have a *beneficial* effect on the human environment when compared to the *environmental status quo* in the absence of such involvement.

### **Major Issues**

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

1. Effects on target bird species
2. Effects on other wildlife species, including T&E species
3. Effects on human health and safety
4. Impacts to stakeholders, including aesthetics
5. Humaneness and animal welfare concerns of methods used

In addition to the identified major issues considered in detail, five other issues were considered but not in detail with rationale and further analysis. A description of these "other issues" and potential impacts are presented in the EA. 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.

### **Alternatives Analyzed in Detail**

The EA describes four potential alternatives that were developed to address the issues identified above. Alternatives analyzed in detail include:

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

A detailed discussion of the anticipated effects of the alternatives on the identified issues is contained in the EA.

Five additional alternatives were considered but not analyzed in detail. A description of these additional alternatives and potential impacts are presented in the EA. WS has reviewed the "additional alternatives" as described in the EA and has determined that the analysis provided in the EA has not changed and is still appropriate.

### **Bird Damage Management Methods**

A description of the BDM methods that could be used or recommended by WS is provided in Appendix B of the EA (USDA 2004), Appendix 4 ("*Management Techniques*") of the USFWS Cormorant FEIS (USFWS 2003), and Chapter 2 (pages 1-9) ("*Management Techniques*") of the USFWS Canada Goose FEIS (USFWS 2005).

### **Standard Operating Procedures**

Mitigation measures are any features of an action that serve to prevent, reduce, or compensate for effects that otherwise might result from that action. As appropriate, mitigation measures are incorporated in WS Standard Operating Procedures (SOPs). The current WS program, nationwide and in Vermont, uses many such SOPs and these are discussed in Chapter 3 of the EA (USDA 2004), Chapter 5 of the FEIS (USDA 1997) and Chapter 4 of the DCCO FEIS (USFWS 2003).

### **Environmental Consequences**

The following is an analysis of potential impacts for each of the major issues analyzed in the EA.

#### ***Alternatives 1, 3, and 4***

Potential impacts of Alternatives 1, 3 and 4 on the environment have not changed from those described in the EA and thus do not require additional analysis.

#### ***Alternative 2. Integrated Bird Damage Management Program. (Proposed Action/No Action Alternative)***

#### **Effects on target bird species**

Analysis of this issue is limited to birds killed during WS BDM. The analysis for magnitude of impact generally follows the process described in Chapter 4 of WS programmatic FEIS (USDA 1997). Magnitude is described in USDA (1997) 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 on species whose population densities are high and usually 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).

Number and species of birds harassed and lethally removed, and the number of nests/eggs destroyed during WS' BDM activities in Vermont for FY 2001 - FY 2006 are presented in Tables 2 and 3.

**Table 2. Birds lethally removed and nests/eggs removed by WS for Bird Damage Management during FY 2000 through FY 2006 in Vermont.**

Species	Trap/Nets	Shooting	Non-chemical, other	DRC-1339	Nests (eggs) Removed/Treated
Blackbirds, red-winged	0	3	0	0	0
Cormorants, double-crested	7	1072	0	0	4432
Cowbirds, brown-headed	0	0	0	1	0
Crows, American	0	25	0	0	0
Ducks, dabbling	0	1	0	0	0
Geese, Canada	0	2	0	0	175
Grackles, common	0	4	0	0	0
Gulls, great black-backed	0	10	0	0	0
Gulls, herring	0	76	0	0	0
Gulls, ring-billed	0	360	0	0	6,198
Passerines	0	0	1	0	0
Pigeons, feral	464	180	467	0	0
Sparrows, house/English	0	1	261	0	0
Starlings, European	0	10	11	420	0
Vultures, turkey	0	1	0	0	0

**Table 3. Number of birds harassed by WS for Bird Damage Management activities during FY 2002 through FY 2006 in Vermont.**

Species	2002	2003	2004	2005	2006
Blackbirds, mixed spp.	207	18	0	0	0
Blackbirds, red-winged	514	0	574	9	0
Buntings, snow	7	0	396	650	550
Crows, American	14,424	18,008	16,367	12,960	21,290
Ducks, blue-winged teal	0	0	100	0	0
Ducks, dabbling	0	24	0	0	9
Ducks, green-winged teal	0	10	160	0	0
Geese, Canada	12	23	159	90	50
Geese, snow	1	0	75	0	200
Grackles, common	32	0	368	775	0
Gulls, great black-backed	106	142	16	4	4
Gulls, herring	228	706	261	288	463
Gulls, ring-billed	14,021	22,352	45,953	10,098	16,111
Hawks, red-tailed	0	2	0	0	0
Herons, great blue	0	0	1	0	0
Killdeer	3	0	1	0	0
Mallard	60	217	689	190	71
Passerines	0	0	6	0	0
Ravens, common	0	0	11	1	0
Snipe, common	0	0	100	0	0

Sparrows, house/English	64	0	0	0	0
Starlings, European	4,509	2,795	12,714	10,175	1,310
Vultures, turkey	279	136	142	124	126
Yellowlegs	0	0	3	0	0
Total	34,467	44,433	78,096	35,364	40,184

Note: Data prior to FY 2002 not available.

Breeding Bird Survey trend data (Sauer et al. 2006) and Christmas Bird Count (CBC) trend data (National Audubon Society 2006) are presented in Table 5.

**Table 5. Breeding Bird Survey and Christmas Bird Count trend data from 1966-2005 for select bird species.**

Species	BBS Vermont	USFWS Region 5	BBS Eastern Region	United States	CBC Vermont	CBC United States
Snow geese	N/A	N/A	N/A	N/A	Variable	Increasing
Canada geese	+22%	+15.6%	+16.7%	+7.6%	Increasing	Increasing
Rock pigeon	+3.0%	-0.5%	-0.1%	-0.4%	Increasing	Increasing
House sparrow	0.0%	-2.9%	-2.8%	-2.6%	Stable	Decreasing
European starling	-0.2%	-1.7%	-0.9%	-0.6%	Increasing	Decreasing
Double-crested cormorant	N/A	+1.8%	+5.0%	+6.6%	N/A	Increasing
Ring-billed gull	-3.5%	+5.1%	+2.1%	+2.0%	Stable	Stable
Herring gull	-16.7%	-0.8%	-3.4%	-2.0%	Variable	Stable
Great black-backed gull	N/A	-5.9%	-2.6%	-5.7%	Variable	Variable

WS' BDM management activities in Vermont were site specific and conducted pursuant to Federal and State permits and authorities. The following is a summary of BDM activities conducted in Vermont for FY 2004 – FY 2006.

***Fiscal Year 2004***

During FY 2004, WS direct management activities in Vermont resulted in the lethal take of 11 American crows, 2 great black-backed gulls, 5 herring gulls, 61 ring-billed gulls, 1 turkey vulture, 3 red-winged blackbirds, 208 double-crested cormorants, and 510 pigeons. WS also oiled eggs in 1,458 double-crested cormorant nests.

During FY 2004, the VTFW issued depredation permits to non-WS Vermont entities to take wild turkeys. During FY 2004, the USFWS issued depredation permits to non-WS Vermont entities to take herring gulls, great black-backed gulls, ring-billed gulls, and Canada geese. Actual take of birds under these permits by non-WS entities in Vermont during FY 2004 was: 103 herring gulls and 1 nest, 1 great Black-backed gull and zero nests, 107 ring-billed gulls and zero nests, and 12 Canada geese and 15 nests.

### ***Fiscal Year 2005***

WS' direct management activities in Vermont resulted in the lethal take of a total of 9 American crows, 1 great black-backed gull, 13 herring gulls, 63 ring-billed gulls, 1 common grackle, 441 double-crested cormorants, and 198 pigeons during FY 2005. WS also oiled eggs in 1,102 double-crested cormorant nests, 2,798 ring-billed gull nests and removed 13 Canada goose nests during the reporting period.

During FY 2005, the VTFW issued depredation permits to non-WS Vermont entities to take wild turkeys. During FY 2005, the USFWS issued depredation permits to non-WS Vermont entities to take herring gulls, great Black-backed gulls, ring-billed gulls, and Canada geese. Actual take of birds under these permits by non-WS entities in Vermont during FY 2005 was: 62 herring gulls and 14 nests, 0 great black-backed gulls and 14 nests, 167 ring-billed gulls and 2804 nests, and 33 Canada geese and 16 nests.

### ***Fiscal Year 2006***

WS direct management activities in Vermont resulted in the lethal take of a total of 3 American crows, 1 great black-backed gull, 17 herring gulls, 86 ring-billed gulls, 286 double-crested cormorants, and 206 pigeons during FY 2006. WS also oiled eggs in 610 double-crested cormorant nests, 3,400 ring-billed gull nests and removed 17 Canada goose nests during the reporting period.

During FY 2006, the VTFW issued no depredation permits to non-WS Vermont entities to take wild turkeys. During FY 2006, the USFWS issued depredation permits to non-WS Vermont entities to take herring gulls, great black-backed gulls, ring-billed gulls, and Canada geese. Reported take data by non-WS entities for FY 2006 is pending.

The EA concluded that WS' BDM activities in Vermont would not adversely impacted target bird species populations. The EA also concluded that WS' BDM activities when considered with the levels of take of non-WS entities would not adversely impact populations of target bird species. WS' lethal take was within the estimated level of take predicted in the EA for all target bird species. WS' BDM activities were site specific, and although local populations of birds were reduced or dispersed, there was no probable adverse impact on statewide populations of these birds from WS activities. Program activities and their potential impacts on target bird species have not changed from those analyzed in the EA, except for ring-billed gulls and birds taken for disease monitoring purposes.

The following is an analysis of potential impacts resulting from WS BDM activities on ring-billed gulls and birds taken for disease monitoring purposes.

### ***Ring-billed Gull Population Effects***

The ring-billed gull is a medium sized, white-headed, primarily inland nesting North American gull that frequents garbage dumps, parking lots, and southern coastal beaches in large numbers during the winter. This species was nearly decimated by human persecution and development from 1850 to 1920, but has since rebounded to become one of our most common and familiar birds. An estimated 3 to 4 million individuals inhabited North America in 1990 (Ryder 1993). In some localities, this gull is considered a conflict species and various measures are used to control its numbers, most with limited success. An opportunistic feeder, the ring-billed gull prefers insects, earthworms, fish, rodents, and grain. It nests on the ground in colonies on sparsely vegetated islands in large lakes, and occasionally on mainland peninsulas and on near-shore oceanic islands (Ryder 1993).

Ring-billed gulls can nest in high densities and in the Great Lakes region, nesting colonies may be located on islands, parklands, slag yards, rooftops, breakwalls, and landfills (Blokpoel and Tessier 1986). In the eastern U.S., breeders share nesting habitat with herring gulls, in the Great Lakes area with caspian and common terns, in the west with California gulls. Its breeding biology is well-known and the history of its populations during the last century are well documented (Ryder 1993). The breeding population of ring-billed gulls is divided into two populations; the western population and the eastern population. The eastern breeding population of the United States includes New York, Vermont, Ohio, Illinois, Michigan,

Wisconsin, and Minnesota (Blokpoel and Tessier 1986). In New York, breeding populations of ring-billed gulls are located on Lake Champlain, the St. Lawrence River, the lower Great Lakes, and Oneida Lake (Bull 1974, Peterson 1985). In 1984, the population of ring-billed gulls in the Great Lakes region was estimated at approximately 648,000 pairs (Blokpoel and Tessier 1986). Blokpoel and Tessier (1992) found that the nesting population of ring-billed gulls in the Canadian portion of the lower Great Lakes system increased from 56,000 pairs to 283,000 pairs from 1976-1990. Mid-Atlantic/New England/Maritimes Regional populations of ring-billed gulls have increased at a rate of 8-11% per year since 1976 (MANEM 2006).

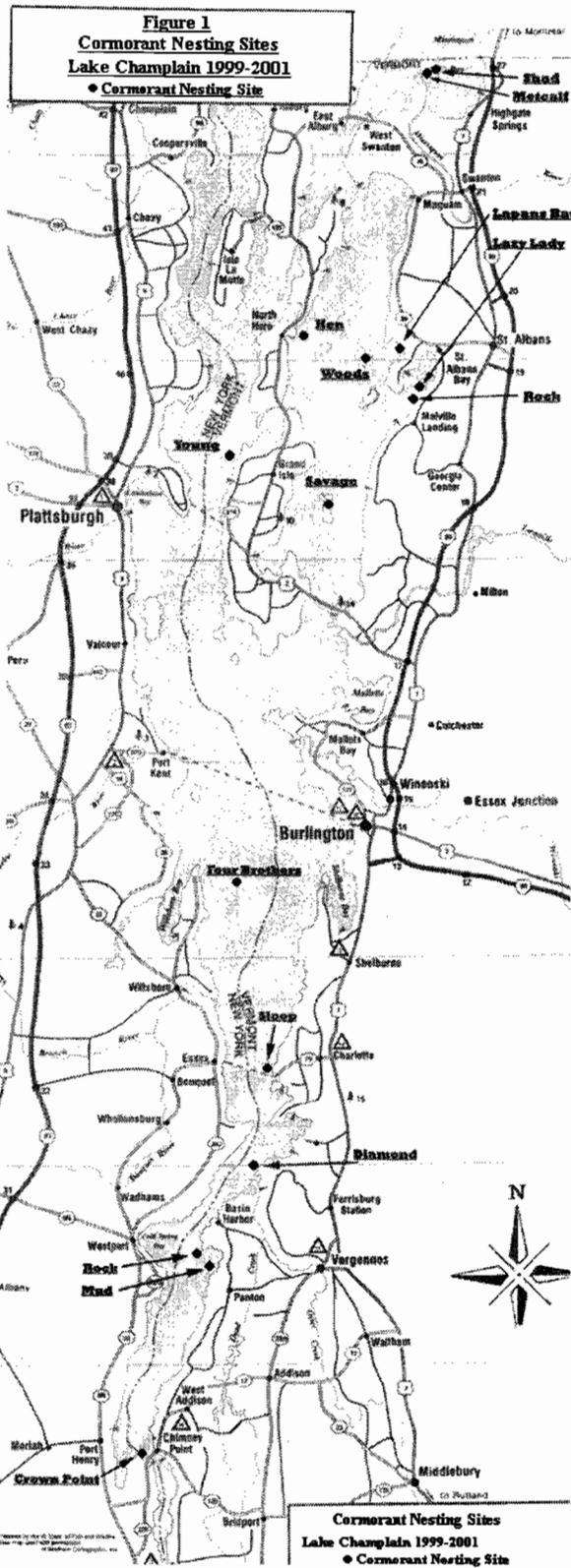
While the Lake Champlain ring-billed gull breeding population appears to be decreasing slightly over time, the population seems to have stabilized in the past 2-3 years (D. Capen, Univ. of VT 2007 pers. comm.). Over winter populations of ring-billed gulls appear to be contingent on weather and winter severity but appears to range from only a few to 1,000 birds annually (D. Capen, Univ. of VT 2007 pers. comm.; J. Gobeille, VTFW, 2007 pers. comm.).

Breeding Bird Survey trend data from 1966-2005 indicate that ring-billed gull populations have decreased at an annual rate of -3.5% throughout Vermont and have increased at an annual rate of 2.0%, 5.1% and 2.1% throughout the United States, USFWS Region 5 and the eastern region, respectively (Sauer et al. 2006). Vermont CBC data from 1966-2005 shows a relatively stable trend for wintering populations of ring-billed gulls throughout the state (National Audubon Society 2006).

Ring-billed gulls are present throughout the year in Vermont, but are most abundant during April-October, where they are typically found near Lake Champlain and other inland lakes and reservoirs surrounded by agricultural land (Laughlin and Kibbe 1985). Ring-billed gulls are by far the most abundant nesting gull in Vermont, outnumbering herring gulls by 60 to 1 (Laughlin and Kibbe 1985). This was not always the case. Early references, including Thompson (1853) and Wolfe (1923), indicated that the herring gull was the sole nesting gull on Lake Champlain. In fact, no confirmed record of the ring-billed existed for Vermont until November 1939 (Weaver 1939). The first Vermont nesting of ring-billed gulls occurred on Young Island – the current site of Vermont’s largest colony – in 1951, when about 100 pairs were located (Miller and King 1981) (Figure 1, (USFWS, 1999)). Young Island, also known as South Sister Island, is a 5.5 acre island owned by the Vermont Department of Fish and Wildlife. Young Island is located approximately 0.6 miles from the west shore of the town of Grand Isle within the northern 1/3 of Lake Champlain.

Currently, the Young Island ring-billed gull colony represents 98% or more of the Vermont statewide breeding population, with small breeding colonies also being found on Lake Memphramagog and on southern islands of Lake Champlain (D. Capen, Univ. of VT 2006 pers. comm.; M. LaBarr, Audubon VT 2006 pers. comm.). Other large ring-billed breeding colonies on Lake Champlain include Four Brothers Island located on the New York side of the lake. The Four Brothers Islands are located approximately 4.8 miles from Shelburne Bay at the southern end of Burlington, VT and approximately 21.6 miles south of Young Island. From 1999 to 2006, the average number of nesting pairs observed on Lake Champlain’s Young Island was 8,188 nesting pairs (D. Capen, Univ. of VT 2007 pers. comm.). During the same period, with data unavailable from 2002, 2004, and 2005, the estimated average number of nesting pairs on Four Brothers Islands was 12,212 (D. Capen, Univer. of VT 2007 pers comm., Capen, UVM, unpubl. data). According to Dolbeer (1998) the number of non-breeding gulls (sub-adults and non-breeding adults) is estimated to equal about 50% of the nesting population. Therefore, the total ring-billed gull population (breeders and non-breeders) on these two islands is estimated at approximately 61,200 gulls with the Vermont summer statewide population being estimated at approximately 24,564 birds.

Young Island’s vegetation at the time of acquisition in 1959 was similar to that currently found on Bixby Island, about 0.4 miles to the north. This island may be used as a reference site for habitat restoration purposes. The hardwood forest known to exist on Young Island was dominated by eastern cottonwood (*Populus deltoids*), green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), basswood (*Tilia americana*), and silver maple (*Acer saccharinum*). Under-story plants included raspberry (*Rubus idaeus*), blackberry (*Rubus* spp.), stag-horn sumac (*Rhus typhina*), Virginia creeper (*Parthenocissus quinquefolia*), wild grape (*Vitis* spp.), and dogwood (*Cornus* spp). Herbaceous plants included several



grasses (Family Poaceae), nettles (*Urtica* spp.), bedstraw (*Galium* spp.), wild mustard (*Sinapsis arvensis*), mallow, and trillium (*Trillium* spp) (Coulter and Miller 1968). This vegetation has been completely lost due to the impacts of colonial nesting waterbirds (especially double-crested cormorants and ring-billed gulls) that first arrived in the mid-1950s. As a result, the current island vegetation consists of a few widely scattered and stunted cottonwoods, box elder (*Acer negundo*), and green ash. Widely scattered shrubs include elderberry (*Sambucus nigra*). Weedy, non-native herbaceous plants such as stinging nettle (*Urtica dioica*) and pigweed (*Amaranthus* spp.) now dominate the island vegetation. There are large patches of exposed ground where bird guano has killed all vegetation and now covers much of the island's surface. As a result of the damage to the vegetation, most of the former bird diversity has been lost. A narrow cobble beach interspersed with occasional ledge outcrops surrounds the island's perimeter. This area is still used by shorebirds during migration or feeding and loafing.

Ring-billed gulls are protected by the USFWS under the Migratory Bird Treaty Act and take is limited by permit. Therefore, gulls are taken in accordance with applicable state and federal laws and regulations authorizing take of migratory birds and their nests and eggs, including the USFWS and the VTFW permitting processes. The USFWS, as the agency with migratory bird management responsibility, could impose restrictions on depredation harvest as needed to assure cumulative take does not adversely affect the continued viability of populations. This should assure that cumulative impacts on ring-billed gull populations would have no significant adverse impact on the quality of the human environment. From FY 2000 through FY 2006, the USFWS issued twelve (12) depredation permits to Vermont entities to take 675 ring-billed gulls and 16,000 nests to protect property, natural resources, agriculture, and human health and safety.

As presented in Table 2, from FY 2000 through FY 2006, Vermont WS killed 360 ring-billed gulls at all project sites in Vermont under USFWS issued permits. During the same time frame, non-WS entities reported killing no ring-billed gulls in Vermont under USFWS issued depredation permits. In the last two years, Vermont WS destroyed 6,198 ring-billed gull nests at all project sites in Vermont under USFWS issued permits. During the same time frame, non-WS entities reported destroying 18 ring-billed gull nests in Vermont under USFWS issued depredation permits.

Based on past requests for WS' assistance and a predicted increase in future requests for services, WS anticipates that no more than 20% or a total of 4,000 of the Young Island ring-billed gull nesting population and an unlimited number of ring-billed gull nests/eggs could be taken annually by WS in Vermont under the proposed action. A site specific and significant impact to the local Young Island ring-billed gull population is desired, and anticipated. However, impacts to the lakewide and regional ring-billed gull population are determined to not be significant. A nest count for the Young Island ring-billed gull colony is determined annually. As the island restoration and increased colonial waterbird management objectives are specific to Young Island, the 20% removal total would be calculated using the island nest count for that year. Potential removal totals would not incorporate non-breeders and thus be reduced. Furthermore, removal would not be considered as a management option until the second year of the program, with 100% ring-billed gull nest egg oiling identified as the only management option for 2007. The potential conduct and implementation of adult removal would be contingent upon subsequent year ring-billed gull return rates and associated island recovery status. Management actions will primarily be directed towards the ring-billed gull colony located on Young Island in Lake Champlain.

The Young Island ring-billed gull population is anticipated to decrease. Initial egg oiling and potential subsequent removal activities are intended to support VTFW's Wildlife Management Area Long Range Management Plan for and assist in island habitat recovery and increase colonial waterbird diversity. Species anticipated to respond positively to habitat recovery and concurrent reduced inter-species specific competition include: black-crowned night-heron, caspian tern, snowy egret, cattle egret, mallard, black duck, merganser spp. and canada goose. Lakewide ring-billed gull populations are anticipated to decrease slightly. Ring-billed gull populations for the Lake Champlain Basin are currently stable, in-spite-of oiling 6,198 nests over the past two years. Increased ring-billed gull nest oiling will target only Young Island where 37% of the colony was oiled in 2006. Egg oiling at other Vermont or lakewide sites is not anticipated, lethal take would not be conducted in 2007 and non-breeders from throughout the basin would not be impacted. All factors considered, the overall lakewide population is anticipated to experience a

minimum decrease as only a portion of the population will be managed and the previous management level did not negatively impact the overall population.

Over 12,000 ring-billed gull breeding pairs associated with the nearby Four Brothers colony will be unmanaged and remain throughout the Lake Champlain Basin. The number of breeding ring-billed gulls that may be potentially removed on an annual basis is limited to Young Island. Non-breeding ring-billed gulls in Vermont, including Young Island would not be managed or impacted. Nest removal/egg oiling and potential removal totals would be determined in accordance with island recovery and other colonial waterbird status. The management action is localized/site specific, ring-billed gulls will remain throughout the region and other colonial waterbird population sizes and diversity are anticipated to increase.

Ring-billed gull nest treatments on Young Island include: oiling 2,798 and 3,400 nests in 2005 and 2006, respectively. Ring-billed gull nest oiling totals represent 38% of the colony (7,330 nests) in 2005 and 37% (9,185 nests) in 2006. Despite the oiling of eggs in 2005, the number of nests in 2006 increased to 9,185 from 7,330 nests the previous year (Table 6). An average of 8,188 ring-billed gull nests per year is documented on Young Island over the past 8 years (Table 6). Historic ring-billed gull nesting data is available back to 1982 with the minimum and maximum number of nests documented during that time period with a minimum of 3,500 in 1982 and a maximum of 12,995 in 1988 (USFWS, 1999). However, improved survey techniques used to obtain the nest count data presented in Table 6 are considered to be more accurate than previously cited historic data. As stated previously, the lakewide ring-billed population appears to have stabilized over the past 2-3 years. Double-crested cormorant management on Young Island has resulted in a stable to increasing ring-billed gull population. At Four Brothers Islands, where no cormorant management has been conducted, cormorant breeding populations are increasing, resulting in a stable to decreasing ring-billed gull breeding population at this site.

**Table 6.- The number of ring-billed gull nests and the number of nests oiled on Young Island in Vermont from 1999-2006.**

Year	1999	2000	2001	2002	2003	2004	2005	2006
RBGU Nests	7,919	7,521	9,331	7,863	6,914	9,446	7,330	9,185
Nests Oiled	0	0	0	0	0	0	2,798	3,400

Initial Young Island ring-billed gull management results mirror a similar and longer-term ring-billed gull oiling and management program at Tommy Thompson Park (TTP) in Toronto, Canada (Toronto and Region Conservation Authority, unpublished report). Since 1999, approximately 25% of the TTP ring-billed gull nests have been oiled on an annual basis. The ring-billed gull nesting population at TTP has remained stable throughout the duration of this program with 59,453 nests reported in 1999 and 56,000 nests in 2006. It has been estimated that without management the population at TTP could reach 180,000 pairs. Similar significant ring-billed gull nesting populations at Young Island are anticipated in the absence of management.

A minimum ring-billed gull population on Young Island is anticipated. As previously noted, an exact population total cannot be specified at this time as island restoration and recovery will determine the acceptable number of breeding pairs for Young Island by VTFW.

Based on the above information, USFWS oversight, and WS' limited lethal take of gulls and their nest/eggs in Vermont, WS should have minimal effects on local, statewide, regional or continental ring-billed gull populations.

***Birds for Disease Monitoring and Surveillance***

Based upon an anticipated increase in future requests for WS' disease monitoring and surveillance assistance, WS predicts that no more than 100 individuals of any bird species, that is authorized by the USFWS and VTFW for such purposes, would be lethally removed annually under the proposed action. None of these species of birds are expected to be taken by WS' BDM at any level that would adversely affect overall bird populations in Vermont. These birds are protected by the USFWS under the Migratory Bird Treaty Act and take is limited by permit. Therefore, these birds are taken in accordance with

applicable state and federal laws and regulations authorizing take of migratory birds. The USFWS, as the agency with management responsibility, could impose restrictions on harvest as needed to assure cumulative take does not adversely affect the continued viability of migratory bird populations. This should assure that cumulative impacts on these bird populations would have no significant adverse impact on the quality of the human environment.

Based on the above information, USFWS oversight and WS limited lethal take, WS should have minimal effects on local, statewide, regional or continental bird populations that are affected by WS disease and surveillance activities.

### ***Summary***

Based upon the above information and information provided in the EA (USDA 2004), WS BDM will continue to have no adverse affect on state, regional or continental bird populations.

### **Effects on other wildlife species, including T&E species**

The EA concluded that WS BDM activities would not adversely affect any other wildlife species, including T&E species. Program activities and their potential impacts on other wildlife species have not changed from those analyzed in the EA.

*Non-T&E Species.* From FY 2004 – FY 2006, no nontarget species are known to have died as a result of WS BDM activities in Vermont. WS take of nontarget species was within the estimated level of lethal take analyzed in the EA. Black-crowned night-herons (5 nests) returned to Young Island in 2006. The last documented black-crowned night-heron nesting in Vermont was in 1998. WS concluded that the cumulative impact on nontarget species is extremely low to nonexistent and that these occurrences are rare and should not affect the overall populations of any species under the current program.

*T&E Species.* A review of T&E species listed by the USFWS showed that no additional listings of T&E species in Vermont have occurred since the completion of the EA in 2004 and no additional methods have been added to the program. Thus, WS' determination, including written concurrence from the USFWS New England Field Office, that the WS BDM Program is not likely to adversely affect any threatened and endangered species is still valid for the proposed action.

### **Effects on human health and safety**

WS implementation of the program activities have not resulted in any adverse impacts to human health and safety. The activities conducted by WS in Vermont during the reporting period did not result in any injuries or illness to any members of the public or the WS program. WS program activities had a positive impact on those projects that reduced the risks of potential injury, illness and loss of human life from injurious bird species. Program activities and methods and their potential impacts on human health and safety have not changed from those analyzed in the EA.

### **Impacts to stakeholders, including aesthetics**

The EA concluded the effects on aesthetics would be variable depending on the stakeholders' values towards wildlife. Conflicts with birds were reduced at each location that WS provided direct management assistance thereby improving the aesthetic values of affected properties. The public's ability to view and aesthetically enjoy birds was not limited, since at all locales where WS implemented BDM activities, some birds remained at each site, and were available for people to enjoy. Program activities and methods and their potential impacts on human affectionate bonds with individual birds and aesthetics have not changed from those analyzed in the EA.

### **Humaneness and animal welfare concerns of methods used**

WS personnel are experienced and professional in their use of management methods, and methods are applied as humanely as possible. For the reporting period, WS BDM actions were 100% selective for the target species, which indicates suffering of non-target species was nonexistent. Program activities and methods and their potential impacts on humaneness and animal welfare have not changed from those

analyzed in the EA.

### **Cumulative Impacts**

Cumulative impacts, as defined by CEQ (40 CFR 1508.7), are impacts to the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts may result from individually minor, but collectively significant, actions taking place over time.

Under Alternatives 1, 2 and 3, WS would address damage associated with birds in a number of situations throughout the State. The WS' BDM program would be the primary federal program with BDM responsibilities; however, some state and local government agencies may conduct BDM activities in Vermont as well. Through ongoing coordination with these agencies, WS is aware of such BDM activities and may provide technical assistance in such efforts. WS does not normally conduct direct damage management activities concurrently with such agencies in the same area, but may conduct BDM activities at adjacent sites within the same time frame. In addition, commercial pest control companies may conduct BDM activities in the same area. The potential cumulative impacts analyzed below could occur either as a result of WS BDM program activities over time, or as a result of the aggregate effects of those activities combined with the activities of other agencies and individuals.

#### ***Cumulative Impacts on Wildlife Populations***

Bird Damage Management methods used or recommended by the WS' program in Vermont will likely have no cumulative adverse effects on target and non-target wildlife populations. WS' limited lethal take of target bird species is anticipated to have minimal impacts on target bird populations in Vermont, the region, and the U.S. When control actions are implemented by WS, the potential lethal take of non-target wildlife species is expected to be minimal to non-existent. No negative cumulative impact to the New York Lake Champlain ring-billed gull population is anticipated as management actions do not target this population. A stable New York Lake Champlain ring-billed gull population is anticipated to continue with the potential for an increase should managed birds from Young Island eventually move to the Four-Brothers colony.

#### ***Cumulative Impact Potential from Chemical Components***

BDM programs which include the use of pesticides as a lethal population management component may have the greatest potential for cumulative impacts on the environment as such impacts relate to deposit of chemical residues in the physical environment and environmental toxicosis. The avicides, DRC-1339 and Starlicide®, and the frightening agent, Avitrol, are the only chemicals used or recommended by the Vermont WS BDM program for the purpose of obtaining lethal effects on birds. These chemicals have been evaluated for possible residual effects which might occur from buildup of the chemicals in soil, water, or other environmental sites.

*DRC-1339* exhibits a low persistence in soil or water, and bioaccumulation of the chemical is unlikely (USDA 1997). Additionally, the relatively small quantity of DRC-1339 that will be used in BDM programs in Vermont, the chemical's instability which results in speedy degradation of the product, and application protocol used in WS programs further reduces the likelihood of any environmental accumulation. DRC-1339 is restricted to WS personnel use only and is not available to other entities, private or governmental, in Vermont.

*Starlicide*® is a restricted-use avicide registered for use in feedlots and contains 0.1% DRC-1339 (USDA 1997, Appendix P). Therefore, the cumulative impact potential from *Starlicide*® use should be similar to DRC-1339.

*Avitrol*® may be used or recommended by the Vermont WS program. *Avitrol*® is typically administered on elevated platforms inside buildings and does not contact the soil. When used this way, applications would not be in contact with surface or groundwater and uneaten baits will be recovered and disposed of according to EPA label specifications. *Avitrol*® exhibits a high

persistence in soil and water but, according to literature, does not bioaccumulate (USDA 1997 and EXTTOXNET 2000). Because of Avitrol's characteristic of binding to soils, it is not expected to be present in surface or ground water as a result of its use on land (EPA 1980). A combination of chemical characteristics and baiting procedures used by WS would reduce the likelihood of environmental accumulation of Avitrol. The EPA has not required studies on the fate of Avitrol® in the soil because, based on use patterns of the avicide, soil residues are expected to be low (EPA 1980).

Based on use patterns, the chemical and physical characteristics of DRC-1339, Starlicide®, and Avitrol®, and factors related to the environmental fate of these pesticides, no cumulative impacts are expected from the lethal chemical components used or recommended by the WS BDM program in Vermont.

Non-lethal chemicals may also be used or recommended by the WS BDM program in Vermont. Characteristics of these chemicals and use patterns indicate that no significant cumulative impacts related to environmental fate are expected from their use in WS BDM programs in Vermont.

#### ***Cumulative Impact Potential from Non-chemical Components***

Non-chemical methods used or recommended by WS' BDM program may include exclusion through use of various barriers, habitat modification of structures or vegetation, live trapping and translocation or euthanasia of birds, nest and egg destruction, harassment of birds or bird flocks, and shooting.

Because shooting may be considered as a component of the non-chemical, the deposition of lead shot in the environment is a factor considered in this EA.

***Lead Shot.*** Threats of lead toxicosis to waterfowl from the deposition of lead shot in waters where such species fed were observed more than one hundred years ago (Sanderson and Belrose 1986). As a result of discoveries made regarding impacts to several species of ducks and geese, federal restrictions were placed on the use of lead shot for waterfowl hunting in 1991. "Beginning September 1, 1991, the contiguous 48 United States, and the States of Alaska and Hawaii, the Territories of Puerto Rico and the Virgin Islands, and the territorial waters of the United States, are designated for the purpose of Sec. 20.21 (j) as nontoxic shot zones for hunting waterfowl, coots, and certain other species. 'Certain other species' refers to those species, other than waterfowl or coots, affected by reason of being included in aggregate bags and concurrent seasons." All WS' BDM shooting activities conform to federal, state and local laws. If activities are conducted near or over water, WS uses nontoxic shot during activities, including those activities that are conducted on islands. Consequently, no deposition of lead in nontoxic shot zones is likely to occur as a result of WS' BDM actions in Vermont. Therefore, cumulative impacts are not likely to occur if toxic shot is used. Additionally, WS will evaluate other BDM actions which entail the use of shot on a case by case basis to determine if deposition of lead shot poses any risk to non-target animals, such as domestic livestock. If such risk exists, WS will use nontoxic shot in those situations.

***Roost Harassment/Relocation.*** Some potential exists for cumulative impacts to human health and safety related to the harassment of roosting bird flocks such as European starlings in urban and suburban environments. If birds are dispersed from one site and relocated to another where human exposure to concentrations of bird droppings over time occurs, human health and safety could be threatened. If WS is providing direct operational assistance in relocating such birds, coordination with local authorities may be conducted to assure they do not re-establish in other undesirable locations.

#### ***Summary***

No significant cumulative environmental impacts are expected from any of the 4 alternatives.

Under the Proposed Action, the lethal removal of birds by WS would not have a significant impact on overall target bird populations in Vermont, but some local reductions may occur. No significant impact to the New York Lake Champlain population is anticipated. No risk to public safety is expected when WS' services are provided and accepted by requesting individuals in Alternatives 1, 2, and 3, since only trained

and experienced wildlife biologists/specialists would conduct and recommend BDM activities. There is a slight increased risk to public safety when persons who reject WS assistance and recommendations in Alternatives 1, 2 and 3 and conduct their own BDM activities, and when no WS assistance is provided in Alternative 4. In all 4 Alternatives, however, it would not be to the point that the impacts would be significant.

Under Alternative 4, management actions taken by non-federal entities would be considered the *environmental status quo*. In those situations where a non-federal cooperator has already made the decision to remove or otherwise manage rock pigeons, European starlings, House sparrows and other federally unprotected bird species to stop damage with or without WS assistance in Alternatives 1, 2, and 3, WS participation in carrying out the action will not affect the *environmental status quo*. In some situations, dependent upon the skills and abilities of the non-federal entity, WS involvement may actually have a *beneficial* effect on the human environment when compared to the *environmental status quo* in the absence of such involvement.

Although some persons will likely be opposed to WS's participation in BDM activities on public and private lands within the state of Vermont, the analysis in the EA and this Amendment indicates that WS integrated BDM program will not result in significant cumulative adverse impacts on the quality of the human environment.

#### **Persons Consulted**

Dr. Dave Capen	University of Vermont
Bill Crenshaw	Vermont Fish and Wildlife Department
John Gobeille	Vermont Fish and Wildlife Department
Tom Decker	Vermont Fish and Wildlife Department
Steve Parren	Vermont Fish and Wildlife Department
Mark Labarr	VT Audubon

#### **Literature Cited**

- Blokpoel, H. and G. D. Tessier. 1986. The ring-billed gull in Ontario: a review of a new problem species. Occasional Paper Number 57. Canadian Wildlife Service. Ottawa, Ontario. 34pp.
- Blokpoel, H. and G. D. Tessier. 1992. Control of ring-billed gulls and herring gulls nesting at urban and industrial sites in Ontario, 1987-1990. Proceedings of the Eastern Wildlife Damage Conference 5: 51-57.
- Bull., 1974. The birds of New York State. Doubleday/Natural History Press. Garden City, NY. 392pp.
- Dolbeer, R.A. 1998. Population dynamics: the foundation of wildlife damage management for the 21<sup>st</sup> century. Proceedings Vertebrate Pest Conference, University of California, Davis. 18: 1-11 .
- ETOXNET (Extension Toxicology Network). 1996. 4-Aminopyridine. Pesticide Information Profiles. Coop. Ext. Offices at Cornell Univ., OR State Univ., Univ. of ID, Univ. of CA-Davis, and the Instit. for Envir. Toxicology, MI State Univ. <http://ace.ace.orst.edu/info/extoxnet/pips/4-aminop.htm>.
- ETOXNET (Extension Toxicology Network). 2000. 4-Aminopyridine. Pesticide Information Profiles. Coop. Ext. Offices at Cornell Univ., OR State Univ., Univ. of ID, Univ. of CA-Davis, and the Instit. for Envir. Toxicology, MI State Univ. <http://pmep.cce.cornell.edu/profiles/extoxnet/24d-captan/4aminopyridine-ext.html>
- Laughlin, S. B. and D. P. Kibbe. 1985. The Atlas of Breeding Birds of Vermont. University Press of New England, Hanover and London. 456 pp.

- MANEM (Mid-Atlantic, New England, Maritimes Regional Waterbird Plan). 2006.  
<http://www.fws.gov/birds/waterbirds/manem/index.html>
- Miller, B. and N. King. 1981. Partial history of the avifauna of some of Lake Champlain's islands. Observations and notes on birds, other than waterfowl, extracted from field data; covering 1963-1981. Montpelier, VT: Vermont Dept. of Fish and Game. Mimeographed.
- National Audubon Society. 2006. The Christmas Bird Count Historical Results.  
[www.audubon.org/bird/cbc](http://www.audubon.org/bird/cbc). July 2006.
- Peterson, J.M.C. 1985. 1984 Colonial bird census. High Peaks Audubon News 13:10.
- Ryder, J. P. 1993. Ring-billed Gull. *In* The Birds of North America, No. 33 (A. Poole, P. Stettenheim, and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, DC: The American Ornithologists' Union. <http://bna.birds.cornell.edu/BNA/>
- Sanderson, G. C., and F. C. Bellrose. 1986. A review of the problem of lead poisoning in waterfowl. Illinois Natural History Survey, Champaign, IL. Spec. Publ. 4. Jamestown ND: Northern Prairie Wildl. Res. Ctr. Home Page.  
[Http://www.npwrc.usgs.gov/resource/othrdata/pbpoison/pbpoison.htm](http://www.npwrc.usgs.gov/resource/othrdata/pbpoison/pbpoison.htm) (Version 170CT97). 34pp.
- Sauer, J.R., J. E. Hines, and J. Fallon. 2006. The North American breeding bird survey, results and analysis 1966 - 2005. Version 6.2.2006, USGS Patuxent Wildlife Research Center. Laurel, MD.
- Slate, D.A., R. Owens, G. Connolly, and G. Simmons. 1992. Decision making for wildlife damage management. *In Trans. N. A. Wildl. Nat. Res. Conf* 57:51-62.
- The Wildlife Society. 1992. Conservation policies of The Wildlife Society: A stand on issues important to wildlife conservation. The Wildlife Society, Bethesda, Md. 24pp.
- Thompson, Z. 1853. Natural History of Vermont. Published by the author, Burlington, VT. Reprinted 1972. Rutland, VT: Charles Tuttle Co.
- USDA (revised). 1997. Final Environmental Impact Statement. USDA, APHIS, ADC Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD 20737-1234.
- USDA. 2004. Environmental Assessment (EA)-Reducing Bird Damage through and Integrated Wildlife Damage Management Program in the State of Vermont. USDA APHIS Wildlife Services, Concord, NH 03301. <http://www.aphis.usda.gov/ws/eafrontpage.html>
- USDA. 2005. An Early Detection System for Asian H5N1 Highly Pathogenic Avian Influenza in Wild Migratory Birds. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, Operational Support Staff, Riverdale, Maryland, USA. 87pp.
- USEPA. 1980. Pesticide registration standard: 4-aminopyridine: avitrol. Office of Pesticides and Toxic Substances. Washington, DC.
- USFWS, 1999. Final Environmental Assessment: Of a U.S. Fish and Wildlife Service Action to Issue a Migratory Bird Depredation Permit For the Take of Cormorants and Gulls on Lake Champlain Islands, Vermont.
- USFWS. 2003. Final Environmental Impact Statement: Double-crested Cormorant Management. U.S. Dept. of the Interior, USFWS, Div. of Migratory Bird Management, 4401 N. Fairfax Drive MS 634, Arlington, VA 22203.
- USFWS. 2005. Final Environmental Impact Statement: Resident Canada Goose Management. U.S.

Dept. of Interior, USFWS, Division of Migratory Bird Management. Arlington, VA.  
<http://www.fws.gov/migratorybirds/issues/cangeese/finaleis.htm>

VTFW, 2004. Vermont's Champlain Island WMA Long-Range Management Plan Citation. Waterbury, VT

Weaver, R. L. 1939. Ring-billed Gull record. Bull. New England Bird Life 3(11):6.

Wolfe, L. R. 1923. The Herring Gulls of Lake Champlain. Auk 40:621-626.

## Appendix E. State Listed Threatened and Endangered Species in Vermont

### Birds

Henslow's sparrow	<i>Ammodramus henslowii</i>	Endangered
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Threatened
Upland sandpiper	<i>Bartramia longicauda</i>	Threatened
Black tern	<i>Chlidonias niger</i>	Threatened
Sedge wren	<i>Cistothorus platensis</i>	Endangered
Spruce grouse	<i>Falciennis Canadensis</i>	Endangered
Bald eagle	<i>Haliaeetus leucocephalus</i>	Endangered
Loggerhead shrike	<i>Lanius ludovicianus</i>	Endangered
Common tern	<i>Sterna hirundo</i>	Endangered

### Mammals

Eastern mountain lion	<i>Felis concolor cougar</i>	Endangered
Lynx	<i>Lynx Canadensis</i>	Endangered
Marten	<i>Martes Americana</i>	Endangered
Small-footed bat	<i>Myotis leibii</i>	Threatened
Indiana bat	<i>Myotis sodalist</i>	Endangered

### Amphibians

Western chorus frog	<i>Pseudacris triseriata</i>	Endangered
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### Reptiles

Spiny soft-shell turtle	<i>Apalone spinifera</i>	Threatened
Spotted turtle	<i>Clemmys guttata</i>	Endangered
Timber rattlesnake	<i>Crotalus horridus</i>	Endangered
Five-lined skink	<i>Eumeces fasciatus</i>	Endangered
Eastern racer	<i>Coluber constrictor</i>	Threatened
Eastern ratsnake	<i>Elaphe obsoleta (E. alleghaniensis)</i>	Threatened

### Fish

Lake sturgeon	<i>Acipenser fulvescens</i>	Endangered
Eastern sand darter	<i>Ammocrypta pellucida</i>	Threatened
Northern brook lamprey	<i>Ichthyomyzon fossor</i>	Endangered
American brook lamprey	<i>Lampetra appendix</i>	Threatened
Stonecat	<i>Noturus flavus</i>	Endangered
Channel darter	<i>Percina copelandi</i>	Endangered

### **Amphipods**

Taconic cave amphipod    *Stygobromus borealis*    Endangered

### **Insects**

Beach-dune tiger beetle    *Cicindela hirticollis*    Threatened  
Cobblestone tiger beetle    *Cicindela marginipennis*    Threatened  
Puritan tiger beetle    *Cicindela puritana*    Threatened

### **Molluscs**

Dwarf wedgemussel    *Alasmidonta heterodon*    Endangered  
Brook floater    *Alasmidonta varicosa*    Threatened  
Cylindrical papershell    *Anodontooides ferussacianus*    Endangered  
Pocketbook    *Lampsilis ovata*    Endangered  
Fluted shell    *Lasmigona costata*    Endangered  
Fragile papershell    *Leptodea fragilis*    Endangered  
Black sandshell    *Ligumia recta*    Endangered  
Eastern pearl mussel    *Margaritifera margaritifera*    Threatened  
Pink heelsplitter    *Potamilus alatus*    Endangered  
Giant floater    *Pyganodon grandis*    Threatened