

**DECISION AND  
FINDING OF NO SIGNIFICANT IMPACT**

**Reducing Bird Damage in the State of Maine**

The U.S. Fish and Wildlife Service (USFWS) proposes to adopt the United States Department of Agriculture's (USDA) Environmental Assessment (EA) for Managing Damage to Resources and Threats to Human Safety Caused by Birds in the State of Maine (USDA 2013a), the Supplement to EA: Managing Damage to Resources and Threats to Human Safety Caused by Birds in the State of Maine (USDA 2015a) and findings of the EA: Reducing the Effects of Predation on Threatened and Endangered Birds in the State of Maine (USDA 2012a) and issue migratory bird depredation permits to the USDA, Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) program, and additional entities meeting the conditions of 50 C.F.R. §21.41 for the take of migratory birds in Maine.

WS and the USFWS previously developed EAs that addressed WS' activities to manage damage associated with migratory birds in the state (USDA 2001, USDA 2010). Based on the analyses in those EAs, Decisions and Finding of No Significant Impact (FONSI) were signed by WS selecting the proposed action alternative. The proposed action alternative implemented a damage management program using a variety of methods in an integrated approach (USDA 2001, USDA 2010). More recent changes in the need for action and the affected environment have prompted WS and USFWS to initiate a new analysis to address migratory bird damage in the state (USDA 2012a, USDA 2013a, USDA 2015a). These more recent EAs and Supplement identified changes and assessed the potential environmental impacts of program alternatives based on a new need for action, primarily a need to address damage and threats of damage associated with several additional species of migratory birds. Based on the analysis in the respective EAs and Supplement, FONSI were signed by WS selecting the proposed action alternative (USDA 2013b, USDA 2013c, USDA 2015b).

**LEGAL FRAMEWORK GOVERNING MIGRATORY BIRD DEPREDATION PERMITS**

The Migratory Bird Treaty Act delegates authority to the United States Secretary of the Interior to adopt regulations permitting hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any such bird, or any part, nest, or egg thereof. 16 U.S.C. § 704. This authority has been sub-delegated by the Secretary to the USFWS. See 50 C.F.R. § 10.1. In regulating the take of migratory birds, the USFWS must give due regard to the zones of temperature and to the distribution, abundance, economic value, breeding habits, and times and lines of migratory flight of such birds, and must determine when, to what extent, if at all, and by what means, allowing otherwise prohibited activity is compatible with the terms of the conventions. 16 U.S.C. § 704.

Take of migratory birds to improve airport safety were historically issued as special purpose permits through the 1990s. Since then, authorized take of migratory birds posing a threat to public safety at airports have been issued as depredation permits under 50 C.F.R. § 21.41.

Migratory birds that cause damage to commercial, public or private property are often referred to as “depredating” birds. This term was first applied to migratory birds when large amounts of birds would prey upon fish farms or agricultural crops, but the concept extends to other types of property damage or when birds cause health or safety risks. Permits are not required simply to scare birds, with the exception of eagles and birds listed under the Endangered Species Act. However, take without a permit is unlawful. *Id.* at § 21.11. A permit would be necessary not just for lethal methods of take, but also for non-lethal methods including trapping, collecting and capturing, or any activity that may cause injury.

The criteria for depredation permits are straightforward, focusing on the content of the application and mandatory permit conditions; USFWS may include additional conditions at its discretion. Applicants must comply with USFWS’ general permitting requirements at 50 C.F.R. Part 13 and provide the following additional information as indicated at 50 C.F.R. § 21.41 (b):

- 1) A description of the area where depredations are occurring;
- 2) The nature of the crops or other interests being injured;
- 3) The extent of such injury; and
- 4) The particular species of migratory birds committing the injury.

Our regulation stipulates that in addition to the required permit conditions in Part 13, depredation permits shall require certain other enumerated conditions [50 C.F.R. § 21.41(c)]. Depredation permits may be issued for up to a year [50 C.F.R. § 21.41 (d)] but the permit may be renewed annually following the procedures in 50 C.F.R. § 13.22. This section allows a permittee to continue its activities under an expired permit, pending USFWS decision on a renewal application, so long as the permittee submitted the renewal application at least 30 days prior to permit expiration. *Id.* at 13.22(c).

The WS program completed EAs and a Supplement on alternatives for reducing bird damage to agricultural resources, natural resources, property, livestock, and public health and safety in Maine (USDA 2012a, USDA 2013a, USDA 2015a). The EA documents the need for action and assesses potential impacts on the human environment of three alternatives to address that need. The USFWS, who was a cooperating agency in that effort, has independently reviewed and hereby adopts and incorporates the WS EA: Managing Damage to Resources and Threats to Human Safety Caused by Birds in the State of Maine, in this decision regarding the issuance of depredation permits under 50 C.F.R. § 21.41. According to the Migratory Bird Treaty Act, the take of eggs and nests with eggs is lethal; USFWS has clarified this with WS and will work with WS on future Decision documents to ensure that egg destruction is defined by WS as lethal take. Despite listing nest and egg removal as non-lethal, WS has been accounting for the take of nest and eggs, listing the take of nests and eggs on Form 37s and reporting nest and egg take on annual reports.

The WS EA is available for review at:

[https://www.aphis.usda.gov/regulations/pdfs/nepa/2013\\_ME\\_Bird\\_EA\\_Final.pdf](https://www.aphis.usda.gov/regulations/pdfs/nepa/2013_ME_Bird_EA_Final.pdf).

The WS Supplement to the EA: Managing Damage to Resources and Threats to Human Safety Caused by Birds in the State of Maine is available for review at:

[https://www.aphis.usda.gov/wildlife\\_damage/downloads/nepa/2015%20EA%20Supplement%20-%20Managing%20Bird%20Damage%20in%20Maine.pdf](https://www.aphis.usda.gov/wildlife_damage/downloads/nepa/2015%20EA%20Supplement%20-%20Managing%20Bird%20Damage%20in%20Maine.pdf).

The WS EA: Reducing the Effects of Predation on Threatened and Endangered Birds in the State of Maine is available for review at:

[https://www.aphis.usda.gov/regulations/pdfs/nepa/2013\\_ME\\_Nest\\_Predator\\_EA\\_FINAL.pdf](https://www.aphis.usda.gov/regulations/pdfs/nepa/2013_ME_Nest_Predator_EA_FINAL.pdf).

Normally, individual wildlife damage management permit actions by the USFWS may be categorically excluded from the requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4332, where the permitted action will cause no or negligible environmental disturbance. See 516 DM 8.5(C)(1). However, USFWS chose to cooperate with WS in development of the 2012 WS EA, 2013 WS EA and the 2015 WS Supplement to the EA to facilitate planning, interagency coordination and the streamlining of program management, and to fully analyze and communicate to the public the individual and cumulative impacts from wildlife damage management related to migratory birds. The purpose of the EAs and Supplement was to evaluate cumulatively the impact of all individual projects conducted by WS and USFWS in Maine to manage damage and threats to agricultural resources, property, natural resources, and human safety associated with migratory bird species.

## **PUBLIC COMMENTS**

The EA: Managing Damage to Resources and Threats Human Safety Caused by Birds in the State of Maine was made available for review and comment from May 16 to June 14, 2013. The document was made available through a Notice of Availability (NOA) published in the *Kennebec Journal* and sent to interested parties through the APHIS Stakeholder Registry. WS also published these documents on the program website. One comment was received stating the public member did not agree with the issuance of depredation permits by the USFWS and addressed in the WS FONSI (USDA 2013b). The FWS adds to WS' response that the issuance of depredation permits is long established and is not in and of itself controversial. Nor are the very limited impacts on the human environment from issuance of these permits controversial. USFWS regulations explicitly contemplate this permitted activity. The fact that some may disagree with the issuance of depredation permits or authorized activities does not render the effects controversial.

The Supplement to the EA: Managing Damage to Resources and Threats Human Safety Caused by Birds in the State of Maine was made available for review and comment from April 22 to May 30, 2015. The document was made available through a Notice of Availability (NOA) published in the *Kennebec Journal* and sent to interested parties through the APHIS Stakeholder Registry. WS also published these documents on the program website. No comments were received.

The EA: Reducing the Effects of Predation on Threatened and Endangered Birds in the State of Maine was made available for review and comment from December 10, 2012 to January 11, 2013. The document was made available through a Notice of Availability (NOA) published in the *Kennebec Journal* and *Portland Press Herald* and sent to interested parties through the

APHIS Stakeholder Registry. WS also published these documents on the program website. One comment was received and addressed in the EA.

All correspondence on the EAs and Supplement is maintained at the WS State Office, Capital West Business Center, 79 Leighton Road, Suite 12, Augusta, ME 04330.

## **SUMMARY OF THE ENVIRONMENTAL ASSESSMENT AND ALTERNATIVES**

Changes in the need for action and the affected environment have prompted WS and the USFWS to initiate a new analysis to address migratory bird damage in the state. The more recent EAs (USDA 2012a, USDA 2013a) and EA Supplement (USDA 2015a) have been developed to assess the potential environmental impacts of program alternatives based primarily on a need to address damage and threats of damage associated with several additional species of migratory birds, particularly piping plovers (*Charadrius melodus*), least tern (*Sterna antillarum*), roseate tern (*Sterna dougallii*), herring gull (*Larus argentatus*), ring-billed gull (*Larus delawarensis*), great black-backed gull (*Larus marinus*), and laughing gull (*Larus atricilla*). The EAs also analyzed cumulative impacts from all permittees authorized to take migratory birds in the state under 50 C.F.R. § 21.41.

On May 25, 2016, the U.S. District Court for the District of Columbia vacated two depredation orders—the Aquaculture Depredation Order and the Public Resource Depredation Order—for double-crested cormorants until the USFWS prepares an adequate Environmental Assessment or Environmental Impact Statement in compliance with the requirements of NEPA. The Service can permit limited take within what the Service determines can be appropriately categorically excluded, specifically under limited circumstances, including for resolving concerns involving public health and safety and for scientific research. Work is underway to complete a national environmental review under NEPA. This review will consider the cumulative impacts of take across the central and eastern United States.

Chapter 1 of the EA: Managing Damage to Resources and Threats to Human Safety Caused by Birds in the State of Maine (USDA 2013a) and Supplement (USDA 2015a) describes the purpose and the species of migratory birds that are typically involved in damage and/or human health and safety situations in the state of Maine, and the technical services that have previously been provided by WS to address them (Table 1.1, page 4). Categories of damage include: agricultural resources (aquaculture, livestock, crops); human health and safety (disease transmission, aircraft strikes); and damage to property. Chapter 2 describes the affected environment, and provides greater detail on the issues that received greater impact analysis. Chapter 3 presents alternatives that were developed to address the issues identified in the previous chapter. Finally, Chapter 4 provides information needed for making an informed decision in selecting the appropriate alternative. The three alternatives are briefly summarized as:

**Alternative 1** - Continuing the Current Integrated Approach to Managing Bird Damage (Proposed Action/No Action). The proposed action/no action alternative would continue the current implementation of an adaptive integrated approach utilizing non-lethal and lethal techniques, as deemed appropriate using the WS Decision Model, to reduce damage and threats caused by birds in Maine. As described in Chapter 3 of the EA, this alternative involves

continued issuance of depredation permits by USFWS to individuals and entities, including WS, meeting the conditions of 50 C.F.R. § 21.41.

**Alternative 2** - Bird Damage Management by WS through Technical Assistance Only. Under this alternative, WS would be restricted to only using or recommending non-lethal methods to resolve damage caused by migratory birds in Maine. Lethal methods could continue to be used under this alternative by those persons experiencing damage without involvement by WS. This alternative involves USFWS issuing depredation permits to individuals and entities meeting the conditions of 50 C.F.R. § 21.41, but not issuing a depredation permit to WS.

**Alternative 3** – No Bird Damage Management Conducted by WS. This alternative precludes any activities by WS to reduce threats to human health and safety, and alleviate damage to agricultural resources, property, and natural resources. WS would not be involved with any aspect of bird damage management. All requests for assistance received by WS to resolve damage caused by birds would be referred to the USFWS, the Maine Department of Inland Fisheries and Wildlife (MDIFW), and/or private entities. This alternative is different from Alternative 2 above, in that the USFWS would not cooperate with WS regarding bird damage management, obtain their professional expertise on non-lethal or lethal practices for resolving conflicts with migratory birds, or rely on their ability to conduct site-visits to determine the scope of the problem, species and number of birds involved, and whether non-lethal efforts to address the problem have been taken by the individual or agency prior to our issuance of a depredation permit. This alternative would not deny other federal, state, and/or local agencies, including private entities from conducting damage management activities directed at alleviating damage and threats associated with migratory birds. This alternative is substantially related to the USFWS alternative of issuing depredation permits to individuals and entities meeting the conditions of 50 C.F.R. § 21.41, except for WS.

Not engaging with WS or declining to issue a depredation permit for migratory birds to reduce and prevent damage associated with agricultural resources, natural resources, property and threats to human health and safety is not a viable alternative for the USFWS, because it is not consistent with the responsibilities under E.O. 13186 and the resulting Memorandum of Understanding (MOU) between WS and USFWS. This MOU strengthens migratory bird conservation and the purposes of the Migratory Bird Treaty Act, 16 U.S.C. §§ 703-711 (MBTA), the Bald and Golden Eagle Protection Act, 16 U.S.C. §§ 668-668d (BGEPA), the Fish and Wildlife Coordination Act 16 U.S.C. §§ 742a- 754j-2, the Endangered Species Act 16 U.S.C. §§ 1531-1544 (ESA), the National Environmental Policy Act 42 U.S.C. §§ 4321-4347 (NEPA), and other pertinent statutes. The MOU focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between WS and USFWS by identifying and enhancing areas of cooperation. This MOU is available at:

<https://www.fws.gov/migratorybirds/pdf/management/mouaphis.pdf>.

Because the goals of WS and USFWS are to conduct a coordinated program to reduce and prevent migratory bird damage associated with agricultural resources, natural resources, property and threats to human health and safety, the alternatives analyzed in the WS EA and Supplement (USDA 2013a, USDA 2015a) were developed in consultation with the USFWS and closely align

with the USFWS alternatives presented in the Decisions/FONSI (USDA 2013b, USDA 2015b). Under the No Action alternative, all entities seeking a depredation permit from the USFWS must first consult with WS to ensure prior implementation of recommended non-lethal take measures and must submit a recommendation from WS (Form 37) in support of the permit application. Each of the 3 Alternatives is discussed in greater detail within the Description of Alternatives section of the Decisions/FONSI (USDA 2013b, USDA 2015b).

Chapter 1 of the EA: Reducing the Effects of Predation on Threatened and Endangered Birds in the State of Maine (USDA 2012a) describes the purpose and the species of threatened and endangered migratory birds that are typically involved in damage from wildlife predation in the state of Maine, and the technical services that have previously been provided by WS to address them. Chapter 2 describes the affected environment, and provides greater detail on the issues that received greater impact analysis. Chapter 3 contains a discussion of the alternatives that were developed to address the identified issues discussed in Chapter 2. Finally, Chapter 4 provides detailed environmental impacts analyses of the alternatives will occur.

**Alternative 1** – No Involvement by WS in Managing Predation Risks. This alternative precludes all activities by WS to reduce predation risks. WS would not be involved with any aspect of nest predator management in the State. All requests for assistance received by WS to reduce nest predation risks would be referred to the USFWS, the MDIFW, and/or private entities. This alternative would not deny other federal, State, and/or local agencies, including private entities from conducting activities directed at reducing predation risks in the State.

**Alternative 2** – Managing Nest Predation Risks by WS through Technical Assistance Under this alternative, WS would provide those cooperators requesting assistance with technical assistance only. Technical assistance would provide those entities requesting assistance with information, demonstrations, and recommendations on available and appropriate methods available. The implementation of methods and techniques to reduce nest predation would be the responsibility of the requester with no direct involvement by WS.

**Alternative 3** - Continuing the Current Integrated Approach to Managing Nest Predation (Proposed Action/No Action). The proposed action/no action alternative would continue the current implementation of an adaptive integrated approach utilizing non-lethal and lethal techniques, as deemed appropriate using the WS Decision Model to reduce nest predation in Maine. The proposed action alternative would also continue those activities under the proposed action alternative selected during the development of the statewide gull damage management EA (USDA 2010). A major goal of the proposed action alternative would be to resolve and prevent the predation of plover and tern eggs, nestlings, and adults, when requested.

**Alternative 4** – Managing Nest Predation Using Non-lethal Methods Only. Under this alternative, WS would be required to implement only non-lethal methods to resolve nest predation. No lethal take of nest predators would occur by WS. In situations where non-lethal methods were impractical or ineffective to alleviate predation risks, WS could refer requests for information regarding lethal methods to the MDIFW, the USFWS, local animal control agencies, or private businesses or organizations.

Because the goals of WS and USFWS are to conduct a coordinated program to reduce and prevent migratory bird damage associated with agricultural resources, natural resources, property and threats to human health and safety, the alternatives analyzed in the WS EA (USDA 2012a) were developed in consultation with the USFWS and closely align with the USFWS alternatives presented in the Decision/FONSI (USDA 2013c). Under the No Action alternative, all entities seeking a depredation permit from the USFWS must first consult with WS to ensure prior implementation of recommended non-lethal take measures and must submit a recommendation from WS (Form 37) in support of the permit application. Each of the four Alternatives is discussed in greater detail within the Description of Alternatives section of the Decision/FONSI (USDA 2013c).

## **DOCUMENTS INCORPORATED INTO THE ENVIRONMENTAL ASSESSMENT**

### **Proposal to Permit Take as Provided under the Bald and Golden Eagle Protection Act – Final Environmental Assessment:**

The USFWS Final Programmatic Environmental Impact Statement (PEIS) for the Eagle Rule Revision (USFWS 2016) evaluated the potential direct, indirect, and cumulative environmental impacts associated with the development and implementation of eagle management involving permitted “take” of bald eagles and golden eagles as defined under the Bald and Golden Eagle Protection Act. The preferred alternative in the PEIS assessed the impact of the following authorizations: disturbance of eagles amounting to take, removal of eagle nests where necessary to alleviate safety emergency, ensure public health and safety, restore operation of a pre-existing human engineered structure, and protect an interest in a particular locality, and lethal take of eagles in limited circumstances.

As a Programmatic NEPA analysis, the PEIS can be tiered off of for site-specific environmental assessments (USFWS 2016). Generally, projects that “(a) will not take eagles above regional take limits (unless it is offset); (b) will not result in cumulative authorized take within the local area population exceeding 5%; and (c) will fulfill their compensatory mitigation requirements via methods that will offset the take... need to only summarize issues discussed in the PEIS and incorporate by reference discussion from the PEIS” (USFWS 2016, pages 6-7). Exceptions may require separate NEPA analysis.

### **Resident Canada Goose Management - Final Environmental Impact Statement:**

The USFWS has issued a Final Environmental Impact Statement (FEIS) on the management of resident Canada geese (USFWS 2005). Pertinent and current information available in the FEIS has been incorporated by reference into this Decision/FONSI, specifically the discussion in section II.B.6 of the Preferred Alternative in the FEIS, which includes the continued issuance of depredation permits under 50 CFR §21.41 (see page II-15 of the FEIS). The FEIS may be obtained by contacting the Division of Migratory Bird Management, U.S. Fish and Wildlife Service, 5275 Leesburg Pike, MS: MB, Falls Church, VA, 22041-3803.

## **USFWS Light Goose Management – Final Environmental Impact Statement:**

The USFWS has issued a FEIS, which analyzes the potential environmental impacts of management alternatives for addressing problems associated with overabundant light goose populations (USFWS 2007). The “light” geese referred to in the FEIS include the lesser snow goose (*Chen caerulescens caerulescens*), greater snow goose (*C. c. atlantica*), and the Ross’s goose (*C. rossii*) that nest in Arctic and sub-Arctic regions of Canada and migrate and winter throughout the United States. A Record of Decision (ROD) and Final Rule were published by the USFWS and the final rule went into effect on December 5, 2008. Information from the USFWS FEIS on light goose management (USFWS 2007) has been incorporated by reference into this Decision/FONSI. The FEIS may be obtained by contacting the Division of Migratory Bird Management, U.S. Fish and Wildlife Service, 5275 Leesburg Pike, MS: MB, Falls Church, VA, 22041-3803 or by downloading it from the USFWS website at: <https://www.fws.gov/migratorybirds/pdf/management/snow-geese/light-gooseEIS.pdf>.

## **Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds**

Migratory birds are of great ecological and economic value to this country and to other countries. They contribute to biological diversity and bring tremendous enjoyment to millions of Americans who study, watch, feed, or hunt these birds throughout the United States and other countries. The United States has recognized the critical importance of this shared resource by ratifying international, bilateral conventions for the conservation of migratory birds. Such conventions include the Convention for the Protection of Migratory Birds with Great Britain on behalf of Canada in 1916; the Convention for the Protection of Migratory Birds and Game Mammals with Mexico in 1936, the Convention for the Protection of Birds and Their Environment with Japan in 1972 and the Convention for the Conservation of Migratory Birds and Their Environment with the Union of Soviet Socialist Republics in 1978.

These migratory bird conventions impose substantive obligations on the United States for the conservation of migratory birds and their habitats, and through the Migratory Bird Treaty Act, the United States has implemented these migratory bird conventions with respect to the United States. Executive Order 13186 directs executive departments and federal agencies taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations to develop and implement, within 2 years, an MOU with the USFWS that shall promote the conservation of migratory bird populations. 66 Federal Register 3853 (2001). An MOU between WS and USFWS (2012) is currently in effect, and is available at: <https://www.fws.gov/migratorybirds/pdf/management/mouaphis.pdf>.

## **WS’ Environmental Assessments:**

WS has previously developed EAs (USDA 2001, USDA 2010) that analyzed the need for action to manage damage associated with several bird species in the State of Maine. Changes in the need for action and the affected environment have prompted WS and cooperating agencies to initiate a new analysis (USDA 2012a, USDA 2013a, USDA 2015a) to address the need for bird damage management. Information from the previous EAs (USDA 2001, USDA 2010) was considered and updated in the recent EAs and Supplement (USDA 2012a, USDA 2013a, USDA

2015a). The 2013 EA assesses the potential environmental impacts of program alternatives based on a new need for action, primarily to address damage and threats of damage associated with several additional species of birds, as well as incorporating Canada goose damage and threats. The EA Supplement (USDA 2015a) examines potential environmental impacts of WS' program as it relates to: 1) The expanded management of ring-billed gull, herring gull, great black-backed gull, and laughing gull damage; 2) The addition of the snowy owl (*Bubo scandiacus*) and the roughlegged hawk (*Buteo lagopus*) damage management; and, 4) new information that has become available from research findings and data gathering since the issuance of the Decision and FONSI in 2013 (WS 2013b). All information and analyses in the 2013 EA (USDA 2013a) remain valid unless otherwise noted in the Supplement (USDA 2015a).

## **OTHER ENVIRONMENTAL DOCUMENTS INCORPORATED IN OUR DECISION AND FINDINGS**

### **Waterbird Conservation Plan: 2006-2010, Mid-Atlantic/New England/Maritimes Region:**

The Mid-Atlantic/New England/Maritime (MANEM) Working Group developed a regional waterbird conservation plan for the MANEM region of the United States and Canada (MANEM Waterbird Conservation Plan 2006). The MANEM region consists of Bird Conservation Region (BCR) 14 (Atlantic Northern Forest) and BCR 30 (New England/Mid-Atlantic Coast) along with the Pelagic Bird Conservation Region 78 (Northeast United States Continental Shelf) and Pelagic Bird Conservation Region 79 (Scotian Shelf). The plan consists of technical appendices that address: (1) waterbird populations including occurrence, status, and conservation needs, (2) waterbird habitats and locations within the region that are critical to waterbird sustainability, (3) MANEM partners and regional expertise for waterbird conservation, and (4) conservation project descriptions that present current and proposed research, management, habitat acquisition, and education activities (MANEM Waterbird Conservation Plan 2006).

### **Atlantic Flyway Resident Population Canada Goose Management Plan**

In response to increasing populations of resident Canada geese within the Atlantic Flyway, the Atlantic Flyway Council developed and adopted a management plan in 2011 to reduce the Atlantic Flyway Resident Population (AFRP) of Canada Geese (Atlantic Flyway Council 2011). The objectives of this plan are to: 1) Reduce AFRP Canada geese to 700,000 birds (spring estimate) by 2020, distributed in accordance with levels prescribed by individual states and provinces; 2) Permit a wide variety of effective and efficient options for relief of damage and conflicts associated with AFRP Canada geese; 3) Provide maximum opportunities for use and appreciation of AFRP Canada geese, consistent with population objectives; 4) Ensure compatibility of AFRP goose management with management of migrant goose populations in the Atlantic Flyway; and 5) Annually monitor populations, harvest, and damage/conflict levels to evaluate effectiveness of management actions.

### **Birds of Conservation Concern**

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS to “identify species, subspecies, and populations of all migratory nongame birds that, without

additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973.” Birds of Conservation Concern (BCC) 2008 is the most recent effort to carry out this mandate (USFWS 2008). Migratory bird species which are included on the BCC list for the Northeast Region can be found in Table 44 (page 62) of the report, available at: <https://www.fws.gov/migratorybirds/pdf/management/BCC2008.pdf>. No species from the Regional BCC list have been taken in the State of Maine during 2013-2015 (Table 1).

Table 1. Reported take of migratory birds in Maine via depredation permits, 2013-2015.

Species	2013		2014		2015 <sup>1</sup>	
	Birds	Nests/Eggs	Birds	Nests/Eggs	Birds	Nests/Eggs
American kestrel			1		1	
Black-crowned night heron	1				2	
Belted kingfisher	4		4		3	
Black duck	1					
Canada goose	73		135		75	
Common eider	29					
Common raven	12		1		5	
Cooper’s hawk			2			
Double-crested cormorant	109		67		65	
Great black-backed gull	87	339	47	267	77	822
Great blue heron	4		6		8	
Herring gull	756	701	209	250	137	286
Killdeer					2	
Laughing gull	793	2679	553	2751	75	2527
Mallard	2		1		6	
Mourning dove			4			
Osprey	2					3
Ring-billed gull	70		73		58	10
Red-tailed hawk	1		3			
Savannah sparrow	5					
Snowy owl	2		3			

<sup>1</sup>Preliminary results.

## MIGRATORY BIRD SPECIES INCLUDED IN THE ENVIRONMENTAL ASSESSMENT

The purpose of the EAs and Supplement (USDA 2012a, USDA 2013a, USDA 2015a) was to evaluate cumulatively the individual projects conducted by WS and authorized by the USFWS in Maine to manage damage and threats to agricultural resources, property, natural resources, and threats to humans associated with migratory bird species, which are listed on page 4 of the EA (USDA 2013a). In addition to these species, WS and the USFWS also receive infrequent requests for assistance to manage damage and threats of damage associated with several other migratory bird species at very low levels. These primarily occur at airports where those species pose a threat of aircraft strikes. These species were not analyzed further in the EAs or Supplement (USDA 2012a, USDA 2013a, USDA 2015a) because annual take by WS is not expected to exceed 20 individuals, resulting in no or negligible impact to populations.

The take of migratory bird species would only occur at levels authorized by the USFWS, which ensures cumulative take is not detrimental to the long-term sustainability of their populations. The actual reported take of species and numbers for those listed above (Table 1) has remained below levels in which a detrimental impact to their populations could be measured. However, take of migratory birds by all agencies and individuals will continue to be evaluated on an annual basis, and additional analyses conducted if warranted.

## **ADDITIONAL POPULATION IMPACT ANALYSES FOR SPECIES INCLUDED IN THE ENVIRONMENTAL ASSESSMENT**

To ensure that management and regulatory decisions are based on the best available science, we hereby provide additional take analyses for certain migratory bird species that were included in the EA and Supplement (USDA 2012a, USDA 2013a, USDA 2015a) based on: 1) new information that has become available after the EA Supplement (USDA 2015a) was completed; and/or 2) a greater need to assess the cumulative impacts of take, or potential take, for certain species based on changing conditions following the completion of the EA Supplement (USDA 2015a).

### **Killdeer**

Killdeer is a common shorebird species that is often found in human-modified habitats that include open areas such as: short-grass meadows, construction sites, gravel areas and parking lots, road shoulders, athletic fields, golf courses, gravel rooftops and airports (Jackson and Jackson 2000). The killdeer is the most widespread and common plover throughout North America (Jackson and Jackson 2000), with an estimate of population estimate ranging from 1,000,000 to 2,000,000, which may be conservative (Andres et al. 2012). Breeding population trends within the northeast region suggest a slight decrease (-1.34; Confidence Interval -1.69 to -0.98) during 1966 to 2012 based on the Breeding Bird Survey (Sauer et al. 2014), however, given the confidence interval around this estimate, this decrease does not appear to be at a level that warrants a concern. The killdeer is not currently included in the list of Highest Priority or High Priority within the Bird Conservation Region 30 Plan (Atlantic Coast Joint Venture 2008). This additional information validates the findings of the EA and Supplement (USDA 2013a, USDA 2015a) that the proposed action would not likely impact populations of killdeer at the state, regional or national level. This should assure that cumulative impacts, if any, on killdeer populations would have no significant adverse impact on the quality of the human environment.

### **Snowy Owl**

There were five snowy owls reportedly taken in Maine during 2013-2015 along with a few that were trapped and relocated. In 2013, while two snowy owls were trapped and relocated, none were reported killed during the trap and relocation efforts (USFWS, unpublished data). In 2014, while four snowy owls were trapped and relocated, none were reported killed during the trap and relocation efforts (USFWS, unpublished data). In 2015, no snowy owls were reportedly trapped and relocated in the state (USFWS, unpublished data). Recent increases in migrating and wintering snowy owls in the Northeast could lead to an increased risk of snowy owl/aircraft strikes at airports. Snowy owls are large, circumpolar-breeding owls that are extremely nomadic

and winter regularly in the northern U.S. They typically are found in geographically large, open areas where they often perch on prominent natural and man-made structures (Parmelee 1992). With the exception of their primary wintering range in the Great Plains, such characteristics are often found at airports in the Northeast. Snowy owls are often referred to as irruptive migrants, due to the great variation in timing, direction and distances migrated which is believed to be in response to unpredictable food supplies (Newton 2006). At least 17 notable irruptions took place in North America from 1882 to 1946, each occurring at approximately 3-5 year intervals (Parmelee 1992). Annual wintering population trends in the U.S. are highly variable from 1990-2015 based on Christmas Bird Counts. Snowy owls appear to exhibit differential wintering patterns in North America, with immature males wintering further south, and irruptive movements in the east and west comprised primarily of first-year males (Kerlinger and Lein 1986).

The global snowy owl population size is estimated to range between 200,000 (Partners in Flight Science Committee 2013) and 300,000 individuals (Rich et al. 2004). Snowy owls are not on the list of priority species within the Bird Conservation Region 30 Plan (Atlantic Coast Joint Venture 2008). The snowy owl is classified as a species of “least concern” by the IUCN Red List (BirdLife International 2012) based on its population size and known threats. Previous, sporadic take levels at airports in the northeast have been negligible considering their population size and widespread distribution in the Arctic.

Regarding the risks that snowy owls pose to air safety, the Federal Aviation Administration has ranked the species 29th out of 86 species commonly involved in collisions, in terms of the potential damage it can cause. See *Wildlife Strikes to Civil Aircraft in the United States 1990-2012*, FAA & APHIS-WS, Sept. 2013, Table 19, p. 68; see <http://wildlife.faa.gov/downloads/StrikeReport1990-2012.pdf>. Between 1979 and 2012 nationwide, 84 snowy owls collided with aircraft, causing damage in 15 of those instances.

We conducted a potential biological removal (PBR; Wade 1998, Runge et al. 2004) assessment similar to what has been conducted for gulls in the EA. Increasing human-wildlife conflicts caused by migratory bird species and their potential impacts on sensitive species and their habitats, has resulted in greater use of analytical tools to evaluate the effects of authorized take on target species (Runge et al. 2009). Here we intend the PBR to estimate the number of snowy owls that could potentially be taken nationally under depredation permits while also ensuring that such populations remain stable.

Use of the PBR method to determine levels of sustainable take, or cumulative impacts over a large geographic area, requires a minimum estimate of the population size using science-based monitoring programs (Breeding Bird Surveys, Christmas Bird Counts, coordinated colony surveys, etc.), and the intrinsic rate of population growth. The formula for PBR is:

$$PBR = \frac{1}{2} R_{\max} N_{\min} F_R$$

where  $R_{\max}$  is the maximum population growth rate at low densities, and in the absence of removal (Runge et al. 2004),  $N_{\min}$  is the minimum population size, and  $F_R$  is a recovery factor ranging from 0.1 to 2.0. The recovery factor is a qualitative assessment that is typically set at

low levels for endangered ( $F_R = 0.1$ ) or threatened species ( $F_R = 0.5$ ; Taylor et al. 2000), or if the status of the population is poorly known (Runge et al. 2004). However, using a recovery factor above 1.0 has been discussed for species in which the management objective is to hold the population at a smaller fraction of its carrying capacity (Runge et al. 2009). To date, the PBR method has been applied to a limited number of species, such as gulls, vultures, and wood ducks. In general, it is often assumed that take of each species would come from all age-classes. If take occurs at colony sites, and thus only birds of breeding age are killed, PBR should be recalculated with a smaller minimum population size to reflect that breeding birds are the population targeted for take.

The maximum growth rate ( $R_{MAX}$ ) used in calculating PBR is the population growth rate that would be expected in the absence of harvest and when density is low (Runge et al. 2004). We used an age-structured population projection matrix (Caswell 2001) to estimate expected population growth rate ( $\lambda_{max}$ ) and  $R_{max}$  [ $R_{max} = \ln(\lambda_{max})$ ]. We used the R package Popbio to find the dominant eigenvalue of the projection matrix, which represents ( $\lambda_{max}$ ; Caswell 2001). We assumed a post-breeding birth pulse model with 2 age classes that incorporated age-specific survival rates and reproductive parameters. The specific elements of the matrix were populated using the following age specific vital rates:

$$A = \begin{bmatrix} f_1 * S_1 & f_A * S_A \\ S_1 & S_A \end{bmatrix},$$

where  $f_1$  = fecundity (fledglings per adult female) of 1-year old birds,  $f_A$  = fecundity of adult (>1-year) owls,  $S_1$  = survival of 1-year-olds, and  $S_A$  = survival of adults. Therrien et al. (2012) estimated that adult snowy owl annual survival rates ranged from 0.85 to 0.92. We used 0.85 in this assessment to be conservative. Published reports on the estimate of first-year survival are not available, so we assumed that first year survival was 10% lower than adult survival. We assumed that first-year birds did not reproduce ( $f_1 = 0$ ; Parmelee 1992). Menyushina (1997) observed 197 fledglings from 68 nests. Assuming a 50:50 sex ratio of fledglings, we assumed that 98.5 (197/2) females fledged and that  $f_A = 98.5/68 = 1.45$  females fledged per nest. Evidence suggests that almost all individuals that are of breeding age attempt to nest (Parmelee 1992, Therrien et al. 2012), so we believe this is an accurate measure of fecundity over a wide range of environmental variability. The dominant eigenvalue from the matrix indicated  $\lambda_{max} = 1.48$ , yielding an  $R_{max} = 0.39$ . Maximum sustainable take rate ( $R_{max}/2$ ; Runge et al. 2004) with these demographic rates is approximately 0.19. To guard against uncertainty in determining sustainable take estimates, we assume a minimum population estimate of 100,000 (Partners in Flight Science Committee 2013) to 150,000 snowy owls (half the estimate of Rich et al. 2004). With this conservative population estimate, we project a sustainable mortality level of approximately 19,000 to 29,000 snowy owls in North America.

As sustainable take can include all forms of mortality, factors based on the recoveries of banded snowy owls include: miscellaneous causes (34.2%), collisions with vehicles (12.6%), starvation (14.1%), shooting (11.9%), collisions with towers or wires (3.9%), entanglement (2.7%) and airplane strikes (2.1%; Holt et al. 2015). Assuming that the authorized lethal take of snowy owls at airports is commensurate with the mortality associated with being struck and killed by aircraft, 1.4% of 19,000 to 29,000, or approximately 266 to 406 snowy owls could be taken at airports nationally to protect human health and safety while also ensuring that such levels of take do not

negatively impact the population at a low level. However, the lethal take that has occurred and the number of reported collisions are far lower than the model allocates. This suggests that the current take levels are sustainable. USFWS records reveal the following levels of lethal take of snowy owls via depredation permits in the U.S. from 2003 to the present: 4 in 2003, 1 in 2005, 3 in 2008, 4 in 2009, 1 in 2010, 4 in 2011, 26 in 2012, 21 in 2013, 29 in 2014 and 10 in 2015. Reported annual aircraft-snowy owl strikes in the U.S. from 2003 to the present includes: 0 in 2003, 1 in 2004, 6 in 2005, 4 in 2006, 0 in 2007, 12 in 2008, 11 in 2009, 0 in 2010, 6 in 2011, 12 in 2012, 40 in 2013, 50 in 2014 and 25 in 2015 (Federal Aviation Administration).

## **Canada Geese**

In the Atlantic Flyway, the resident population of Canada geese nests from Southern Quebec and the Maritime Provinces of Canada southward throughout the States of the Atlantic Flyway (Sheaffer and Malecki 1998; Johnson and Castelli 1998; Nelson and Oetting 1998). This population is believed to be of mixed subspecies (*B. c. canadensis*, *B. c. interior*, *B. c. moffitti*, and *B. c. maxima*) and is the result of purposeful introductions by management agencies, coupled with released birds from private aviculturists and releases from captive decoy flocks after live decoys were outlawed for hunting in the 1930s. Following the Federal prohibition on the use of live decoys in 1935, Dill and Lee (1970) cited an estimate of more than 15,000 domesticated and semi-domesticated geese that were released from captive flocks. With the active restoration programs that occurred from the 1950s through the 1980s, the population grew to over 1 million birds and has increased an average of 2 percent per year since 1995 (Sheaffer and Malecki 1998). The population size of resident Canada geese has been monitored annually by state agencies since the early 1990's, and provides estimates of population changes following the Resident Canada Goose Management FEIS (USFWS 2005). The 2016 Atlantic Flyway Breeding Waterfowl Plot Surveys (VT to VA) indicate a current population size of at least 949,989 (Standard Error [SE] 80,129) resident Canada geese within the northern portion of the Atlantic Flyway. This additional population size information supplements the findings of the EA and Supplement (USDA 2013a, USDA 2015a) that the proposed action would not likely impact populations of resident Canada geese at the state, regional or national level. This should assure that cumulative impacts, if any, on Canada goose populations would have no significant adverse impact on the quality of the human environment.

## **Turkey Vulture**

Although no turkey vultures have reportedly been taken in Maine during 2013-2015, recent increases in migrating and wintering vultures in the Northeast could lead to an increased risk of conflicts, particularly at airports. Turkey vultures are a widely distributed raptor that is often found in short-grass meadows, agricultural field, road shoulders, athletic fields, and airports (Kirk and Mossman 1998). Turkey vultures are widespread throughout North America, with an estimate of population estimate around 5,000,000 (Partners in Flight 2013). The turkey vulture is currently a species of least concern according to the Partners in Flight within the Bird Conservation Region 30 (Partners in Flight 2013). This additional information validates the findings of the EAs and Supplement (USDA 2012a, USDA 2013a, USDA 2015a) that the proposed action would not likely impact populations of turkey vultures at the state, regional or

national level. This should assure that cumulative impacts, if any, on turkey vulture populations would have no significant adverse impact on the quality of the human environment.

### **Cooper's Hawk**

Cooper's hawks are forest and woodland birds, but leafy suburbs seem nearly as good. These lanky hawks are a regular sight in parks, quiet neighborhoods, over fields, at backyard feeders, and even along busy streets if there are trees around. Cooper's hawks mainly eat birds. Small birds are safer around Cooper's Hawks than medium-sized birds: studies list European Starlings, Mourning Doves, and Rock Pigeons as common targets along with American Robins, several kinds of jays, Northern Flicker, and quail, pheasants, grouse, and chickens (Curtis et al. 2006). Cooper's hawks are widespread throughout North America, with an estimate of population estimate around 700,000 (Partners in Flight 2013). Cooper's hawks are currently a species of least concern according to the Partners in Flight within the Bird Conservation Region 30 (Partners in Flight 2013). This additional information validates the findings of the EAs and Supplement (USDA 2012a, USDA 2013a, USDA 2015a) that the proposed action would not likely impact populations of Cooper's hawk at the state, regional or national level. This should assure that cumulative impacts, if any, on Cooper's hawk populations would have no significant adverse impact on the quality of the human environment.

### **Nest Destruction Population Impact Analysis**

A limited number of nests and associated eggs of those species indicated above could be destroyed annually within Maine as part of an integrated approach to managing damage and risks to human health and safety. However, such levels of take remain negligible at the population level (Table 1). Although there may be reduced fecundity for the individuals affected by nest destruction, this activity has no long-term effect on breeding birds or the sustainability of their populations. Nest and egg removal is not used by WS as a population management method. This method is used to inhibit nesting in an area experiencing damage due to nesting activity and is employed only at the localized level. As with the lethal take of birds, the take of nests must be authorized by the USFWS.

## **ADDITIONAL ANALYSES AND CONSIDERATIONS**

### **Raptor Trapping and Relocation**

WS has been engaging in and capture and relocation efforts for several raptors species. As analyzed in the John F. Kennedy Airport Final Supplement to the Environmental Impact Statement (USDA 2012c), raptor capture and relocation methods may cause short term stress to the birds but are unlikely to adversely impact raptor populations due to the limited numbers authorized, the small portion of the species' ranges where trapping and relocation efforts occur. Issues associated with raptor trapping and relocation on a state wide level include the costs of equipment and the expertise required to engage in this activity. WS has observed that trap and relocation of raptors can be an effective alternative to lethal take at airports. For example, the return rate for raptors trapped and relocated at Dulles was only 9% (18 out of 209) when relocation distances were at least 25 miles from relocation sites (WS, unpublished data). Lethal

removal is only allowed under the USFWS permit in situations where capture and relocation is not feasible, or there is an imminent threat to aircraft which cannot be resolved with nonlethal methods. If additional raptor species are added to the USFWS Region 5 BCC list in the future, USFWS expects to authorize trap and relocate, with a recommended distance of at least 25 miles, as the primary means of reducing the human-wildlife conflict for these species; lethal take of these raptors will only be authorized in scenarios where emergency take is needed to safeguard human health and safety.

### **Nest and Egg Take**

Table 2. Reported take of migratory bird nests in Maine via depredation permits, 2013-2015.

Species	2013 Nests	2014 Nests	2015 Nests
Great Black-backed Gull	339	267	822
Herring Gulls	701	250	286
Laughing Gulls	2679	2751	2527

### **Great Black-backed Gull**

Great black-backed gulls are the largest gulls found along the east coast of North America. Maximum observed longevity is 19 years old and the species begins to breed in their 4th or 5th year (Good 1998). Numbers of this species, and the species range, increased enormously on both sides of the Atlantic during the 20<sup>th</sup> century; it is likely that anthropogenic forage resources largely attributed to this increase (Nisbet et al. 2013). The global population estimate for great black-backed gulls is between 170,000 – 180,000, with approximately 61,000 breeding pairs found in North America. Research suggests that the population in the northeastern United States increased between 1980 and 2007. This species is not on the BCC list, nor is it a species of concern in Maine, or any northeastern state. It has been estimated that take of a single nest is equivalent to the take of 1.12 adult individuals (Seamans et al. 2007). Using this estimate and a yearly take estimate represented by the average of nests taken in 2013 through 2015 in Maine, annual nest take in the state represents approximately 0.8% of the potential production in a given year in North America. In the United States 834 nests and 651 adults have been taken on average per year between 2013 and 2015. This represents 2.4% of the potential production of great black-backed gulls in a given year in the United States; take numbers from Mexico and Canada are not available.

In BCR 14 and 30, which includes Maine, an average of 745 nests and 637 adults were taken in 2013 through 2015. Using the correction factor of 1.12 for nests (Seamans et al. 2007), this equates to a take of 834 individuals from nests. The total take for great black-backed gulls in BCR 14 and 30 between 2013 and 2015 is 1,471; 834 from nest and 637 adults. Using a PBR, Seamans et al. (2007) estimated that in BCR 14 and 30, to include Maine, 5,614 individuals could be removed while still maintaining a population and growth rate at which maximum productivity occurs. Because the total take of nests and adults (1,471) for all of BCR 14 and 30 falls below the sustainable take estimate of 5,614 developed by Seamans et al. (2007) for BCR 14 and 30, FWS considers that the issuance of depredation permits, and the allowable take associated with these permits, will not result in cumulative impacts to great black-backed gull

populations. This action will not have a significant adverse impact on the quality of the human environment. Furthermore, this quantity of permitted great black-backed gull take allows FWS to provide a vehicle for managing great black-backed gull damage while allowing for sustainability of great black-backed gull populations.

### **Herring Gull**

Herring gulls are a very familiar gull found across the North Atlantic and along the North American coast. Individuals begin breeding at year five (Peirotti and Good 1994). The global population estimate for herring gulls is between 760,000 – 1,400,000, with approximately 240,000 to 300,000 birds comprising the breeding pairs in North America (Nisbet et al. 2013). In Maine, surveys revealed that the population increased nearly 23% from 1977 to 1996, but more recent investigations suggest a possible population decline (Nisbet et al. 2013). This species is not on the BCC list, nor is it a species of concern in Maine, or any northeastern state. It has been estimated that take of a single herring gull nest is equivalent to the take of 1.09 adult individuals (Seamans et al. 2007). Using this estimate, and a yearly take estimate represented by the average of nests taken in 2013 through 2015 in Maine, annual nest take in the state represents approximately 0.1% of the potential production in a given year in North America. In the United States 7,165 nests and 7,606 adults have been taken on average per year between 2013 and 2015. This represents 6.1% of the potential production of herring gulls in a given year in the United States; take numbers from Mexico and Canada are not available.

In BCR 14 and 30, which includes Maine, an average of 1,954 nests and 5,703 adults were taken in 2013 through 2015. Using the correction factor of 1.09 for nests (Seamans et al. 2007), this equates to a take of 2,130 individuals from nests. The total average take for herring gulls in BCR 14 and 30 between 2013 and 2015 is 7,833; 2130 from nest and 5,703 adults. Using a PBR, Seamans et al. (2007) estimated that in BCR 14 and 30, to include Maine, 8,360 individuals could be removed while still maintaining a population and growth rate at which maximum productivity occurs. Because the total take of nests and adults (7,833) falls below the sustainable take estimate of 8,360 developed by Seamans et al. (2007) for BCR 14 and 30, FWS considers that the issuance of depredation permits, and the allowable take associated with these permits, will not result in cumulative impacts to herring gull populations. This action will not have a significant adverse impact on the quality of the human environment. Furthermore, this quantity of permitted herring gull take allows FWS to provide a vehicle for managing herring gull damage while allowing for sustainability of herring gull populations.

### **Laughing Gull**

Laughing gulls are found along the Atlantic coast of North America and summer in the northeastern United States. Individuals begin breeding at year two or three (Burger 1996). The global population estimate for laughing gulls is around 270,000, with approximately 160,000 breeding pairs found in North America (Nisbet et al. 2013). Surveys of populations from Long Island, New York to Maine, revealed that the population increased by 27-fold from 1971 to 2008, although there had been some population fluctuations during that time frame (Nisbet et al. 2013). This species is not on the BCC list, nor is it a species of conservation concern in Maine, or any northeastern state. It has been estimated that take of a single laughing gull nest is

equivalent to the take of 1.09 adult individuals (Seamans et al. 2007). Using this estimate, and a yearly take estimate represented by the average of nests taken in 2013 through 2015 in Maine, annual nest take in the state represents approximately 1.8% of the potential production at a level in a given year in North America. In the United States 2,976 nests and 5,896 adults have been taken on average per year between 2013 and 2015. This represents 5.5% of the potential production of laughing gulls in a given year in the United States; take numbers for Mexico or Canada are not available.

In BCR 14 and 30, which includes Maine, an average of 2,775 active nests and 3,666 adults were taken in 2013 through 2015. Using the correction factor of 1.09 for nests (Seamans et al. 2007), this equates to a take of 3,025 individuals from nests. The total average take for laughing gulls in BCR 14 and 30 between 2013 and 2015 is 6,691; 3,025 from nest and 3,666 adults. Using a PBR, Seamans et al. (2007) estimated that in BCR 14 and 30, to include Maine, 7,685 individuals could be removed while still maintaining a population and growth rate at which maximum productivity occurs. Because the total take of nests and adults (6,691) falls below the allowable take of 7,685 developed by Seamans et al. (2007) for BCR 14 and 30, FWS considers that the issuance of depredation permits, and the allowable take associated with these permits, will not result in cumulative impacts to laughing gull populations. This action will not have a significant adverse impact on the quality of the human environment. Furthermore, this quantity of permitted laughing gull take allows FWS to provide a vehicle for managing laughing gull damage while allowing for sustainability of laughing gull populations.

## **ISSUES ASSOCIATED WITH BIRD DAMAGE MANAGEMENT ACTIVITIES**

The EA: Managing Damage to Resources and Threats Human Safety Caused by Birds in the State of Maine analyzed a range of management alternatives in context of issues relevant to the scope of the analysis including:

- Issue 1 – Effects of Damage Management Activities on Target Bird Populations
- Issue 2 – Effects on Non-target Wildlife Species Populations, Including Threatened and Endangered (T&E) Species
- Issue 3 – Effects of Damage Management Methods on Human Health and Safety
- Issue 4 – Effects of Damage Management Methods
- Issue 5 – Effects on the Aesthetic Values of Birds
- Issue 6 – Humaneness and Animal Welfare Concerns of Methods
- Issue 7 – Effects of Bird Damage Management Activities on the Regulated Harvest of Birds

The following resource values were not expected to be significantly impacted by any of the alternatives identified in the EA and accordingly were not analyzed further: soils, geology, minerals, water quality/quantity, flood plains, wetlands, visual resources, air quality, prime and unique farmlands, aquatic resources, and timber range.

The EA: Reducing the Effects of Predation on Threatened and Endangered Birds in the State of Maine analyzed a range of management alternatives in context of issues relevant to the scope of the analysis including:

- Issue 1 – Effects of Activities on Target Wildlife Populations
- Issue 2 – Effects of Activities on the Populations of Non-target Wildlife
- Issue 3 – Effects of Activities on Threatened and Endangered Species
- Issue 4 – Effectiveness of Methods and Strategies for Alleviating Nest Predation Risks
- Issue 5 – Effects of Management Methods on Human Health and Safety
- Issue 6 – Effects on the Socio-cultural Elements of the Human Environment
- Issue 7 – Humaneness and Animal Welfare Concerns of Methods
- Issue 8 – Effects of Nest Predator Management Activities on the Regulated Harvest of Those Species
- Issue 9 – Effects on Recreation in Areas Where Nest Predation Management Activities Occur

The following resource values were not expected to be significantly impacted by any of the alternatives identified in the EA and accordingly were not analyzed further: soils, geology, minerals, water quality/quantity, flood plains, wetlands, visual resources, air quality, prime and unique farmlands, aquatic resources, and timber range.

## **AFFECTED ENVIRONMENT**

Bird damage or threats of damage can occur statewide in Maine wherever those bird species occur. However, bird damage management would only be conducted by WS when requested by a landowner or manager, only on properties where a cooperative service agreement or other comparable document was signed between WS and a cooperating entity where non-lethal means have been ineffective. Upon receiving a request for assistance, activities could be conducted on federal, state, tribal, municipal, and private properties. Areas where damage or threats of damage could occur include, but would not be limited to agricultural fields, vineyards, orchards, farms, aquaculture facilities, grain mills, grain handling areas, railroad yards, waste handling facilities, industrial sites, natural resource areas, park lands, and historic sites, state and interstate highways and roads, property in or adjacent to subdivisions, businesses, industrial parks, timberlands, croplands, and pastures, private and public property, and locations where birds are a threat to human safety through the spread of disease. The areas could also include airports and military airbases where birds are a threat to human safety and to property.

## **DESCRIPTION OF THE ALTERNATIVES**

The following three alternatives were developed to respond to the issues identified in Chapter 2 of the EA: Managing Damage to Resources and Threats Human Safety Caused by Birds in the State of Maine (USDA 2013a) and the Supplement to the EA: Managing Damage to Resources and Threats Human Safety Caused by Birds in the State of Maine (USDA 2015a). A detailed discussion of the effects of the alternatives on the issues is described in the EA under Chapter 4; below is a summary of the alternatives.

## **Alternative 1 - Continue the Current Integrated Approach to Managing Bird Damage (No Action/Proposed Action)**

The proposed action/no action alternative would continue the current implementation of an adaptive integrated approach utilizing non-lethal and lethal techniques, as deemed appropriate using the WS Decision Model, to reduce damage and threats caused by birds in Maine. A major goal of the program would be to resolve and prevent bird damages and to reduce threats to human safety. To meet this goal, WS, in cooperation with the USFWS and in consultation with the MDIFWR, would continue to respond to requests for assistance with, at a minimum, technical assistance, or when funding is available, operational damage management. Funding could occur through federal appropriations or from cooperative funding.

The adaptive approach to managing damage associated with birds would integrate the use of the most practical and effective methods to resolve a request for damage management as determined by site-specific evaluation to reduce damage or threats to human safety for each request after applying the WS Decision Model. City/town managers, agricultural producers, property owners, and others requesting assistance would be provided information regarding the use of appropriate non-lethal and lethal techniques. WS would work with those persons experiencing bird damage in addressing those birds responsible for causing damage as expeditiously as possible. To be most effective, damage management activities should begin as soon as birds begin to cause damage. Bird damage that has been ongoing can be difficult to resolve using available methods since birds are conditioned to feed, roost, loaf, and are familiar with a particular location. Subsequently, making that area unattractive using available methods can be difficult to achieve once damage has been ongoing. The USFWS could continue to issue depredation permits to WS and to those entities experiencing bird damage when requested by the entity and when deemed appropriate by the USFWS for those species that require a permit.

Under this alternative, WS could respond to requests for assistance by: 1) taking no action, if warranted, 2) providing only technical assistance to property owners or managers on actions they could take to reduce damages caused by birds, or 3) providing technical assistance and direct operational assistance to a property owner or manager experiencing damage. The take of birds can only legally occur through the issuance of a depredation permit by the USFWS and only at levels specified in the permit, unless those bird species are afforded no protection under the MBTA or a depredation/control order has been established by the USFWS, in which case no permit for take is required. When applying for a depredation permit, the requesting entity submits with the application the number of birds requested to be taken to alleviate the damage. Therefore, under this alternative, the USFWS could: 1) deny an application for a depredation permit when requested to alleviate bird damage, 2) issue a depredation permit at the take levels requested, or 3) issue a permit at levels below those take levels requested.

Property owners or managers may choose to implement WS' recommendations on their own (i.e., technical assistance), use contractual services of private businesses, use volunteer services of private organizations, use the services of WS (i.e., direct operational assistance), or take no action. The property owner or manager may choose to apply for their own depredation permit from the USFWS to lethally take birds, as required by the implementing regulations of the MBTA for depredation control (see 50 C.F.R. § 21.41). The USFWS requires that non-lethal

methods be used and shown ineffective or impractical before the USFWS will issue a depredation permit. In this situation, WS could evaluate the damage and complete a Migratory Bird Damage Report, which would include information on the extent of the damages, the number of birds present, and a recommendation for the number of birds that should be taken to best alleviate the damages.

The most effective approach to resolving wildlife damage is to integrate the use of several methods simultaneously or sequentially. The philosophy behind integrated wildlife damage management is to implement the best combination of effective management methods in a cost-effective manner, while minimizing the potentially harmful effects on humans, target and non-target species, and the environment. Integrated damage management may incorporate cultural practices (e.g., animal husbandry), habitat modification (e.g., exclusion, vegetation management), animal behavior modification (e.g., scaring, repellents), removal of individual offending animals (e.g., trapping, shooting, and avicides), local population reduction, or any combination of these, depending on the circumstances of the specific damage problem.

### **Alternative 2 - Bird Damage Management by WS through Technical Assistance Only**

Under this alternative, USFWS would not issue a depredation permit to WS, and WS would be restricted to only using or recommending non-lethal methods to resolve damage caused by birds in Maine [Appendix B of the EA (USDA 2013a)]. Lethal methods could continue to be used under this alternative by those persons experiencing damage without involvement by WS. In situations where non-lethal methods were impractical or ineffective to alleviate damage, WS could refer requests for information regarding lethal methods to the state, local animal control agencies, or private businesses or organizations. Property owners or managers may choose to implement WS' non-lethal recommendations on their own or with the assistance of WS, implement lethal methods on their own, or request assistance (non-lethal or lethal) from a private or public entity other than WS.

### **Alternative 3 - No Bird Damage Management Conducted by WS**

This alternative precludes any activities by WS to reduce threats to human health and safety, and alleviate damage to agricultural resources, property, and natural resources. WS would not be involved with any aspect of bird damage management. All requests for assistance received by WS to resolve damage caused by birds would be referred to the USFWS, the MDIFW, and/or private entities. This alternative would not deny other federal, state, and/or local agencies, including private entities from conducting damage management activities directed at alleviating damage and threats associated with birds.

Despite no involvement by WS in resolving damage and threats associated with birds, those persons experiencing damage caused by birds could continue to resolve damage by employing those methods legally available since the take of birds could occur either through the issuance of depredation permits by the USFWS; take during the hunting seasons, and blackbirds could be taken at any time when found committing or about to commit damage or posing a human safety threat under a depredation order (see 50 C.F.R. § 21.43); Muscovy ducks could be taken under a control order (see 50 C.F.R. § 21.54), and non-native bird species could be taken without the need for a depredation permit issued by the USFWS.

### **• Issue 1 - Effects of Damage Management Activities on Target Bird Populations**

The potential effects of damage management in the state of Maine on specific migratory bird populations are analyzed in detail within the EA and Supplement (USDA 2013a; pages 62– 118, USDA 2015a), and supplemented with new information and analyses that have recently been conducted (see EA pages 2 - 20). The take of those species would only occur by WS, agencies, or individuals, when permitted by the USFWS and the MDIFW, and only at take levels allowed under those depredation permits. The permitting of the take by the USFWS and the MDIFW ensures the take of those species occurs within population management objectives for those species and is conducted pursuant to federal and state laws and regulations. The USFWS is in agreement with the conclusion of the EA and Supplement (USDA 2013, USDA 2015a) that limited authorized take of migratory birds would have no significant adverse impact on their populations or the quality of the human environment.

### **• Issue 2 - Effects on Non-target Wildlife Species Populations, Including Threatened and Endangered (T&E) Species**

Wildlife damage management activities conducted in Maine are consistent with work plans, MOU's and policies of WS, the MDIFW and the USFWS. Based on a review during the development of the EA and Supplement (USDA 2013a, USDA 2015a), WS and USFWS have determined that activities conducted pursuant to the proposed action would not likely adversely affect non-target wildlife species or federal or state listed T&E species. Both agencies (WS and USFWS) have reviewed the T&E species listed by the MDIFW and the USFWS, and have determined that migratory bird damage management activities proposed by WS would not likely adversely affect T&E species in the state of Maine. Cumulative impacts would be minimal on non-target species from any of the alternatives discussed. The USFWS is in agreement with the conclusion of the EA (USDA 2013a, USDA 2015a) that limited, authorized take of migratory birds would have no significant adverse impact on non-target wildlife populations, T&E species or the quality of the human environment.

### **• Issue 3 - Effects of Damage Management Methods on Human Health and Safety**

As indicated in the EA and Supplement (USDA 2013a; pages 128 – 136, USDA 2015a), no adverse effects to human safety have occurred from WS' use of methods to alleviate bird damage from FY 2010 through FY 2014. The risks to human safety from the use of non-lethal and lethal methods, when used appropriately and by trained personnel, is considered low. The amount of chemicals used or stored by WS and cooperating agencies would be minimal to ensure human safety. Based on potential use patterns, the chemical and physical characteristics of the above mentioned toxicants and repellents, and factors related to the environmental fate, no cumulative impacts are expected from the chemical components used or recommended by the WS program in Maine. The USFWS is agreement with the conclusion of the EA and Supplement (USDA 2013a, USDA 2015a) that limited, authorized take of migratory birds would have no significant adverse impact on human health and safety or the quality of the human environment.

#### **• Issue 4 - Effects of Damage Management Methods**

As indicated in the EA and Supplement (USDA 2013a; pages 136 – 141, USDA 2015a), a common issue when addressing wildlife damage is the effectiveness of the methods being employed to resolve the damage. When those persons experiencing wildlife damage request assistance from other entities, the damage occurring has likely reached or would reach an economic threshold that is unacceptable to those persons requesting assistance. Therefore, methods being employed to resolve damage must be effective at resolving damage or threats within a reasonable amount of time to prevent further economic loss.

#### **• Issue 5 - Effects on the Aesthetic Values of Birds**

As indicated in the EA and Supplement (USDA 2013a; pages 141 – 143, USDA 2015a), under the proposed action, non-lethal methods would be employed that would primarily result in the dispersal, exclusion or removal of individuals or small groups of birds to resolve damage and threats. In the event that limited take should occur, the impacts to the aesthetic value of birds are not expected to have any cumulative adverse effects on the quality of the human environment, if occurring at the request of a property owner and/or manager. The USFWS is agreement with the conclusion of the EA and Supplement (USDA 2013a, USDA 2015a) that limited, authorized take of migratory birds would have no significant adverse impact on aesthetic values of migratory birds or the quality of the human environment.

#### **• Issue 6 – Humaneness and Animal Welfare Concerns of Methods**

Based on analysis conducted in the EA and Supplement (USDA 2013a; pages 143 – 147, USDA 2015a), WS' use of euthanasia methods would follow those required by WS' directives (WS Directive 2.430, WS Directive 2.505) and recommended by the American Veterinary Medical Association (AVMA) for use on free-ranging wildlife under field conditions (AVMA 2013). WS has improved the selectivity and humaneness of management techniques through research and development. Research is continuing to bring new findings and products into practical use. Until new findings and products are found practical, a certain amount of animal suffering could occur when bird damage management methods are used in situations where non-lethal damage management methods are not practical or effective. If birds are to be live-captured by WS, WS' personnel would be present on-site during capture events, or capture devices would be checked frequently to ensure birds captured are addressed timely and to prevent injury. Although stress could occur from being restrained, timely attention to live-captured wildlife would alleviate suffering. The USFWS is agreement with the conclusion of the EA (USDA 2013a, USDA 2015a) that limited, authorized take of migratory birds would have no significant adverse impact on the humaneness and welfare of migratory birds or the quality of the human environment.

#### **• Issue 7 – Effects of Bird Damage Management Activities on the Regulated Harvest of Birds**

Populations of migratory game bird species which are at sufficient levels to allow for annual harvest seasons are not likely to be affected by limited take through damage management activities. Migratory bird hunting seasons are established under frameworks developed by the

USFWS based on annual monitoring programs and implemented in the state by the MDIFW. The number of migratory game birds that could be taken by WS would not limit the ability of those persons interested to harvest those bird species during the regulated season. All take by WS would be reported to the USFWS and the MDIFW annually to ensure take by WS is incorporated into cumulative population management objectives established for bird populations. Based on the limited take proposed by WS and the oversight of by the USFWS and the MDIFW, WS' take of birds annually under the proposed action would have no effect on the ability of those persons interested to harvest birds during the regulated harvest season. The USFWS is agreement with the conclusion of the EA and Supplement (USDA 2013a, USDA 2015a) that limited, authorized take of migratory game birds would have no significant adverse impact on the regulated harvest of migratory game birds or the quality of the human environment.

The following four alternatives were developed to respond to the issues identified in Chapter 2 of the EA: Reducing the Effects of Predation on Threatened and Endangered Birds in the State of Maine (USDA 2012a). A detailed discussion of the effects of the alternatives on the issues is described in the EA under Chapter 3; below is a summary of the alternatives.

### **Alternative 1 – No Involvement by WS in Managing Predation Risks**

This alternative precludes all activities by WS to reduce predation risks. WS would not be involved with any aspect of nest predator management in the State. All requests for assistance received by WS to reduce nest predation risks would be referred to the USFWS, the MDIFW, and/or private entities. This alternative would not deny other federal, State, and/or local agencies, including private entities from conducting activities directed at reducing predation risks in the State.

### **Alternative 2 – Managing Nest Predation Risks by WS through Technical Assistance Only**

Under this alternative, WS would provide those cooperators requesting assistance with technical assistance only. Technical assistance would provide those entities requesting assistance with information, demonstrations, and recommendations on available and appropriate methods available. The implementation of methods and techniques to reduce nest predation would be the responsibility of the requester with no direct involvement by WS. This alternative would place the immediate burden of operational assistance on the resource owner, other governmental agencies, and/or private businesses. Those entities could take action using those methods legally available to resolve or prevent nest predation as permitted by federal, State, and local laws and regulations or those persons could take no action.

### **Alternative 3 - Continuing the Current Integrated Approach to Managing Nest Predation (Proposed Action/No Action)**

The proposed action/no action alternative would continue the current implementation of an adaptive integrated approach utilizing non-lethal and lethal techniques, as deemed appropriate using the WS Decision Model to reduce nest predation in Maine. The proposed action alternative would also continue those activities under the proposed action alternative selected during the development of the statewide gull damage management EA (USDA 2010). A major

goal of the proposed action alternative would be to resolve and prevent the predation of plover and tern eggs, nestlings, and adults, when requested.

#### **Alternative 4 – Managing Nest Predation Using Non-lethal Methods Only**

Under this alternative, WS would be required to implement only non-lethal methods to resolve nest predation. No lethal take of nest predators would occur by WS. The use of lethal methods could continue under this alternative by landowners or resource managers of areas where nest predation occurred. The non-lethal methods used or recommended by WS under this alternative would be identical to those identified in any of the alternatives. In situations where non-lethal methods were impractical or ineffective to alleviate predation risks, WS could refer requests for information regarding lethal methods to the MDIFW, the USFWS, local animal control agencies, or private businesses or organizations. However, property owners/managers might be limited to using non-lethal methods only.

##### **• Issue 1 – Effects of Activities on Target Wildlife Populations**

The potential effects of predation on threatened and endangered birds populations in the state of Maine are analyzed in detail within the EA (USDA 2012a; pages 53– 98), and supplemented with new information and analyses that have recently been conducted (see pages 2 - 7). The take of the predator species would only occur by WS, agencies, or individuals, when permitted by the USFWS and the MDIFW, and only at take levels allowed under those depredation permits. The permitting of the take by the USFWS and the MDIFW ensures the take of those species occurs within population management objectives for those species and is conducted pursuant to federal and state laws and regulations. The USFWS is in agreement with the conclusion of the EA (USDA 2012a) that limited authorized take of predators would have no significant adverse impact on the predator populations and support the populations of the threatened and endangered birds.

##### **• Issue 2 – Effects of Activities on the Populations of Non-target Wildlife**

Wildlife damage management activities conducted in Maine are consistent with work plans, MOU's and policies of WS, the MDIFW and the USFWS. Based on a review during the development of the EA (USDA 2012a), WS and USFWS have determined that activities conducted pursuant to the proposed action would not likely adversely affect non-target wildlife species. Cumulative take of predators would be minimal on non-target species from any of the alternatives discussed. The USFWS is in agreement with the conclusion of the EA (USDA 2012a) that limited, authorized take of the predators of T&E migratory birds would have no significant adverse impact on non-target wildlife populations or the quality of the human environment.

##### **• Issue 3 – Effects of Activities on Threatened and Endangered Species**

As indicated in the EA (USDA 2012a, pages 107 - 111), wildlife damage management activities conducted in Maine are consistent with work plans, MOU's and policies of WS, the MDIFW and the USFWS. Based on a review during the development of the EA (USDA 2012a), WS and USFWS have determined that activities conducted pursuant to the proposed action would not

likely adversely affect non-target wildlife species or federal or state listed T&E species. Both agencies (WS and USFWS) have reviewed the T&E species listed by the MDIFW and the USFWS, and have determined that the take of predators of T&E species proposed by WS would not likely adversely affect T&E species in the state of Maine. The USFWS is in agreement with the conclusion of the EA (USDA 2012a) that limited, authorized take of the predators of T&E migratory birds would have no significant adverse impact on T&E species or the quality of the human environment.

**• Issue 4 – Effectiveness of Methods and Strategies for Alleviating Nest Predation Risks**

As indicated in the EA (USDA 2012a, pages 111 - 116), a common issue when addressing wildlife damage is the effectiveness of the methods being employed to resolve the damage. When those persons experiencing wildlife damage request assistance from other entities, the damage occurring has likely reached or would reach an economic threshold that is unacceptable to those persons requesting assistance. Therefore, methods being employed to resolve damage must be effective at resolving damage or threats within a reasonable amount of time to prevent further economic loss. The USFWS is agreement with the conclusion of the EA (USDA 2012a) that integrated methods of take of predators of T&E birds would have no significant adverse impact on populations of T&E bird predators and the quality of the human environment.

**• Issue 5 – Effects of Management Methods on Human Health and Safety**

As indicated in the EA (USDA 2012a, pages 116 - 126), no adverse effects to human safety have occurred from WS' use of methods to alleviate bird predation from FY 2007 through FY 2011. The risks to human safety from the use of non-lethal and lethal methods, when used appropriately and by trained personnel, is considered low. The amount of chemicals used or stored by WS and cooperating agencies would be minimal to ensure human safety. Based on potential use patterns, the chemical and physical characteristics of the above mentioned toxicants and repellents, and factors related to the environmental fate, no cumulative impacts are expected from the chemical components used or recommended by the WS program in Maine. The USFWS is agreement with the conclusion of the EA (USDA 2012a) that limited, authorized take of predators of T&E birds would have no significant adverse impact on human health and safety or the quality of the human environment.

**• Issue 6 – Effects on the Socio-cultural Elements of the Human Environment**

Based on analysis conducted in the EA (USDA 2012a, pages 126 – 129), people often enjoy viewing, watching, and knowing predators exist as part of the natural environment and gain aesthetic enjoyment in such activities. Those methods available to alleviate nest predation would be intended to disperse and/or remove those predators predating on eggs, nestlings, and adults. Non-lethal methods would be employed to exclude or otherwise make an area less attractive, which disperses those animals to other areas. Similarly, the use of lethal methods would be intended to remove those individual animals identified as posing a predation risk. The USFWS is agreement with the conclusion of the EA (USDA 2012a) that limited, authorized take of predators would have no significant adverse impact on socio-cultural elements or the quality of the human environment.

### **• Issue 7 – Humaneness and Animal Welfare Concerns of Methods**

Based on analysis conducted in the EA (USDA 2012a, pages 130 - 134) WS' use of euthanasia methods would follow those required by WS' directives (WS Directive 2.430, WS Directive 2.505) and recommended by the American Veterinary Medical Association for use on free-ranging wildlife under field conditions (AVMA 2013). WS has improved the selectivity and humaneness of management techniques through research and development. Research is continuing to bring new findings and products into practical use. Until new findings and products are found practical, a certain amount of animal suffering could occur when bird damage management methods are used in situations where non-lethal damage management methods are not practical or effective. If birds are to be live-captured by WS, WS' personnel would be present on-site during capture events, or capture devices would be checked frequently to ensure birds captured are addressed timely and to prevent injury. Although stress could occur from being restrained, timely attention to live-captured wildlife would alleviate suffering. The USFWS is in agreement with the conclusion of the EA (USDA 2012a) that limited, authorized take of predators of T&E migratory birds would have no significant adverse impact on the humaneness and welfare of migratory birds or the quality of the human environment.

### **• Issue 8 – Effects of Nest Predator Management Activities on the Regulated Harvest of Those Species**

Populations of species of T&E bird predators are at sufficient levels to allow for annual harvest seasons are not likely to be affected by limited take through damage management activities. Hunting seasons are established under frameworks developed and implemented in the state by the MDIFW. The number of game species that could be taken by WS would not limit the ability of those persons interested to harvest those bird species during the regulated season. All take by WS would be reported to the MDIFW annually to ensure take by WS is incorporated into cumulative population management objectives established for bird populations. Based on the limited take proposed by WS and the oversight of by MDIFW, WS' take annually under the proposed action would have no effect on the ability of those persons interested to harvest those species during the regulated harvest season. The USFWS is in agreement with the conclusion of the EA (USDA 2012a) that limited, authorized take of predators of T&E birds would have no significant adverse impact on the regulated harvest or the quality of the human environment.

### **• Issue 9 – Effects on Recreation in Areas Where Nest Predation Management Activities Occur**

Several forms of recreation may be affected by activities; most notably, beach going, wildlife viewing, hunting, trapping, and fishing. These recreational activities currently occur in the areas where seabirds and shorebirds nest; however, there are varying degrees of these activities relative to location and time of year. Activities to alleviate nest predation would have only marginal effects on recreation. WS uses practical and efficient techniques that do not typically conflict with other land uses. The USFWS is in agreement with the conclusion of the EA (USDA 2012a) that limited, authorized take of predators of T&E birds would have no significant adverse impact on recreation in areas of nest predation or the quality of the human environment.

## **MONITORING**

The USFWS migratory bird program will annually review the effects of take on migratory bird species in which take occurs to ensure such take does not impact the viability of those migratory bird species. In addition, the EAs and Supplement (USDA 2012a, USDA 2013a, USDA 2015a) will be reviewed each year to ensure that the analyses are sufficient. The USFWS will review these documents to ensure approved activities do not impact the long-term sustainability migratory bird species.

## **CUMULATIVE IMPACTS OF THE PROPOSED ACTION**

Cumulative impacts, as defined by the U.S. Council on Environmental Quality (40 CFR § 1508.7), are impacts on the environment which result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. This analysis considers the reasonably foreseeable, relevant factors that could contribute to cumulative impacts on migratory birds and their associated biological/socioeconomic environmental factors.

Habitat has the most significant impact on the size and health of any migratory bird population (Banks 1979). Many species may experience population declines in response to destruction and fragmentation of prime habitat as land is converted to accommodate the growing human population. A very serious concern is the impact global climate change will have on the remaining valuable migratory bird habitats. The rate of global climate change is accelerating, and many areas are predicted to experience extensive warming, changing precipitation patterns, shifts in vegetation, rising sea levels, increased frequency and intensity of severe weather events (e.g., fire, flood, drought), increased numbers of pests, pathogens, and invasive species, changes in the timing and length of the seasons, and declining snow packs (MacCracken et al. 2003, Inkley et al. 2004).

The effects of the proposed action likely have very little impact on migratory bird populations, either directly or indirectly. The specific impacts will depend greatly upon local conditions and the ability of migratory bird species to respond to various components of the changing environment. Computer-run, mathematical simulations of the atmosphere and ocean are the principal tool for predicting the projected outcome of global climate change and most models make projections for the year 2100 and beyond. Model predictions forecast climate and habitat changes for nearly every region important to migratory birds in North America. The impact these changes will have on migratory birds is uncertain in many cases, but recent studies suggest that factors such as timing of migration, range distribution, and productivity may all be affected (Crick 2004).

The projected impacts of climate change are based on model predictions, generally for the year 2100, and thus are subject to considerable uncertainty. Furthermore, the extent to which migratory birds will be able to adapt to these changes is not presently known. Complete adaption by all species, however, is viewed as highly unlikely (Crick 2004). The USFWS

approach to authorizing take via the issuance of depredation permits will continue to be one of annual assessments and regulation consistent with the population status of individual migratory bird species.

All greenhouse gas (GHG) emissions contribute to cumulative climate change impacts. However, for most Federal agency actions, CEQ does not expect that an EIS would be required based solely on the global significance of cumulative impacts of GHG emissions, as it would not be consistent with the rule of reason to require the preparation of an EIS for every Federal action that may cause GHG emissions regardless of the magnitude of those emissions. Based on the agency identification and analysis of the direct and indirect effects of its proposed action, NEPA requires an agency to consider the cumulative impacts of its proposed action and reasonable alternatives. The analysis of the effects of GHG emissions is essentially a cumulative effects analysis that is subsumed within the general analysis and discussion of climate change impacts. Therefore, direct and indirect effects analysis for GHG emissions will adequately address the cumulative impacts for climate change from the proposed action and its alternatives, and a separate cumulative effects analysis for GHG emissions is not needed.

No significant cumulative environmental impacts were identified from any of the three alternatives, including the proposed action. Under the proposed action, the authorized lethal removal of migratory birds by WS would not have significant impacts on statewide, regional or national migratory bird populations. No risks to public safety were identified under Alternative 1 given that only trained and experienced personnel would conduct recommended damage management activities. There would be a slight increased risk to public safety when persons conduct their own activities when no assistance is provided under Alternative 3. However, under all of the alternatives, those risks would not be to the point that the effects would be significant. The analysis in the EAs and Supplement (USDA 2012a, USDA 2013a, USDA 2015a) indicates that an integrated approach to managing damage and threats caused by birds would not result in significant cumulative effects on the quality of the human environment. Therefore, the USFWS adopts the cumulative effects analysis from the EA (USDA 2012a, USDA 2013a, USDA 2015a).

## **DECISION AND FINDING OF NO SIGNIFICANT IMPACT**

I have carefully reviewed the EAs and Supplement (USDA 2012a, USDA 2013a, USDA 2015a), which evaluated alternatives substantially similar to the alternatives presented to USFWS here. I find the proposed action alternatives (Alternative 1, USDA 2013a, USDA 2015a; and Alternative 3, USDA 2012a) to be environmentally acceptable, addressing the issues and needs while balancing the environmental concerns of management agencies, landowners, advocacy groups, and the public. The analysis in the EAs and Supplement (USDA 2012a, USDA 2013a, USDA 2015a) adequately addresses the identified issues, which reasonably confirm that no significant impacts, individually or cumulatively, to the quality of the human environment are likely to occur from the proposed action, and that the proposed action does not constitute a major federal action warranting completion of an EIS.

Based on the analysis in the EAs and Supplement (USDA 2012a, USDA 2013a, USDA 2015a), the need for action and the issues identified are best addressed by selecting Alternative 1 and applying the associated standard operating procedures referenced in the EAs and Supplement

(USDA 2012a, USDA 2013a, USDA 2015a). Alternative 1 (USDA 2013a, USDA 2015a) and Alternative 3 (USDA 2012a) successfully address:

- 1) migratory bird damage management using a combination of the most effective methods and does not adversely impact the environment, property, human health and safety, target species, and/or non-target species, including T&E species;
- 2) it offers the greatest chance of maximizing effectiveness and benefits to resource owners and managers;
- 3) it presents the greatest chance of maximizing net benefits while minimizing adverse effects to public health and safety;
- 4) it offers a balanced approach to the issues of humaneness and aesthetics when all facets of those issues are considered; and
- 5) issuing a depredation permit to WS and those individuals who WS recommends authorizing via Form 37 will continue to support interagency efforts to manage bird damage in Maine using the current integrated approach as described in Alternative 1 (USDA 2013a, USDA 2015a).

Further analysis may be triggered if changes occur that broaden the scope of damage management activities that affect the natural or human environment or from the issuance of new environmental regulations. Therefore, it is my decision to implement the proposed action/no action alternative (Alternative 1, USDA 2013a, USDA 2015a; and Alternative 3, USDA 2012a) as described in the EAs and Supplement.

Based on the analysis provided in the EAs and Supplement (USDA 2012a, USDA 2013a, USDA 2015a), there are no indications that the proposed action (Alternative 1, USDA 2013a, USDA 2015a; and Alternative 3, USDA 2012a ) would have a significant impact, individually or cumulatively, on the quality of the human environment. I agree with this conclusion and therefore, find that an EIS should not be prepared.

The rationale for this decision is based on several considerations. This decision takes into account public comments, social/political and economic concerns, public health and safety, and the best available biological science on the status of migratory bird populations. The foremost considerations are that: 1) management actions would be consistent with applicable laws, regulations, policies and orders, and 2) no significant effects to the environment were identified in the analysis. Our decision to authorize take by WS and other qualifying entities in the State of Maine is not expected to have significant impacts to the populations of migratory bird species at the state, regional or national level or other significant impacts on the quality of the human environment. This document will be available to the public via the USFWS Division of Migratory Birds, Northeast Region web site, at:

[https://www.fws.gov/northeast/migratorybirds/additional\\_information.html](https://www.fws.gov/northeast/migratorybirds/additional_information.html)

Pamela Toschik

2 June 2017

Pamela Toschik, Chief, Division of Migratory Birds,  
U.S. Fish and Wildlife Service  
Northeast Region

Date

## LITERATURE CITED

- Allard, K. A., A. R. Breton, H. G. Gilchrist, A. W. Diamond. 2006. Adult survival of herring gulls breeding in the Canadian Arctic. *Waterbirds* 29:163-168.
- American Veterinary Medical Association (AVMA). 2013. AVMA guidelines for the euthanasia of animals: 2013 Edition. American Veterinary Medical Association. Accessed online December 9, 2016: <https://www.avma.org/KB/Policies/Documents/euthanasia.pdf>.
- Andres, B. A., P. A. Smith, R. I. G. Morrison, C. L. Gratto-Trevor, S. C. Brown, and C. A. Friis. 2012. Population estimates of North American shorebirds, 2012. *Wader Study Group Bulletin* 119: 178–194.
- Atlantic Coast Joint Venture. 2008. New England/Mid-Atlantic Coast Bird Conservation Region (BCR 30) Implementation Plan for Southern New England. USFWS, Hadley, Massachusetts. 251 pp. [http://www.acjv.org/BCR\\_30/BCR30\\_June\\_23\\_2008\\_final.pdf](http://www.acjv.org/BCR_30/BCR30_June_23_2008_final.pdf).
- Atlantic Flyway Council. 2011. Atlantic Flyway Resident Population Canada Goose Management Plan. 77 pp.
- Banks, R. C. 1979. Human related mortality of birds in the United States. U.S. Department of Interior, Fish and Wildlife Service. Special Scientific Report – Wildlife No. 215. Washington, D.C.
- BirdLife International 2012. *Bubo scandiaca*. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on 13 March 2014 at: <http://www.iucnredlist.org/details/22689055/0>.
- Burger, J. 1996. Laughing gull (*Larus atricilla*). In *The Birds of North America*, No. 225 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.
- Caswell, H. 2001. *Matrix Population Models. Construction, Analysis, and Interpretation*. Second Edition. Sinauer Associates, Inc. Sunderland, Massachusetts.
- Crick, H. Q. P. 2004. The impact of climate change on birds. *Ibis* 146:48-56.
- Curtis, Odette E., R. N. Rosenfield and J. Bielefeldt. 2006. Cooper's Hawk (*Accipiter cooperii*). In *The Birds of North America*, No. 75 (A. Poole, Ed.). The Birds of North America Online, Ithaca, New York.
- Dill, H. H., and F. B. Lee, eds. 1970. Home grown honkers. United States Department of Interior., Fish and Wildlife Service, Washington, D.C. 154 pp.
- Dinsmore, J. J., and R. W. Schreiber. 1974. Breeding and annual cycle of laughing gulls in Tampa Bay, Florida. *Wilson Bulletin* 86:419-427.

- Federal Aviation Administration. Search the FAA Wildlife Strike Database. <http://wildlife.faa.gov/database.aspx> Accessed September 6, 2016.
- Federal Register. 2001. Executive Order 13186 of January 10, 2001: Responsibilities of Federal Agencies to Protect Migratory Birds. Vol. 66, No. 11:3853-3856.
- Good, T. P. 1998. Great black-backed gull (*Larus marinus*). *In* The Birds of North America, No. 330 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, Pennsylvania.
- Holt, D., M. D. Larson, N. Smith, D. Evans and D. F. Parmelee. 2015. Snowy Owl (*Bubo scandiacus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/010>. Accessed September 6, 2016.
- Inkley, D. B., M. G. Anderson, A. R. Blaustein, V. R. Burkett, B. Felzer, B. Griffith, J. Price, and T. L. Root. 2004. Global Climate Change and Wildlife in North America. Technical Review 04-2. The Wildlife Society, Bethesda, Maryland.
- Jackson, B. J. and J. A. Jackson. 2000. Killdeer (*Charadrius vociferus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/517>.
- Johnson, F. A. and P. M. Castelli. 1998. Demographics of “resident” Canada geese in the Atlantic Flyway. *TJ Moser*, 127-133.
- Kerlinger, P., and M. R. Lein, 1986. Differences in winter range among age-sex classes of Snowy Owls *Nyctea scandiaca* in North America. *Ornis Scandinavia*. 17: 1-7.
- Kirk, D. A. and M. J. Mossman. 1998. Turkey Vulture (*Cathartes aura*), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: <https://birdsna.org/Species-Account/bna/species/turvul>.
- Lebreton, J.-D., B. J. T. Morgan, R. Pradel, and S. N. Freeman. 1995. A Simultaneous Survival Rate Analysis of Dead Recovery and Live Recapture Data. *Biometric* 51, 1418 – 1428.
- MacCracken, M. C., E. J. Barron, D. R. Easterling, B. S. Felzer, and T. R. Karl. 2003. Climate change scenarios for the U.S. national assessment. *Bulletin of the American Meteorological Society*, 84(12), 1711-1723. Retrieved from <http://search.proquest.com/docview/232619861?accountid=29008>.
- Menyushina, I. E. 1997. Snowy owl (*Nyctea scandiaca*) reproduction in relation to lemming population cycles on Wrangel Island. U.S. Forest Service General Technical Report. 190:572-582.

- Mid-Atlantic / New England / Maritimes Region Waterbird Working Group (MANEM). 2006. Waterbird Conservation Plan: 2006–2010 Mid-Atlantic / New England / Maritimes Region. A plan for the Waterbird Conservation for the Americas Initiative. [http://www.waterbirdconservation.org/pdfs/regional/manem\\_binder\\_appendix\\_1b.pdf](http://www.waterbirdconservation.org/pdfs/regional/manem_binder_appendix_1b.pdf). Accessed September 11, 2013.
- Nelson, H. K., and R. B. Oetting. 1998. Giant Canada goose flocks in the United States. Pages 483–495 in D. H. Rusch, M. D. Samuel, D. D. Humburg, and B. D. Sullivan, editors. Biology and management of Canada geese. Proceedings of the International Canada Goose Symposium, Milwaukee, Wisconsin, United States of America.
- Newton, I. 2006. Advances in the study of irruptive migration. *Ardea* 94: 433 – 460.
- Nisbet, I. C., R. R. Veit, S. A. Auer, and T. P. White. 2013. Marine birds of the Eastern United States and the Bay of Fundy. Nuttall Ornithological Monographs, No. 29. (P. A. Buckley Ed). Cambridge, Massachusetts.
- Parmelee, D. F. 1992. Snowy Owl (*Bubo scandiacus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/010>.
- Partners in Flight Science Committee. 2013. Population Estimates Database, version 2013. Available at: <http://rmbo.org/pifpopestimates>. (Accessed: 09/06/2016).
- Pierotti, R. J., and T. Good. 1994. Herring gull (*Larus argentatus*). American Ornithologists' Union.
- Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Inigo-Elias, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C. M. Rustay, J. S. Wendt, and T. C. Will. 2004. Partners in flight: North American landbird conservation plan. Cornell Lab of Ornithology, Ithaca, New York.
- Runge, M. C., W. L. Kendall, and J. D. Nichols. 2004. Exploitation. Pages 303–328 in W. J. Sutherland, I. Newton, and R. E. Green, editors. Bird ecology and conservation: a handbook of techniques. Oxford University Press, Oxford, United Kingdom.
- Runge, M. C., J. R. Sauer, M. L. Avery, B. F. Blackwell and M. D. Koneff. 2009. Assessing allowable take of migratory birds, *Journal of Wildlife Management* 73:556-565.
- Sauer, J. R., J. E. Hines, J. E. Fallon, K. L. Pardieck, D. J. Ziolkowski, Jr., and W. A. Link. 2014. The North American Breeding Bird Survey, Results and Analysis 1966 - 2012. Version 02.19.2014 USGS Patuxent Wildlife Research Center, Laurel, Maryland, <http://www.pwrc.usgs.gov/2014>.

- Seamans, M. E., F. Rivera-Milán, and M. Koneff. 2007. Estimation of Potential Biological Removal of Great Black-backed, Herring, Laughing, and Ring-billed Gulls from Bird Conservation Regions 14 and 30. U.S. Department of the Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.
- Sheaffer, S. E., and R. A. Malecki. 1998. Status of Atlantic Flyway resident nesting Canada geese. Biology and management of Canada geese. Proceedings of the international Canada goose symposium, Milwaukee, Wisconsin, United States of America.
- Taylor, B. L., Wade, P. R., DeMaster, D. P., and J. Barlow. 2000. Incorporating uncertainty into management models for marine mammals. *Conservation Biology*. 14, 1243–1252.
- Therrien, J.-F., G. Gauthier, and J. Bêty. 2012. Survival and reproduction of adult Snowy Owls tracked by satellite. *Journal of Wildlife Management* 76(8):1562-1567.
- U.S. Department of Agriculture. 2001. Environmental Assessment: Reducing pigeon, starling, sparrow, blackbird, raven, and crow damage through an integrated wildlife damage management program in the State of Maine. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, Augusta, Maine.
- U.S. Department of Agriculture. 2010. Environmental Assessment: Reducing gull damage through an integrated wildlife damage management program in the State of Maine. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, Augusta, Maine.
- U.S. Department of Agriculture. 2012a. Environmental Assessment: Reducing the Effects of Predation on Threatened and Endangered Birds in the State of Maine. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, Augusta, Maine.
- U.S. Department of Agriculture. 2013a. Environmental Assessment: Managing Damage to Resources and Threats to Human Safety Caused by Birds in the State of Maine. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, Augusta, Maine.
- U.S. Department of Agriculture. 2013b. Decision and Finding of No Significant Impact for the Environmental Assessment: Managing Damage to Resources and Threats to Human Safety Caused by Birds in the State of Maine. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, Augusta, Maine.
- U.S. Department of Agriculture. 2013c. Decision and Finding of No Significant Impact for the Environmental Assessment: Environmental Assessment: Reducing the Effects of Predation on Threatened and Endangered Birds in the State of Maine. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, Augusta, Maine.

- U.S. Department of Agriculture. 2015a. Supplement to the Environmental Assessment: Managing Damage to Resources and Threats to Human Safety Caused by Birds in the State of Maine. USDA APHIS WS, Augusta, Maine.
- U.S. Department of Agriculture. 2015b. Decision and Finding of No Significant Impact for the Supplement to the Environmental Assessment: Managing Damage to Resources and Threats to Human Safety Caused by Birds in the State of Maine. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, Augusta, Maine.
- U.S. Fish and Wildlife Service. 2005. Final Environmental Impact Statement: Resident Canada Goose Management. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia.
- U.S. Fish and Wildlife Service. 2007. Final Environmental Impact Statement: Light Goose Management. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia.
- U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia.
- U.S. Fish and Wildlife Service. 2016. Programmatic Environmental Impact Statement for the Eagle Rule Revision. United States Department of Interior, Fish and Wildlife Service, Washington, D.C.
- Wade, P. R. 1998. Calculating limits to the allowable human-caused mortality of cetaceans and pinnipeds. *Marine Mammal Science* 14:1–37.