DRAFT ENVIRONMENTAL IMPACT STATEMENT:

Resident Canada Goose Management

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ABSTRACT

In recent years, the numbers of Canada geese that nest and/or reside predominantly within the conterminous United States (resident Canada geese) have undergone dramatic population growth and have increased to levels that are increasingly coming into conflict with people and human activities and causing personal and public property damage in many parts of the country. Conflicts between geese and people affect or damage several types of resources, including property, human health and safety, agriculture, and natural resources. This document evaluates alternative strategies to reduce, manage, and control resident Canada goose populations in the continental United States and to reduce related damages. The objective of this DEIS is to provide a regulatory mechanism that would allow State and local agencies, other Federal agencies, and groups and individuals to respond to damage complaints or damages by resident Canada geese. This DEIS is a comprehensive programmatic plan intended to guide and direct resident Canada goose population growth and management activities in the conterminous United States. We have analyzed seven management alternatives: 1) No Action; 2) Increase Use of Nonlethal Control and Management (no currently permitted activities); 3) Increase Use of Nonlethal Control and Management (continued permitting of those activities generally considered nonlethal); 4) New Regulatory Options to Expand Hunting Methods and Opportunities; 5) Integrated Depredation Order Management (consisting of an Airport Depredation Order, a Nest and Egg Depredation Order, a Agricultural Depredation Order, and a Public Health Depredation Order); 6) State Empowerment (PROPOSED ACTION); and 7) General Depredation Order. Alternatives were analyzed with regard to their potential impacts on resident Canada geese, other wildlife species, natural resources, special status species, socioeconomics, historical resources, and cultural resources. The Draft Environmental Impact Statement will have a 90-day comment period. We will consider all public comments received during the comment period in preparation of the Final Environmental Impact Statement.

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I. PURPOSE AND NEED

A. PURPOSE

Canada geese are Federally protected by the Migratory Bird Treaty Act (Act) (16 U.S.C. 703-711). Regulations governing the issuance of permits to take, capture, kill, possess, and transport migratory birds are authorized by the Act, promulgated in Title 50 Code of Federal Regulations (CFR) parts 13 and 21, and issued by the U.S. Fish and Wildlife Service (Service or we). Regulations governing the take, possession, and transportation of migratory birds under sport hunting seasons are authorized by the Act and annually promulgated in 50 CFR part 20 by the Service. In recent years, numbers of Canada geese that nest and/or reside predominantly within the conterminous United States (resident Canada geese) have undergone dramatic population growth and have increased to levels that are increasingly coming into conflict with people and causing personal and public property damage. The purpose of this Draft Environmental Impact Statement (DEIS) is to evaluate alternative strategies to reduce, manage, and control resident Canada goose populations in the continental United States and to reduce related damages. Further, the objective of this DEIS and any ultimate proposal is to provide a regulatory mechanism that would allow State and local agencies, other Federal agencies, and groups and individuals to respond to damage complaints or damages by resident Canada geese. The means must be more effective than the current system; environmentally sound, cost-effective, flexible enough to meet the variety of management needs found throughout the flyways, should not threaten viable resident Canada goose populations as determined by each Flyway Council, and must be developed in accordance with the mission of the Service.

Additionally, the decision to implement an alternative strategy to manage resident Canada geese constitutes a major Federal action. Therefore, the Service is required by the National Environmental Policy Act (NEPA) (Public Law 91-190, 42 U.S.C. 4321 et seq.; 83 Stat. 852), as amended, to assess the potential impacts of any proposed action and reasonable alternatives. This DEIS documents this assessment and, together with supporting documents, considerations, data, and public comments, will be used by the Service's Director to prepare a final EIS from which to select the appropriate alternative for implementation.

This DEIS is a comprehensive programmatic plan intended to guide and direct resident Canada goose population growth and management activities in the conterminous United States. Where NEPA analysis is suggested or required for site-specific management or control projects carried out under the guidance of this document, analyses will "tier to" or reference the Final EIS. Site-specific NEPA analysis, if required, will focus on issues, alternatives, and environmental effects unique to the project area, if not already discussed in the final EIS and Record of Decision, and may be categorically excluded, or documented in either an environmental assessment (EA) or an environmental impact statement, depending on the significance of the effects.

B. SCOPE

This DEIS applies specifically to the conterminous United States and to the subspecies of Canada geese (*Branta canadensis*) that nest and/or reside predominately within this portion of the continent. Canada geese nesting within the conterminous United States are considered subspecies or hybrids of the various subspecies originating in captivity and artificially introduced into numerous areas throughout the

conterminous United States. Canada geese are highly philopatric to natal areas and no evidence presently exists documenting breeding between Canada geese nesting within the conterminous United States and those subspecies nesting in northern Canada and Alaska. The geese nesting and/or residing within the conterminous United States in the months of April, May, June, July, and August will be collectively referred to in this DEIS as "resident" Canada geese.

The recognized subspecies of Canada geese are distributed throughout the northern temperate and sub-arctic regions of North America (Delacour 1954; Bellrose 1976; Palmer 1976). Historically, breeding Canada geese are believed to have been restricted to areas north of 35 degrees and south of about 70 degrees latitude (Bent 1925; Delacour 1954; Bellrose 1976; Palmer 1976). Today, in the conterminous United States, Canada geese can be found nesting in every State, primarily due to translocations and introductions since the 1940's.

The majority of Canada geese still nest in localized aggregations throughout Canada and Alaska and migrate annually to the conterminous United States to winter, with a few reaching as far south as northern Mexico. Due to the remoteness of much of the breeding area and consequent lack of detailed site-specific banding data, the exact lines of separation between various subspecies, groups and management populations are subject to considerable interpretation. Lack (1974) presented a depiction of the general distribution of the subspecies of Canada geese recognized in North America by Delacour (1954), and this is the general description, with minor modifications, adopted by most management agencies.

The distribution of Canada geese has expanded southward and numbers have increased appreciably throughout the southern portions of the range during the past several decades (Rusch et al. 1995). The 11 subspecies have been further divided into 19 management populations based on geographic distribution. The division of the various subspecies of Canada geese into management populations began in the 1950's (e.g. Hanson and Smith 1950) and is subject to continuing revision based on new information. Management of populations is generally based on leg band or neck collar recovery data that suggest similar distribution and little overlap with other populations during breeding, but more overlap often during migration and/or winter periods. Due to the high degree of philopatry to natal areas exhibited by Canada geese (believed to have contributed to the large degree of subspeciation exhibited by the group), the species has proven amenable to such subdivisions. The delineation of populations is due to the desire to apply management programs (i.e. habitat and harvest management) to specific geographic areas with the intent of managing the numerical abundance of the various populations independently from neighboring or overlapping groups. The following is a brief description of the distribution of the major management populations of Canada geese covered by this DEIS (more detailed information, is available in section **III.A.1.b. Population status, trends, and distribution**):

Atlantic Flyway Resident Population (Sheaffer and Malecki 1998; Johnson and Castelli 1998; Nelson and Oetting 1998): This population nests from Southern Quebec and the Maritime Provinces of Canada southward throughout the States of the Atlantic Flyway (**Figure I-1**). This population is believed to be of mixed racial origin (*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.

Mississippi Flyway Giant Population (Rusch et al. 1996; Nelson and Oetting 1998): This population (*B. c. maxima*) was once near extirpation and has been reestablished in all States in the Mississippi Flyway. The population breeds and winters throughout this region (**Figure I-2**).

Great Plains Population (Nelson 1962; Vaught and Kirsch 1966; Williams 1967): The Great Plains Population consists of geese (*B. c. maxima/B. c. moffiti*) that have been restored to previously occupied areas in Saskatchewan, North and South Dakota, Nebraska, Kansas, Oklahoma, and Texas (**Figure I-1**). For management purposes, this population is often combined with the Western Prairie Population (comprised of geese (*B. c. maxima/B. c. moffiti/B. c. interior*) that nest throughout the prairie regions of Manitoba and Saskatchewan) which winter together from the Missouri River in South Dakota southward to Texas.

Hi-Line Population (Rutherford 1965; Grieb 1968, 1970): This population (*B. c. moffitti*) nests in southeastern Alberta, southwestern Saskatchewan and eastern Montana, Wyoming, and northcentral Colorado (**Figure I-2**). The population winters from

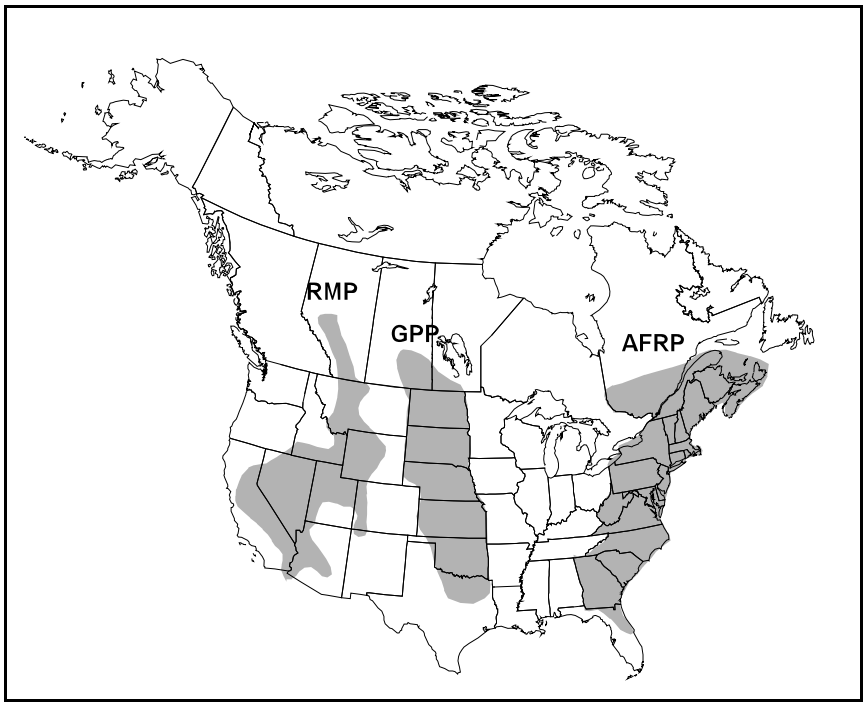

Figure I-1. Approximate ranges of Atlantic Flyway Resident Population (AFRP), Great Plains Population (GPP), and Rocky Mountain Population (RMP) of Canada geese in North America.

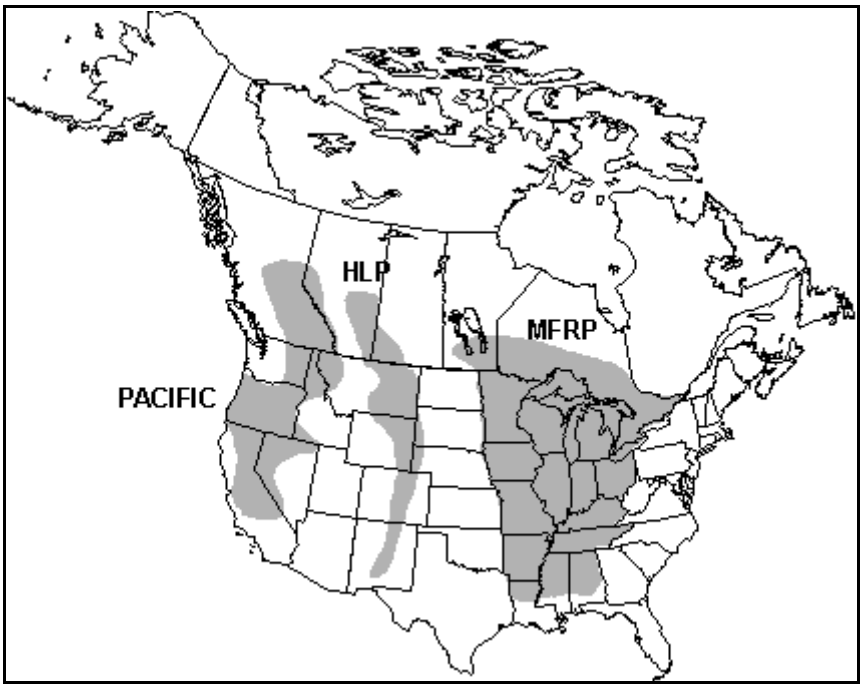

Figure I-2. Approximate ranges of the Mississippi Flyway Giant Population (MFRP), the Hi-Line Population (HLP), and the Pacific Population (Pacific) of Canada geese in North America.

Wyoming to central New Mexico.

Rocky Mountain Population (Krohn and Bizeau 1980): This population (*B. c. moffitti*) nests from southwestern Alberta southward through the intermountain regions of western Montana, Utah, Idaho, Nevada, Colorado Wyoming (**Figure I-1**). They winter southward from Montana to southern California, Nevada, and Arizona.

Pacific Population (Krohn and Bizeau 1980; Ball et al. 1981): This population (*B. c. moffitti*) nests from southern British Columbia southward and west of the Rockies in the states of Idaho, western Montana, Washington, Oregon, northern California, and northwestern Nevada (**Figure I-2**). The population is essentially non-migratory and winters primarily in these same areas.

The remaining subspecies/populations of Canada geese recognized in North America nest, for the most part, in arctic, sub-arctic, and boreal regions of Canada and Alaska (Lack 1974). These are encountered in the conterminous United States only during the fall, winter and spring or as a result of human placement.

Generally, as mentioned above, the Service has stressed the need to manage geese on a population unit basis, guided by cooperatively developed Flyway management plans. However, the development of a strategy for dealing with resident Canada goose damage presents several potential problems. Because resident Canada goose populations interact and overlap with other Canada goose populations during the fall and winter, these other non-target goose populations potentially could be affected by any management action or program aimed at resident Canada goose populations during the fall and winter. Thus, to avoid potential conflicts with other Canada goose populations, most management actions for resident Canada geese have been restricted to either special early September or late winter hunting seasons when migrant populations are largely absent or, to permitted actions during the period March 11 through August 31. These spring and summer dates encompass the period when sport hunting is prohibited throughout the United States by the Migratory Bird Treaty (1916) and resulting regulations promulgated under the Migratory Bird Treaty Act (1918). However, this DEIS will initially evaluate all time periods in an effort to explore all possible management strategies for resolving resident Canada goose conflicts.

Regulations governing the take, possession, and transportation of migratory birds under sport hunting seasons are annually promulgated in 50 CFR, part 20, subpart K, while regulations covering the issuance of permits to take, capture, kill, possess, and transport migratory birds are promulgated in 50 CFR parts 13 and 21. Furthermore, in subpart C of part 21, Specific Permit Provisions, section 21.26 is the Special Canada Goose Permit, issued only to State wildlife agencies, authorizing certain resident Canada goose management and control activities. Section 21.27 pertains to special-purpose permits which allow for the taking of migratory birds with compelling justification. In subpart D of part 21, section 21.41 pertains to general depredation permits and section 21.42 concerns the authority to issue depredation orders to permit the killing of migratory game birds. Sections 21.43 through 21.46 deal with special depredation orders for specific species of migratory birds and/or specific geographic areas to address particular depredation problems. All of these sections establish a precedent for allowing the take of migratory birds, under compelling circumstances, of a specific species, including resident Canada geese, and in specific geographic areas.

C. NEED FOR ACTION

In North America, few birds share the wide recognition afforded the Canada goose. Wild Canada geese flying overhead in their familiar "V" formation have long been the symbol of changing seasons and connections to wild, distant places for millions of waterfowlers, bird watchers, and general citizens. In recent years, however, some Canada geese have come to symbolize something much less desirable. In many communities, increasing numbers of locally breeding Canada geese have resulted in an example of the conflict and disagreement that can occur among various publics when wildlife becomes locally overabundant and exceeds the tolerance level of some people and communities.

1. Background

a. Resident Canada Geese in the Flyways

The number of Canada geese that nest and/or reside predominantly within the conterminous United States has increased dramatically in the past 20 years. Although most of these geese are commonly referred to as "resident" Canada geese, they are actually a collection of various subspecies depending on location.

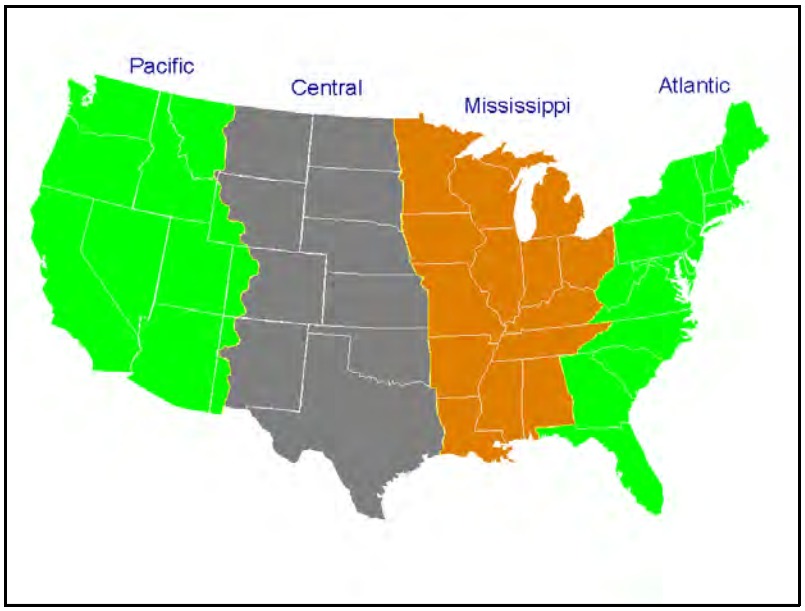

Figure I-3. Administrative Flyway boundaries.

In the eastern United States, or Atlantic Flyway (see **Figure I-3**), resident Canada geese consist of several subspecies that were introduced and established during the early 20th century after extirpation of native birds (Delacour 1954; Dill and Lee 1970; Pottie and Heusmann 1979; Benson et al. 1982). Following the establishment of a 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 1950's through the 1980's, the population has grown to more than one million individuals and has increased an average of 14 percent per year since 1989 (Sheaffer and Malecki 1998; Atlantic Flyway Council 1999; U.S. Fish and Wildlife Service, 2000).

In the Mississippi Flyway (see **Figure I-3**), most resident Canada geese are giant Canada geese (*B. c. maxima*). Once believed to be extinct (Delacour 1954), Hanson (1965) rediscovered them in the early 1960's, and estimated the giant Canada goose population at about 63,000 birds in both Canada and the United States. In his book, *The Giant Canada Goose*, Hanson (1965) further speculated that because of

the highly successful restoration programs underway on State, Provincial, and Federal refuges, the future of the giant Canada goose was "indeed bright." This speculation proved to be a gross underestimate of both the giant Canada goose and wildlife restoration programs. In the nearly 40 years since their rediscovery, the breeding population of giant Canada geese in the Mississippi Flyway now exceeds one million individuals and has been growing at a rate of about 6 percent per year over the last 10 years (Rusch et al. 1996; Wood et al. 1996; Nelson and Oetting 1998; U.S. Fish and Wildlife Service, 2000).

In the Central Flyway (see **Figure I-3**), Canada geese that nest and/or reside in the States of the Flyway consist mainly of three populations, the Western Prairie, Great Plains, and Hi-Line. These populations of large subspecies of Canada geese have increased tremendously over the last 30 years as the result of active restoration and management by Central Flyway States and Provinces. The current index for these three populations in 1999 was over 900,000 birds, 95 percent higher than 1990, and 687 percent higher than 1980 (Gabig 2000).

In the Pacific Flyway (see **Figure I-3**), two populations of the western Canada goose, the Rocky Mountain Population and the Pacific Population, are predominantly comprised of Canada geese that nest and/or reside in the States of the Flyway. The Rocky Mountain Population is highly migratory, and has grown from a breeding population of about 14,000 in 1970 (Krohn and Bizeau 1980) to over 130,000 (Subcommittee on Rocky Mountain Canada Geese 2000). The Pacific Population is relatively nonmigratory with most flocks wintering on or near their nesting areas.

b. Types of Conflicts and Damages

Because most resident Canada geese live in temperate climates with relatively stable breeding habitat conditions and low numbers of predators, tolerate human and other disturbances, have a relative abundance of preferred habitat (especially those located in urban/suburban areas with current landscaping techniques), and fly relatively short distances to winter compared with other Canada goose populations, they exhibit a consistently high annual production and survival. Further, the virtual absence of waterfowl hunting in urban areas provides additional protection to those urban portions of the resident Canada goose population. Given these characteristics, these Canada goose populations are increasingly coming into conflict in both rural and urban areas with human activities in many parts of the country.

Conflicts between geese and people affect or damage several types of resources, including property, human health and safety, agriculture, and natural resources. Common problem areas include public parks, airports, public beaches and swimming facilities, water-treatment reservoirs, corporate business areas, golf courses, schools, college campuses, private lawns, athletic fields, amusement parks, cemeteries, hospitals, residential subdivisions, and along or between highways.

Property damage usually involves landscaping and walkways, most commonly on golf courses, parks, and waterfront property. In parks and other open areas near water, large goose flocks create local problems with their droppings and feather litter (Conover and Chasko, 1985). Surveys have found that while most landowners like seeing some geese on their property, eventually, increasing numbers of geese and the associated accumulation of goose droppings on lawns cause many landowners to view geese as a nuisance, which results in a reduction of both the aesthetic value and recreational use of these areas (Conover and Chasko, 1985).

Negative impacts on human health and safety occur in several ways. At airports, large numbers of geese

can create a very serious threat to aviation. Resident Canada geese have been involved in a large number of aircraft strikes resulting in dangerous landing\take-off conditions, costly repairs, and loss of human life. As a result, many airports have active goose control programs. Excessive goose droppings are a disease concern for many people (public scoping). Public beaches in several States have been closed by local health departments due to excessive fecal coliform levels that in some cases have been traced back to geese and other waterfowl. Additionally, during nesting and brood-rearing, aggressive geese have bitten and chased people and injuries have occurred due to people falling or being struck by wings.

Agricultural and natural resource impacts include losses to grain crops, overgrazing of pastures, and degrading water quality. In heavy concentrations, goose droppings can overfertilize lawns and degrade water quality resulting in eutrophication of lakes and excessive algae growth (Manny et al., 1994). Overall, complaints related to personal and public property damage, agricultural damage, public safety concerns, and other public conflicts have increased as resident Canada goose populations increased.

c. Current Regulatory Framework

Normally, complex Federal and State responsibilities are involved with Canada goose control activities. All control activities, except those intended to either scare geese out of, or preclude them from using, a specific area, such as harassment, habitat management, or repellents, require a Federal permit issued by the Service. Additionally, permits to alleviate migratory bird depredations are issued by the Service in coordination with the Wildlife Services (formerly Animal Damage Control) program of the Animal Plant Health Inspection Service (APHIS/WS). APHIS/WS is the Federal Agency with lead responsibility for dealing with wildlife damage complaints. In most instances, State permits are required as well. As the number of problems with resident Canada geese have continued to grow, the Service, with its State and Federal partners, believes the development and evaluation of alternative strategies to reduce, manage, and control resident Canada goose populations in the continental United States and to reduce related damages, beyond those presently employed, are needed so that all agencies can provide the most responsible, cost-effective, biologically-sound, and efficient assistance available.

Until recently, the Service attempted to control and manage growing populations of resident Canada geese through existing annual hunting season frameworks (special and regular seasons) and the issuance of control permits on a case-by-case basis. While this approach provided relief in some areas, it did not completely address the problem. On June 17, 1999, we published a final rule establishing a new special Canada goose permit (Federal Register 1999b). The new permits are specifically for the management and control of resident Canada geese. Permits may be issued to State conservation or wildlife management agencies on a State-specific basis, so States and their designated agents can initiate resident goose damage management and control injurious geese within the conditions and restrictions of the permit program. The permits, restricted to the period between March 11 and August 31, allow increased availability of control measures, facilitate a decrease in the number of injurious resident Canada geese in localized areas, have little impact on hunting or other recreation dependent on the availability of resident Canada geese, and allow injury/damage problems to be dealt with at the State and local level, thereby resulting in more timely control activities. These new special permits result in biologically sound and more cost-effective and efficient resident Canada goose damage management. We believe this permit satisfies the need for a more efficient/cost-effective program in the short term while allowing us to maintain direct management control.

In the long-term, however, we realize that more management flexibility will be necessary. Because of the

unique locations where large numbers of these geese nest, feed, and reside, we continue to believe that new and innovative approaches and strategies for dealing with bird/human conflicts are necessary. In order to properly examine alternative strategies to control and manage resident Canada geese and develop a long-term strategy to integrate our management of these birds into a larger Flyway management-plan system, the preparation of this DEIS is necessary.

2. State Questionnaire Responses

In November 1999, a questionnaire related to resident Canada goose populations and their impacts was transmitted to States via the Flyway Council Chairs (see **Appendix 1**). The purpose of the questionnaire was to collect additional background and status information on the extent of resident Canada goose problems and conflicts, help describe the affected environment, provide the basis for management alternatives, and assist in the DEIS impact analysis. Responses to the thirteen questions were subsequently received from 30 States (**Table I-1**).

Table I-1. State responses to resident Canada goose questionnaire.

Atlantic Flyway	**Mississippi Flyway**	**Central Flyway**	**Pacific Flyway**
Delaware	Alabama	Colorado	Arizona
Florida	Illinois	Kansas	Utah
Georgia	Indiana	Montana	
Maine	Iowa	South Dakota	
Maryland	Louisiana	Wyoming	
Massachusetts	Michigan		
New York	Minnesota		
North Carolina	Missouri		
Pennsylvania	Ohio		
Rhode Island	Tennessee		
Vermont			
Virginia			
West Virginia			

a. Number of Complaints

One indicator of the extent of resident Canada goose problems is the annual number of complaints received by resource management agencies within a State. Responses ranged from less than ten (Florida, Montana, and Arizona) to hundreds of complaints annually (**Table I-2**). Unless noted otherwise in **Table I-2**, the survey responses are complaints received by the States' wildlife management agencies and may or may not include complaints directed to others, such as Wildlife Services, local parks and recreation staff, health agencies, cooperative extension agents, and other resource management agencies. While we recognize that not all complaints are directed to the States' resource management agencies, we believe that the number of State-compiled complaints about resident Canada geese still serve as an important index of the extent of problems. However, most States attempted to account for complaints received by other agencies in their estimates. For example, Minnesota reported approximately 400 complaints annually, but indicated that this accounts for only about 50% of the complaints made. A more detailed discussion of complaints and conflicts is contained in section **III. Affected Environment**.

Responding States also varied in their ability to track complaints. Some had detailed tracking systems in place, others relied on the United States Department of Agriculture Animal and Plant Health Inspection Service Wildlife Services (APHIS/WS or Wildlife Services) to provide such information, while others could only provide estimates, anecdotal evidence, or no information at all. For example, although Kansas does not have detailed records regarding resident Canada goose complaints, their Kansas City biologist stated that,

> "Urban [goose complaints] – began with 5-10 problems in 1990, last year I would guess I took 120 – 130 calls on nuisance geese,"

which may indicate a rapidly-growing problem.

Table I-2. Characteristics of complaints regarding resident Canada geese received by the State wildlife resource agencies.

	Annual Complaints by Type (Number or %) [a, b]							
Flyway/State	**Nuisance**	**Health/Safety**	**Property/ Agricultural**	**Natural Resource**	**Other**	**Total**	**Percentage (%) of All Complaints**	**Damage during most recent one-year period**
Atlantic:								
Delaware	10-15	2-3H, 2S	3-6	2	--	20-30	80-90%	>$100,000
Florida	6	– H, 2S	--	--	--	8	85%	Unknown
Georgia[c]	--	– H, S	--	--	--	210[c]	40%	$456,000
Maine	Most	– H, S	--	--	--	30	80%	Unknown
Maryland[c, d]	41%	– H, <1%S	57%	1%	--	100[d]	72%	$350,000[c]
Massachusetts	34%	3% H, – S	6%	--	56%	85	50%	Unknown
New York	50%	--H, S	45%	--	5%	>100	50%	Millions
North Carolina	51%	Many H, 10% S	39%	--	--	110	Unknown	Unknown
Pennsylvania	--	--H, S	--	--	--	33	50%	~$2 Million
Rhode Island	90%	10% H, S	--	--	--	30-60	98%	Unknown
Vermont	Most	– H, S	Some	--	--	12	50%	Unknown
Virginia[c]	178	181 H, S	418	36	--	813	Unknown	$588,500[c]
West Virginia	62	18 H, S	17	1	--	98	75-80%	$25,000
Mississippi:								
Alabama	--	--H, S	--	--	--	Unknow	Unknown	Unknown
Illinois	75-94%	– H, 6-12.5%S	12.5%	--	--	n	Unknown	Unknown
Indiana[e]	--	52 H, S	329	--	--	150-160	Unknown	$7,580
Iowa	--	– H, S	80%	--	20%	380[e]	75%	$12-20,000
Louisiana	–	Most H, S	–	–	–	101	80%	<$5,000
Michigan	Most	Some H, S	Some	--	--	5	75%	~$250,000
Minnesota	16%	1% H, S	83%	--	--	~400	50%	Millions
Missouri[c]	5	61 H , S	100	--	--	295	<30%	$377,025[c]
Ohio[f]	692	130 H, 487 S	319	--	--	166	90%	$115,200
Tennessee	52%	14% H, S	34%	--	--	692[f]	Unknown	$9,400
						157		
Central:								
Colorado	Most	Some H, --S	2-3	--	--	60-80	>66%	Unknown
Kansas	79%	--H, 5% S	12%	--	4%	255	>90%	Unknown
Montana	--	– H, S	--	--	--	<10	25%	Unknown
South Dakota	Unknown	Unknown H, S	300	--	--	>300	>90%	$396,500
Wyoming	Some	--H, S	Most	--	--	30-40	70%	$2,064
Pacific:								
Arizona	5	-- H, S	--	--	--	<5	Unknown	Unknown
Utah	--	– H ,S	Most	--	--	25	75%	Unknown

[a] If States provided the total number of complaints for many years, the average number/year is shown.
[b] Where percentages are used, they are often based on a period of successive years.
[c] In Georgia, Maryland, Virginia, and Missouri, estimates were provided by the USDA-Wildlife Services office in that State.
[d] All resident Canada goose complaints received by the Maryland DNR are referred to USDA-Wildlife Services. An estimated 100 complaints are received by the Maryland DNR annually. USDA-Wildlife Services received 139 complaints in Maryland during 1999. This means that 72% of complaints received by USDA-Wildlife Services may have originally been lodged with the Maryland DNR.
[e] Total complaints for Indiana was determined by calls made to a Wildlife Telephone Hotline created in 1998 through a joint effort by the Indiana DNR and USDA-Wildlife Services.
[f] In Ohio, many complainants reported multiple problems, so the total does not equal the number of individual complaints.

Nine States provided information on the number of resident Canada goose complaints over a 4-6 year period. While complaints remained stable or even decreased in some States, five States saw complaints increased 22 - 74 percent for five States (**Table I-3**). Some States with steady or declining numbers of complaints, such as North Carolina, still believed the number of people experiencing resident Canada goose problems continues to increase. Major reasons complaints to wildlife agencies may not be increasing in States, where goose conflicts may actually be increasing, include poor public awareness on how to contact other agencies, dissatisfaction with previous responses to control goose problems in their area ("why bother to call back" attitude), and the lack of long-term solutions to the problem ("why bother to call in the first place" attitude).

Table I-3. Comparison of complaints received by State wildlife agencies regarding resident Canada geese during 1995-95 and most recent reports (from State questionnaire results).

Flyway/State	Average number of complaints during 1995 and 1996	Average number of complaints during the last two reporting years [a]	Percent change
Atlantic:			
Georgia	254	254	+0
Maryland	118	144	+22
Pennsylvania	56	42	-24
West Virginia	114	116	+1
Mississippi:			
Iowa	117	115	-2
Minnesota	132	212	+61
Missouri	92	131	+43
Ohio	334	583	+74
Central:			
South Dakota	113	150	+33

[a] The last two reporting years for Georgia, Maryland, West Virginia, Iowa, Missouri, and Ohio were 1998 and 1999. The last two reporting years for Pennsylvania, Minnesota, and South Dakota were 1997 and 1998.

b. Property Damage

Another indicator of the relative scale of resident Canada goose problems is the property damage they cause. **Table I-2** shows the estimated monetary value of damage done by resident Canada geese in the most recent one-year period for which States provided information. The majority of property damage caused by geese involved clean-up and repairs of managed turf areas (e.g., parks, golf courses, athletic fields, and congregated residences) and agricultural damage. In Georgia, a recent survey found that 56% of the 319 member courses of the Georgia Golf Association consider geese to be a problem. A telephone poll of selected courses with an average number of geese indicated that typical courses spend about $1,500 per year cleaning or repairing greens damaged by geese. Another questionnaire distributed to

members of the Massachusetts Golf Course Owners Association found that 84% of the respondents reported problems of varying levels with Canada geese. Delaware reported that some golf courses had damage approaching $20,000 on some greens.

In Maryland, information suggests annual clean-up costs to remove goose dropping from lawns, walkways and beaches and the efforts to prevent goose damages probably exceed $150,000. Minnesota pointed to a 1998 survey of Twin Cities agencies and landowners in which economic losses from Canada goose populations were estimated to be $692,750 annually. Ohio surveyed landowners who complained about geese in 1998 and 1999 and found they averaged spending $350 a year trying to keep geese away. A more detailed discussion of property damage is contained in section **III.B.3. Economic Considerations**.

Some States were able to provide specific information on agricultural damage caused by resident Canada geese. In the southeast, Georgia reported agricultural damage including geese feeding on winter grains and competition with cattle for grain in open troughs. Georgia further estimated that if 80 agricultural complaints are reported each year at an average loss of $250 (estimated), the total agricultural loss in Georgia would be approximately $20,000. Maryland reported that managed turf and agricultural damage was estimated at $200,000 per year. The threat of disease transmission to poultry was another concern in Maryland with major poultry companies instructing growers to keep wild ducks and geese away from broiler houses. Virginia reported agricultural damage estimated at $241,000 with costs including damaged winter grains and spring crops such as corn, peanuts, vegetables, and pasture.

In the northeast, Massachusetts reported estimated damage to cranberry bogs at $119,887 per year over a 3-year period in the early 1990's. New York reported managed turf and agricultural damage at over $1 million annually. Pennsylvania recently summarized damage amounts from complaints received by the Pennsylvania Game Commission and from surveys conducted by the Pennsylvania Department of Conservation and Natural Resources and the Pennsylvania Farm Bureau. Total crop damage in Pennsylvania was estimated at approximately $788,000 annually. In West Virginia, agricultural damage was estimated at $8,400 annually.

In the Midwest, Indiana estimated damage to corn at $1,050, while Iowa indicated 75-85% of calls complaining about resident Canada goose involve agricultural damage. Losses to Iowa producers were estimated at $7,500 in 1999 and $12,000 in 1998. Minnesota reported that during the five-year period from 1994-98, 63% of the 853 resident Canada goose complaints involved crop damage. In 1998, Minnesota farmers estimated an average of $1,200 in crop loss per complaint, resulting in a total damage estimate of $230,400. However, Minnesota reported that many farmers are tolerating crop damage from geese and have not yet complained. In Missouri, agricultural damage was estimated at $2,000.

In South Dakota, most complaints about resident Canada geese involved conflicts with agriculture. Complaints from South Dakota producers commonly peak in May, June, and July when Canada goose breeding pairs, goslings, and molting geese, actively forage on newly emerged soybeans, corn, and small grains. Typical complaints involved 20-200 birds that moved from wetlands into adjacent grain fields. Agricultural damage estimates from 300 South Dakota farmers totaled $396,500 for 1999; however, actual losses are estimated to be 25-50 percent higher since all losses are not reported.

Wyoming noted that 25 agricultural damage claims totaling $7,942 were paid during 1994-1999. A more detailed discussion of agricultural depredation is contained in section **III.B.3.c. Agricultural Crops**.

c. Natural Resource Damage

Thirteen of the 30 responding States listed some level of concern about resident Canada goose impacts on natural resources. The most commonly listed was degradation of water quality by either fecal contamination or erosion from areas denuded by goose grazing and trampling. Pennsylvania indicated that water quality degradation by resident Canada geese occurred in about 30% of all State parks. Missouri reported that fecal deposits from large concentrations of resident Canada geese on lakes resulted in algal blooms that caused oxygen depletion, and in some instances led to fish kills.

Natural resource damage, in the form of increased erosion, shoreline destabilization, destruction of newly seeded wetland restoration and mitigation sites, and loss of natural vegetation in marshes and impoundments resulting from overgrazing by resident Canada geese, was noted by a number of States. Both Minnesota and Maryland pointed to the impact of geese on natural wild rice beds, while Maryland, Pennsylvania, and Tennessee noted that resident goose populations are feeding to a significant degree on crops and habitat maintained as food sources and cover for migrant geese and other waterfowl.

Maryland also noted concern about the potential wildlife disease threat posed by concentrations of resident Canada geese. Local concentrations of resident Canada geese may congregate around impoundments where water levels have been lowered. The remaining stagnant pools can be contaminated by fecal material and are a potential source of avian diseases, especially when temperatures are high. Maryland cited a 1998 survey conducted by the USGS National Wildlife Health Research Center that found 16% of 37 resident Canada geese sampled at Blackwater National Wildlife Refuge tested positive for duck virus enteritis (DVE). Maryland points out that these birds serve as a reservoir for this highly contagious disease and pose a serious threat to other birds utilizing Blackwater Refuge.

Michigan and Minnesota pointed out that their wildlife staff is spending more time and resources responding to resident Canada goose issues at the expense of traditional natural resource management activities such as habitat restoration and protection. Furthermore, Michigan noted that more money would be available to implement new ecosystem-management initiatives if the cost to manage resident geese was less. A more detailed discussion of impacts on natural resources is contained in section **III.A.2. Natural Resources**.

d. Threat to Human Safety

Concern over increasing numbers of resident Canada geese at airports and the increased potential for air strikes was the top human safety concern of responding States. We note that the questionnaire which States responded to indicated it was not necessary to provide Federal Aviation Administration (FAA) records on bird strikes with civilian aircraft. Because of this, some States that have concerns about Canada geese at airports may not have included information about bird strikes in their responses. Despite this logistic problem, 18 States still listed this concern. A more detailed discussion of aircraft safety is contained in section **III.B.4.a. Airports**.

Aggression by resident Canada geese to people and traffic problems caused by geese were the second most common human safety concerns listed by responding States, with 13 States. In discussing goose aggression towards people, several States stated that children and senior citizens had a greater risk of injury because they lacked the strength and maneuverability to avoid attacks. Injuries ranged from small nips and scratches, to more serious bruises and cuts, to broken bones suffered during falls. Ohio reported

107 instances of Canada goose attacks on people in 1999 and 94 cases of geese causing traffic hazards were reported. Another human safety concern mentioned by 4 States was ground made slippery by goose feces. A more detailed discussion of road hazards is contained in section **III.B.4.a. Road Hazards**.

e. Human Disease Risk

Most responses from the States regarding the risk of disease transmission from resident Canada geese to humans could be categorized as "concerned, but unable to substantiate." In other words, there is a concern among public resource management personnel that resident Canada geese have the ability to transmit diseases to humans, but a direct link is difficult to establish due to the expense of testing and the difficulty of tracing disease pathogens back to Canada geese. Studies have confirmed the presence of human pathogens in goose feces, so presence of feces in water or on ground where humans may contact them is a legitimate health concern (see section **III.B.5.a. Waterborne Disease Transmission**). Clark (in press) documented between 2 and 4 percent toxin expression for Canada goose droppings. State natural resource agencies often do not have the expertise to deal with human health and disease questions and have to rely on other agencies' capabilities.

Some States provided specific examples about disease risk to humans from resident Canada geese. In Massachusetts, no substantiated claims were reported, but at least one doctor diagnosed an infection "resulting from Canada geese." New York found high coliform counts were correlated with an abundance of Canada geese and gulls on the reservoirs that supply New York City. The city implemented an intensive bird-hazing program as a solution in lieu of building a multi-billion dollar water filtration plant. In North Carolina, a depredation permit was issued to a private citizen because of a possible allergic reaction to large amounts of goose droppings on his property after the complainant's physician provided a letter of support. Tennessee observed increased counts of *E. coli* at beaches managed by the U.S. Army Corps of Engineers and the Tennessee Valley Authority. Health departments had threatened to close beaches if no action was taken. After removal of Canada geese from these areas, *E. coli* levels dropped. In Virginia, the Occoquan Sewage Authority recorded high levels of bacteria and implicated resident geese as the cause. Similarly, the Virginia Department of Health believed resident geese were the cause of high bacteria levels found at The Little Keswick School in Albemarle County. Illinois reported histoplasmosis was diagnosed in a patient mowing an area contaminated with Canada goose feces. In Missouri, although no direct link was established, droppings from Canada geese were believed to have caused a giardia outbreak that affected 18 people, three of whom were hospitalized. In Washington, local health districts documented *E. coli* contamination, probably caused by waterfowl feces, of beaches in the Seattle and Vancouver areas. A more detailed discussion of possible human safety impacts is contained in section **III.B.5. Human Safety**.

f. Other Damage

Aside from property and agricultural damage and safety/health risks, States identified several other areas of concern regarding resident Canada goose populations.

A common complaint about resident Canada geese is the general nuisance associated with excessive feces in areas frequented by people. Beyond the real and perceived potential health and safety risk they pose, goose feces often reduces the aesthetic appeal of these areas and may ultimately reduce public use. Ohio points out that many individuals and businesses that depend on income from public recreation areas, such as beaches and campgrounds, suffer economic hardship when the public avoids these areas

due to the overabundance of goose feces. Also, unfavorable public opinion resulting from excessive feces and other nuisance problems can encourage negative attitudes towards Canada geese, specifically, and wildlife management in general. The overabundance of resident Canada geese, and the problems resulting from them, may cause public opinion to change from geese being viewed as a valued wildlife resource to being seen as pests.

Resident Canada geese can also unintentionally serve as live decoys, attracting migratory geese to problem areas. This attraction can exacerbate existing problems, or cause new ones, and concentrate birds in small areas, potentially facilitating the spread of avian disease.

g. Future Levels of Complaints and Damage

The majority of the 30 responding States felt that complaints and damage associated with resident Canada geese would continue to increase as goose populations increase. Only Florida, Massachusetts, Rhode Island, and Tennessee felt that complaints and damage would remain stable or would only slightly increase. However, Massachusetts pointed out that its current level of complaints was already high, so having a stable level of complaints was not seen as a positive outcome. Kansas and Iowa predicted that rising resident Canada goose populations would level off sometime in the future and result in a correlating stabilization in the number of complaints and damage. Iowa further predicted that breeding habitat saturation and implementation of effective damage abatement and population controls would cause the population and complaints to level off, whereas Kansas felt that it would occur in response to more liberal hunting seasons. All other responding States felt that damage and/or complaints related to resident Canada geese would increase in the coming years.

The most commonly mentioned reason for the expected rise in complaints is the continued increase of resident Canada goose populations. Some States believed this would be especially prevalent in urban areas or other specific areas of their States. Some States also pointed to the increased development of urban areas as another factor fueling the increase in complaints and conflicts. Increased development of urban areas increases the type of managed turf habitat attractive to geese, increases areas within which it will be difficult to use hunting to control Canada goose populations, and brings a higher density of people into contact and possible conflict with the geese. A third reason mentioned for the expected rise in the number of complaints is the increased irritation levels that will be experienced by people having conflicts with resident Canada geese. Repeated nuisance encounters with Canada geese, lower tolerances for agricultural damage, control techniques that disperse nuisance geese to new problem sites, and dissatisfaction with ineffective control methods may cause citizens to report complaints at a higher rate than currently experienced. Missouri echoed the feelings of many States:

> "If we continue to operate with current management options, populations will continue to increase and damages will be measured in millions of dollars rather than tens of thousands as they are now [in Missouri]. Although the financial cost is substantial, an even greater cost may be the public's loss of faith in our ability to reduce populations and a growing negative attitude about geese."

h. Past Resident Canada Goose Management Activities

When asked about past efforts to resolve human-goose conflicts, 25 of 30 States indicated translocation and non-lethal abatement techniques, such as scare efforts, habitat modification, barriers, and chemical treatment, as the most frequent activities. Other commonly mentioned management activities include hunting, both regular and special seasons (23 States), providing information or technical guidance (18

States), and egg or nest destruction (12 States). Six States (Delaware, Maryland, Minnesota, New York, Rhode Island, and Virginia) listed capture and euthanization of birds as a past activity.

i. Potential to Relocate

Few responding States indicated that relocating birds is an option for future management of problem resident Canada goose populations. In fact, 19 of the 30 States said that relocation was not an option and Georgia, Indiana, and Minnesota, which have ongoing relocation programs, believed that sites where birds could be moved were decreasing and would not be available in the future. New York's response was typical of many States:

> "We know of no areas in New York State where there is a desire to increase local populations of resident geese through relocation of birds from problem areas. We have not allowed in-state translocation to alleviate goose problems for many years and are reluctant to do so now. Translocation of adult geese to high harvest areas may be more socially acceptable than capture and euthanasia, but a number of issues need to be addressed, including potential for disease transmission and translocated geese would contribute to conflicts near release sites. Furthermore, there are relatively few areas in New York that may be suitable for release of translocated birds, so it is unlikely that this would ever be a viable option for alleviating many of the conflicts associated with resident geese in our State."

A number of States referred to studies that indicated relocation of adults was ineffective in alleviating nuisance problems as large numbers of adults subsequently returned to areas from which they were removed or became a problem near the release site.

Other States, such as Maine, Missouri, and South Dakota, indicated that they only have limited release sites available for potential future relocations. South Dakota pointed out that many wildlife professionals in their Department are not convinced relocation is a good strategy since it results in moving the problem to other parts of the State. South Dakota also pointed to a July 1996 relocation of 805 Canada geese from Lake County to the Missouri River in central South Dakota that cost $10,000 and expended 505 man-hours.

Only 5 States, Arizona, Florida, Iowa, Tennessee, and Wyoming, indicated that relocation of nuisance resident Canada geese is a viable option for them and relocation sites are available.

D. AUTHORITY AND RESPONSIBILITY

1. U.S. Fish and Wildlife Service, Department of the Interior

Canada geese, like all other migratory birds, are an international resource. As such, their welfare and conservation are vested interests of not only the States, but several countries. In the United States, authority and responsibility for migratory birds lies with the Secretary of the Interior and is based on international treaties to which the United States Constitution specifies that only the Federal government can be signatory. The primary instrument defining Federal authority is the Migratory Bird Treaty Act of 1918 (as amended), which implements treaties with Great Britain (for Canada in 1916 as amended in 1999), the United Mexican States (1936 as amended in 1972 and 1999), Japan (1972 as amended in 1974), and the Soviet Union (1978). Each treaty not only permits sport hunting, but permits the take of

migratory birds for other reasons, including scientific, educational, propagative, or other specific purposes consistent with the conservation principles of the various Conventions. More specifically, Article II, paragraph 3, and Article V of "The Protocol Between the Government of the United States of America and the Government of Canada Amending the 1916 Convention between the United Kingdom and the United States of America for the Protection of Migratory Birds in Canada and the United States," provides the authority for allowing the take of migratory birds for reasons other than sport hunting. Article II, paragraph 3, states:

> "Subject to laws, decrees, or regulations to be specified by the proper authorities, the taking of migratory birds may be allowed at any time of the year for scientific, educational, propagative, or other specific purposes consistent with the conservation principles of this Convention."

Article V states:

> "The taking of nests or eggs of migratory game or insectivorous or nongame birds shall be prohibited, except for scientific, educational, propagating, or other specific purposes consistent with the principles of this Convention..."

Additionally, treaties with both Japan (Article III, paragraph 1, subparagraph (b)) and the Soviet Union (Article II, paragraph 1, subparagraph (d)) provide specific exceptions to migratory bird take prohibitions for the purpose of protecting persons and property.

As stated above, the implementation of these various Conventions is accomplished through the Migratory Bird Treaty Act (Act). Section 2 of the Act specifically states:

> "Unless and except as permitted by regulations made as hereinafter provided in this subchapter, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or eggs of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof,....."

Further, Section 3 of the Act authorizes and directs the Secretary of Agriculture[1]:

> "from time to time, having due regard to the zones of temperature and distribution, abundance, economic value, breeding habits, and times and lines of migratory flight of such birds, to determine when, to what extent, if at all, and by what means, it is compatible with the terms of the convention to allow hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any such bird, or any part, nest, or egg thereof, and to adopt suitable regulations permitting and governing the same, in accordance with such determinations, which regulations shall become effective when approved by the President".

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[1] The authority of the Secretary of Agriculture with respect to the Migratory Bird Treaty was transferred to the Secretary of the Interior in 1939 pursuant to Reorganization Plan No. II. §4(f), 4 Fed. Reg. 2731, 53 Stat. 1433.

2. Wildlife Services, Animal and Plant Health Inspection Service, U.S. Department of Agriculture

The United States Department of Agriculture Animal and Plant Health Inspection Service Wildlife Services program is directed by law to protect American agriculture and other resources from damage associated with wildlife. The primary statutory authority for the Wildlife Services program is the Animal Damage Control Act of 1931 (7 U.S.C. 426-426c; 46 Stat. 1468), as amended in the Fiscal Year 2001 Agriculture Appropriations Bill, which provides that:

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

In 1988, Congress strengthened the legislative mandate of Wildlife Services with the Rural Development, Agriculture, and Related Agencies Appropriations Act. This Act states, in part:

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

3. The Role of States

While the Federal government has ultimate authority and responsibility, the States are also involved in migratory bird management and have considerable input and involvement in regulatory issues. In fact, the Act expressly provided that nothing shall prevent States from making or enforcing laws which give further protection to migratory birds. State regulations can always be more restrictive than Federal migratory bird regulations. Bean (1983) described this Federal/State relationship as:

> "From the foregoing [discussion of Federal commerce power], it is clear that the Constitution, in its treaty, property, and commerce clauses, contains ample support for the development of a comprehensive body of federal wildlife law and that, to the extent such law conflicts with state law, it takes precedence over the latter. That narrow conclusion, however, does not automatically divest the states of any role in the regulation of wildlife or imply any preference for a particular allocation of responsibilities between the states and the federal government. It does affirm, however, that such an allocation can be designed without serious fear of constitutional hindrance. In designing such a system, for reasons of policy, pragmatism, and political comity, it is clear that the states will continue to play an important role either as a result of federal forbearance or through the creation of opportunities to share in the implementation of federal wildlife programs."

The relationship between the Service and the States for setting migratory game bird hunting regulations is well established and documented (Blohm 1989). While the relationship regarding other migratory bird issues is not as easy to describe or as well-established, the Service and the States generally cooperate on management issues. In the case of migratory non-game birds, the States usually make their positions and recommendations known individually. In the case of migratory game birds, the States generally work collectively through the Flyway Councils. The Flyway Council system is a longstanding and well-

established formal process that assures State interests are considered fully in the establishment and promulgation of Federal regulations governing migratory game bird hunting and other migratory game bird issues (USDI 1988). In the case of resident Canada geese, the States, through the Flyway Councils, have assumed an active leadership role in the management of these populations (see section **I.E. Flyway Council Management Plans** and **Appendices 2 - 5**).

E. FLYWAY COUNCIL MANAGEMENT PLANS

The Atlantic, Mississippi, Central and Pacific Flyway Councils are administrative units for migratory bird management in the flyway system. Flyway Councils, which are comprised of representatives from member States and Provinces, make recommendations to the Service on matters regarding migratory game birds. Each Flyway Council has a Technical Committee that advises its respective Council on issues and provides recommendations regarding management activities. The Flyway Councils work with the Service and Canadian Wildlife Service to manage populations of Canada geese that occur in their geographic areas. There are large numbers of resident Canada geese in each Flyway, and accordingly, cooperative Flyway management plans have been developed to address these populations. Structurally, the plans are similar, and each plan presents an overall goal and associated objectives/strategies. A commonality among the goals is the need to balance the positive aspects of resident Canada geese with the conflicts they can cause. In broad terms, objectives identified by the flyway management plans to meet these goals fall into three categories: population objectives, harvest management, and nuisance control/damage relief (**Table I-4**). Flyway population objectives have been incorporated into the DEIS to help define its objectives for acceptable population reduction and management.

1. Atlantic Flyway

a. History

The original stock of pre-settlement resident Canada geese was extirpated following European arrival in North America. The present-day resident population was introduced and established during the early 20th century by birds released by private individuals in the early 1900's. The resident goose population in New York was among the first established, with free-flying birds reported in 1919 near a State game farm.

When the use of live decoys for hunting was prohibited in 1935, captive flocks of domesticated or semi-domesticated geese were released. From the 1950s to the 1980s, wildlife agencies in many Atlantic Flyway States were actively involved in relocation and stocking programs to establish resident populations, primarily in rural areas. These programs were highly successful and most were discontinued by 1990. The

Table I-4. Current resident Canada goose population estimates and population objectives on a Flyway basis.

Current Resident Canada Goose Population	Atlantic Flyway[a]	Mississippi Flyway[b]	Central Flyway[c]	Pacific Flyway
U.S	1,084,000	1,098,020	457,250	51,972[d]
Canada	37,000	166,250	628,300	81,700[d]
Total	1,121,000	1,264,270	1,085,550	133,672[d]
Resident Canada Goose Population Objective	**Atlantic Flyway[a]**	**Mississippi Flyway[b]**	**Central Flyway[c]**	**Pacific Flyway**
U.S	620,000	989,000	368,833 - 448,833	54,840 – 90,900[e]
Canada	30,000	180,000		35,750 – 56,250[e]
Total	650,000	1,169,000		90,590 – 147,150[e]

[a] Spring population estimates based on mean annual total estimates for 1997-99 or the best estimate of wildlife agency staff from States and Provinces in the Atlantic Flyway (Atlantic Flyway Technical Section 1999).

[b] Mississippi Flyway giant Canada goose spring population estimates (Mississippi Flyway Council Technical Section 1996). Population objective numbers are draft and are not final at this time (Giant Canada Goose Committee 2000).

[c] Based on spring populations of Great Plains, Western Prairie, Hi-Line, and Rocky Mountain Populations. Only U.S. States provided population objectives (Gabig 2000).

[d] Numbers for the Rocky Mountain Population of Western Canada geese (Subcommittee on Rocky Mountain Canada Geese 2000). While the cited report refers to numbers of breeding pairs or individual geese, the numbers shown here have been converted to numbers of individual geese.

[e] Lower end of the Pacific Flyway population objective for the Pacific Population of Western Canada geese derived from "Restriction Level" and upper end derived from "Liberalization Level" as shown in *Management Plan for the Pacific Population of Western Canada Geese* (Subcommittee on Pacific Population of Western Canada Geese 2000). While the cited report refers to numbers of pairs, nests and individual geese, the numbers shown here have been converted to numbers of individual geese.

first management plan for these birds was developed in 1989, when it became apparent that resident geese were contributing significantly to sport harvests and human/goose conflicts were increasing. Resident geese are now the most numerous goose population in the flyway, and in 1999 the Atlantic Flyway Council approved their Flyway management plan (Atlantic Flyway Council 1999).

b. Management Plan Goal

The goal of the Atlantic Flyway management plan (AFMP) is:

> "Manage resident Canada goose populations in the Atlantic Flyway to achieve an optimal balance between the positive values and conflicts associated with these birds." (Atlantic Flyway Council

1999).

c. Population Objectives

Within the AFMP, the Atlantic Flyway established a specific population objective of 650,000 resident Canada geese, according to the spring survey, with a further objective of reducing the population to this level by 2005. The overall population objective is further distributed throughout the Flyway at objective levels set by the States and Provinces within the Flyway. These levels were derived independently based on the States' respective management needs and capabilities (**Table I-5**). In some cases, these objectives are an approximation of population levels from an earlier time when problems were less severe. In other cases, objectives are calculated from what is professionally judged to be a more desirable or acceptable density of geese. For States and Provinces where resident geese have recently become established, management objectives are near current population levels. Further, unlike some traditional population objectives for waterfowl, the Flyway-established objectives for resident Canada geese represent an optimal population size, not a minimum number. However, it should be noted that this population size is only optimal in the sense that it is the Flyway States' best attempt to balance the many competing considerations of both consumptive and nonconsumptive users. The Atlantic Flyway Plan further states that population objectives presented in the plan may be revised periodically in response to changes in goose populations, damage levels, public input, or other factors (Atlantic Flyway Council 1999). Continued monitoring of the breeding population with spring surveys will be essential for tracking effectiveness of control measures and other management on resident goose populations. Several research topics that will aid population management are also suggested. These topics include development of population models to be used in stimulating development of new population-management options, and conducting basic research on population ecology with a focus on molt migrations of resident geese and implications to goose management.

d. Harvest Management

Maximizing opportunities for use and appreciation of resident Canada geese, consistent with population goals is the primary objective noted in the Flyway's management plan. The Flyway anticipates a two-pronged approach that would increase hunting opportunities while maintaining public appreciation of geese for a variety of scientific and aesthetic activities. Resident Canada geese annually provide a harvest opportunity in excess of 200,000 birds for approximately 70,000 hunters in the Atlantic Flyway States. Much of this opportunity occurs in areas not frequented by migrant Canada geese. However, because of increasing complexities in managing goose populations, the Flyway believes future harvest management will require more flexible regulations that allow desired harvests of resident geese to be reached while minimizing harvest on other Canada goose populations. Strong emphasis in the Plan is placed on fostering positive public attitudes towards geese and continuing a dialogue with the public about Canada goose management. The Flyway Plan recommends addressing the lack of information on the public's outlook about goose issues with a Flyway-wide survey that would be used to communicate more effectively with the public on resident Canada goose management issues. The Plan also identified the continuance of harvest monitoring as a high priority. Further, the Plan recommended the development of techniques to estimate proportions of resident geese in the harvest (to more effectively monitor harvest), and additional clarification of band-reporting rates with a reward-band study to monitor harvest, survival, and distribution.

Table I-5. Current spring population estimates and population objectives for resident Canada geese in States and Provinces of the Atlantic Flyway (Atlantic Flyway Council 1999).

State/Province	Population Estimate[a]	Population Objective
Connecticut	29,000	15,000
Delaware	6,000	1,000
Florida	<5,000	<5,000
Georgia	44,000	30,000
Maine	24,000	15,000
Maryland	74,000	30,000
Massachusetts	18,000	20,000
New Jersey	85,000	41,000
New Hampshire	21,000	~16,000
New York	137,000	85,000
North Carolina	97,000	<30,000
Pennsylvania	223,000	~100,000
Rhode Island	3,000	3,000
South Carolina	22,000	20,000
Vermont	8,000	5,000
Virginia	261,000	180,000
West Virginia	28,000	24,000
Total – U.S.	**1,084,000**	**620,000**
New Brunswick	6,000	6,000
Nova Scotia	2,000	2,000
Southeast Ontario	23,000	20,000
Prince Edward Island	2,000	2,000
South Quebec	5,000	0
Total – Canada	**37,000**	**30,000**
TOTAL - U.S. and Canada	**1,121,000**	**650,000**

[a] Mean annual estimate for 1997 – 1999 or best estimate of wildlife agency staff.

e. Nuisance Control and Damage Relief

The main objective for the Flyway is to permit a wide variety of effective and efficient options for damage relief and conflict resolution for problems associated with resident Canada geese. While the Flyway selects sport hunting as the primary option for controlling goose problems, it is not always practical, especially in urban areas. Thus, the Flyway believes an integrated approach that includes other control activities needs to be implemented. Further, the Flyway considers the current Federal permitting process inadequate for meeting the needs of landowners to reduce goose problems and strongly recommends that the Federal government establish a depredation order or conservation order that allows States and Provinces the flexibility to determine needs for controlling resident geese in their areas. However, within any new system, consideration should be given to protecting migrant Canada geese. The Flyway also recognizes the need to utilize other damage-control management techniques outside lethal control in an integrated approach to resolve human/goose conflicts and believes a directly related strategy will be to develop and distribute information on control programs to the public for use on private lands. The Plan also recommends research documenting the type and extent of goose damage and

evaluating the effects of control measures. To accomplish this, in part, the Flyway believes establishment of a system to monitor numbers and types of complaints will be an important component.

2. Mississippi Flyway

a. History

Early European settlers to the upper Midwest found numerous resident giant Canada geese (*B. c. maxima*). However, because of unregulated hunting, egg-collecting, and wetland destruction, resident Canada geese had disappeared from much of their historic range by the early 1920's and 1930's. Privately maintained flocks of captive Canada geese, kept for food and use as live decoys, subsequently provided a source for States seeking to reestablish resident populations. Efforts to establish small, free-flying, self-sustaining flocks of giant Canada geese began as early as the 1920's in Michigan and 1930's in Minnesota, Wisconsin, and Ontario. During the 1940's and 1950's, State and Federal agencies established giant Canada goose restoration programs in Manitoba, Minnesota, Missouri, Ohio, and Wisconsin. State wildlife agencies in Illinois, Indiana, Iowa, Louisiana, and Tennessee began restoration efforts in the 1960's, while at the same time a Federal effort to establish resident populations on national wildlife refuges in Alabama, Mississippi, and Tennessee was begun. In the 1970's and 1980's, State efforts to establish giant Canada goose populations commenced in Alabama, Arkansas, Kentucky, and Mississippi. Beyond these restoration efforts, management of giant Canada geese was given little consideration in the Mississippi Flyway in the 1960's and 1970's because numbers and harvest of this population were small compared to those of other goose populations and because giant Canada geese were not widely distributed. Resident Canada geese are now the most widespread and largest single population of Canada geese in the Mississippi Flyway. In 1996, the Mississippi Flyway Council approved a giant Canada goose management plan in an effort to develop a comprehensive approach to managing the population (Giant Canada Goose Committee 1996).

b. Management Plan Goal

The goal of the Flyway Management Plan (Plan) is:

> "To manage the population of giant Canada geese in the Mississippi Flyway at a level that provides maximum recreational opportunities consistent with social acceptability"(Giant Canada Goose Committee 1996).

c. Population Objectives

To meet the goal, the Plan establishes a population objective of approximately 1 million giant Canada geese, as measured by spring surveys, distributed in the Flyway in proportion to state and provincial objectives. The objective essentially is the sum of state and provincial objectives in the Flyway. However, the Plan recognizes that there are problems associated with the distribution of giant Canada geese in some states and provinces, and indicates that one of the major challenges for goose managers in the future will be to provide the recreational opportunities the public has grown accustomed to and, at the same time, modify population densities of giant Canada geese to minimize human/goose conflicts.

The Plan places a high priority on monitoring the population, and considerable progress has been made in establishing operational spring surveys in Flyway states and provinces since the Plan was developed in 1996. State/Provincial population objectives and spring-survey estimates are shown in **Table I-6**.

d. Harvest Management

The objective identified in the Plan for managing the harvest of giant Canada geese in the Flyway is to provide maximum harvest opportunity for giant Canada geese that is consistent with State/Provincial population objectives, the objectives for other Canada goose populations in the Flyway, and the control of over-abundant goose populations in areas with high human/goose conflicts. Giant Canada geese currently provide widespread harvest opportunities in a region where Canada goose management is becoming increasingly complex. Because of the intermixing of populations on migration and wintering areas and the differential status of the various populations, regulations frameworks developed to manage the harvest of other populations of Canada geese have limited flexibility for harvest of resident Canada geese.

Table I-6. 1999 spring population estimates (Giant Canada Goose Committee 2000) and population objectives for giant Canada geese in States and Provinces of the Mississippi Flyway.

State/Province	Population Estimate[a]	Population Objective
Alabama	12,000	20,000
Arkansas	20,000	4,000
Illinois	111,800	110,000
Indiana	88,966	80,000
Iowa	44,400	100,000
Kentucky	46,395	60,000
Louisiana	2,000	4,000
Michigan	269,298	200,000
Minnesota	210,200	178,000
Mississippi	20,000	20,000
Missouri	56,750	40,000
Ohio	84,208	60,000
Tennessee	53,077	45,000
Wisconsin	78,956	68,000
Total - U.S.	**1,098,050**	**989,000**
Manitoba	110,000	70,000
Ontario	56,250	110,000
Total - Canada	**166,250**	**180,000**
Total U.S. and Canada	**1,264,270**	**1,169,000**

[a] Population survey methods varied by state and province.

Strategies to achieve the harvest objective include (1) the development of more flexible hunting regulations and special seasons that will permit States and Provinces to achieve desired harvests of giant Canada geese while minimizing harvests of populations of concern, and (2) the development of adequate harvest-derivation procedures so that Canada goose harvest estimates for states and provinces can be accurately apportioned among the various Canada goose populations in the Flyway.

e. Nuisance Control and Damage Relief

The Plan acknowledges that the restoration of giant Canada geese is widely considered one of the greatest wildlife-management success stories of the 20th century. In some instances, however, the restoration programs were too successful and giant Canada geese have become overabundant in some areas. The Plan notes that controlling local populations of giant Canada geese where they create conflicts with humans is a main objective and that control programs should be at the discretion of State and Provincial wildlife agencies with the concurrence of the Federal government. While sport harvest is considered the primary method to control or reduce population levels, the Plan recognizes that it will not be appropriate in all situations and other control methods should be considered. To minimize confusion and streamline processes, the Plan recommends that Federal, State, and Provincial agencies work together to develop uniform plans that give States and Provinces greater flexibility in alleviating human/goose conflicts. The Plan recommends that any birds taken by lethal control measures be given to food-bank programs and that efforts be made to formulate guidelines for distribution. The Plan also emphasizes consideration of the welfare of other Canada goose populations when implementing a control program for giant Canada geese.

3. Central Flyway

a. History

Resident Canada goose populations in the Central Flyway were reduced in the late 19th and early 20th century because of unregulated hunting and commercial exploitation. Beginning in the late 1930's and continuing for the next 40 years, most States and Provinces in the Flyway established captive breeding flocks. Young produced by these flocks were released at breeding sites or transported to suitable habitat. During the period from 1967 to 1999, over 120,000 Canada geese were released as goslings from captive flocks or were trapped and transported to various locations within the Flyway. Essentially all the geese translocated in the 1990's were moved in response to problems the birds were causing in areas from which they were removed. As of 2000, all active restoration programs were scheduled to be terminated, although Saskatchewan and a number of States still move birds from nuisance areas. In 2000, the Central Flyway Council adopted a single plan addressing nuisance control management for the three distinct populations of large Canada geese (Hi-Line, Western Prairie, and Great Plains) in the Flyway.

b. Management Plan Goal

The goal of the Central Flyway management plan (CFMP) is:

> "Manage resident Canada geese in the Central Flyway to achieve maximum benefits from these birds while minimizing conflicts between geese and humans." (Gabig 2000).

c. Population Objectives

Unlike the Atlantic and Mississippi Flyways, the CFMP does not set a single population objective for all resident Canada geese because three distinct management populations of large Canada geese are present in the Flyway. Objectives were set by the Central Flyway in the management plans developed for the individual Canada goose populations based on the best knowledge and information provided by States and Provinces (**Table I-7**). Much of the information used to set population objectives were winter indices

Table I-7. Spring indices of the number of resident Canada geese and population objectives in the Central Flyway (Gabig 2000).

Area	1999 Spring Population	Population Objective
Great Plains Population		
Canada	43,000	
North Dakota	104,500	60,000 – 100,000
South Dakota	111,800	50,000
Nebraska	32,000	30,000 – 50,000
Kansas	30,000	37,500
Oklahoma	43,900	20,000 – 40,000
Texas	750	750
Total	365,950	
Western Prairie Population		
Canada	247,500	
Hi-Line Population		
Canada	212,100	
Montana	62,200	80,000
Wyoming	9,800	9,739
Colorado	14,500	12,500
New Mexico	1,700	5,300
Total	300,300	
Rocky Mountain Population		
Canada	125,700	
Montana	41,400	45,000
Wyoming	4,700	18,044
Total	171,800	

derived from coordinated winter surveys of Canada geese (Gabig 2000). Currently, all Central Flyway large Canada goose populations are above objective levels and one of the main strategies outlined in the CFMP is to maintain goose numbers at levels specified in the individual plans (Gabig 2000). The Flyway recognizes that population monitoring will be important for determining the effectiveness of control measures and recommends a number of strategies where monitoring techniques and/or information is lacking. Understanding the best way to make use of mark/recapture data to estimate population parameters, determining other methods to describe population size and production, and developing population models to assist in management decisions are considered important by the Flyway. Additionally, the Flyway was interested in exploring the efficacy of using Adaptive Resource Management for managing resident geese.

d. Harvest Management

A common objective found in the management plans for large Canada geese in the Central Flyway is to maximize recreational opportunity consistent with the welfare of goose populations, international treaties, and habitat constraints. Harvest and hunting regulations are an important component of this objective. Objective levels for liberal and restrictive harvest have been established by the Flyway for the individual goose populations. Because populations are above these levels, seasons are currently under liberal regulations. As resident goose populations increased and harvest was liberalized, the proportion of large Canada geese in the harvest increased as well. The Flyway monitors the annual harvest of resident geese by measuring tail fans obtained from hunters through the Parts Collection Survey operated by the Service. Biologists attain harvest estimates by separating large and small Canada geese using tail feather measurements. The Central Flyway recognizes that geese provide other recreational opportunities outside hunting. Gabig (2000) states that a main objective for managing large Canada geese is to ensure positive values associated with resident geese are maintained. To achieve this, the Flyway believes that retaining important viewing opportunities year round is an important strategy as well as sustaining harvest. Building public awareness about the extensive efforts to restore and manage geese in the Flyway and the economic and recreational opportunities geese provide is a high Flyway priority.

e. Nuisance Control and Damage Relief

Because Canada geese have shown great ability to adapt to human settings, a number of conflicts have arisen in the Flyway between humans and geese. Some of the problems were of major concern, especially those involving airports and agricultural depredation, but there was a general dichotomy among the public about the severity of the goose problem and the need for control. The Central Flyway Technical Committee (Gabig 2000) believes two steps are needed to handle resident Canada goose population control issues in the Flyway. The first objective is to implement control methods directed at solving goose-conflict problems and reducing goose populations in a socially and biologically acceptable, site-specific, and effective manner, which primarily deals with Federal, State, and Provincial planning and concerns. The second objective, which concerns public involvement, is to implement public education and cooperative programs that will maximize success of programs initiated under the first objective. To meet the education objective, the Flyway plans to survey the public about feelings and attitudes toward geese and control programs. Sport hunting is considered the Flyway's first choice to control geese but may be impractical in some circumstances and other methods should also be explored. To examine other methods and possible consequences from their implementation, the Flyway created an Action Matrix that specifically addressed social acceptance, cost issues, and projected effects to the goose populations and to the human/goose conflict being resolved (Gabig 2000). Thirteen potential goose control actions are reviewed in the matrix, which range from no action to issuing kill permits, and include development of a depredation order to increase State and Provincial authority and flexibility in goose control matters. The Flyway believes better cooperation is needed among all agencies involved with human/goose conflicts to make control efforts more effective and to increase public awareness. Finally, development of analytical procedures to more effectively analyze goose problems, formulate responses, and analyze results are a high Flyway priority.

4. Pacific Flyway

a. History

Pacific Flyway western Canada geese (*B. c. moffitti*) are currently recognized for management purposes as consisting of two populations, Pacific (PP) and Rocky Mountain (RMP). A large portion of the PP is nonmigratory, with many segments wintering on or near breeding areas, although more northern segments make annual migrations. Through natural pioneering and transplant programs, PP western Canada geese have expanded their historic distribution significantly over the past two decades. A number of State and Federal wildlife management areas continue programs to promote PP western Canada geese. Unlike PP geese, RMP Canada geese are primarily migratory, with geese undertaking spring and fall migrations between breeding and wintering areas (Subcommittee on Pacific Population of Western Canada Geese 2000). Declining goose populations during the early 1950's in the RMP range prompted special regulations restricting harvest on these birds in 1955. After harvest restrictions were implemented, States transplanted geese into unoccupied habitat and several national wildlife refuges and State wildlife management areas were established within the range of the RMP to target enhancement of this population. In response to increasing populations in the 1980's and 1990's, regulations were gradually liberalized. Efforts to enhance nesting opportunities for these geese decreased as the population improved and depredation problems increased (Subcommittee on Rocky Mountain Canada Geese 2000). Depredation problems have also occurred within the range of PP geese. To address depredation problems with both migrant and resident birds in northwest Oregon and southwest Washington, a Canada goose agricultural depredation control management plan was developed in 1998 (Pacific Flyway Council 1998).

b. Management Plan Goals

The goal of the Flyway management for PP geese is:

> "The goal of this management plan is to maintain PP western Canada geese at a level and distribution that will optimize recreational opportunity and minimize depredation and/or nuisance problems in agricultural and urban areas." (Subcommittee on Pacific Population of Western Canada Geese 2000),

and for RMP geese is:

> "The goal of this management plan is to maintain the Rocky Mountain population of western Canada geese at a level and distribution that optimizes recreational opportunity and reduces depredation and nuisance problems." (Subcommittee on Rocky Mountain Canada Geese 2000).

c. Population Objectives

The Pacific Flyway established separate population objectives for their two populations of western Canada geese. The RMP plan set a breeding population objective of 115,000 birds (**Table I-8**) whereas the PP plan listed population objectives separately for each State and Province (**Table I-9**). Both plans specify maintenance of current distributions as a primary objective. Concern is noted in both plans about difficulties in tracking population parameters as populations continue to grow and expand. The RMP plan recommends getting more information about northern molting and breeding areas and to identify areas

Table I-8. Current breeding population indices, objectives, and harvest management levels for the Rocky Mountain Population of Western Canada Geese (Subcommittee on Rocky Mountain Canada Geese 2000).

Area	Breeding Pair Index	Breeding Population Index	Breeding Population Index Objective	Restrictive Level[a]	Liberalization Level[b]
Southern Alberta[c]		81,700	60,000	45,000	75,000
Central Montana		27,600	30,000	15,000	28,000
Southeastern Idaho	2,520		5,540	4,160	7,940
Western Wyoming	4,860		12,000	9,000	15,000
Central Wyoming	3,256		6,050	4,550	7,560
Northwestern Colorado	190		460	340	560
Northern Utah	760		1,520	1,140	1,900
Southern Utah	120		240	200	300
Northeastern Nevada	310		700	520	900
Southern Nevada	100		220	160	260
Eastern Arizona		40	100	40	160
Northwestern New Mexico		100	200	150	250
Total	12,116	109,440	117,030	80,260	137,830

[a] When the 3-year average population index is below the Restriction Level, harvest restrictions should be considered.
[b] When the 3-year average population index is above the Liberalization Level, consideration should be given to increasing harvest rates.
[c] Numbers are provisional for Alberta and will be adjusted as new data becomes available.

Table I-9. Harvest management levels for the Pacific Population of Western Canada Geese (Subcommittee on Pacific Population of Western Canada Geese 2000).

Unit	Restriction Level[a]	Liberalization Level[b]
British Columbia	8,500 pairs	12,500 pairs
Alberta	18,750 geese	31,250 geese
Western Washington	800 nests	1,500 nests
Eastern Washington	1,300 nests	2,000 nests
Western Oregon	8,000 geese	14,000 geese
Eastern Oregon	36,000 geese	60,000 geese
California	1,000 pairs	1,250 pairs
Nevada	600 pairs	1,000 pairs
Southwest Idaho	1,000 pairs	1,500 pairs
Panhandle Idaho	120 nests	200 nests
Montana	1,200 geese	2,000 geese

[a] When the 3-year average population index is below the Restriction Level, harvest restrictions should be considered.
[b] When the 3-year average population index is above the Liberalization Level, consideration should be given to increasing harvest rates.

where different populations (e.g. RMP and Hi-Line) overlap or exchange. The PP plan also recognizes the need to improve coordinated surveys and increase banding efforts.

d. Harvest Management

Both Pacific Flyway management plans list provision of optimum hunting opportunities and viewing, educational, and scientific pursuits as primary objectives. RMP geese have become the most important component of goose harvest in interior Flyway States. Although hunter use-days have declined, harvest now exceeds 150,000 RMP birds annually. The RMP plan outlines basic guidelines for setting liberal, moderate, and restrictive seasons based on the most recent 3-year average of spring breeding-population indices. The Plan recommends restrictive seasons for indices of less than 82,300 birds, moderate seasons when the average falls between 82,300 and 119,800 birds, and liberal seasons when average indices exceed 119,800 birds. The Plan indicates special recognition should be given to hunting regulations in reference areas that supply geese to other portions of the Flyway. The Flyway recommended implementation of banding programs, harvest surveys, and other research to reliably estimate harvest within the RMP range where there is potential to mix with PP and Hi-Line populations.

Guidelines are established in the PP plan for harvest levels, by reference area. Inexact measures of the harvest are a problem in PP goose management and solutions like those in the RMP plan are recommended. Each Plan recognizes the importance of resident Canada geese for wildlife viewing on Federal refuges, State wildlife areas, and urban locations.

e. Nuisance Control and Damage Relief

As RMP and PP geese have increased, so have depredation concerns. Evaluation of depredation and nuisance issues and implementation of appropriate management actions are a primary objective in both Plans. In 1998, the Pacific Flyway Council issued a Depredation Policy Statement as part of the Northwest Oregon/Southwest Washington Agricultural Depredation Control Plan. The Depredation Control Plan was developed primarily to address problems associated with the increasing size of the migrant Canada goose population but deals with resident geese as well. The PP management plan references the Flyway Depredation Policy as the guide to managing agricultural depredation. One of the principles generated was to use public hunting as the preferred method for reducing agricultural depredation by game birds. The preference of the Depredation Policy to use sport hunting as the primary method to control depredation does not apply to urban geese. Therefore, it is recommended that agencies implement programs to assist landowners on agricultural and non-agricultural lands. APHIS/WS is authorized to assist landowners with goose complaints but funding has been minimal or nonexistent. The Flyway recommended finding stable sources of funding to maintain consistent assistance to landowners. Additionally, when developing a plan, the Flyway recommends kill permits be a part of the management scheme and should be evaluated based on local needs. Flyway policies should be evaluated on an annual basis and altered as needed. Within the RMP range, depredation and nuisance problems have remained minor and have been dealt with by local authorities on a case-by-case basis. One exception is southern Alberta where the problem continues to grow. Similar to the PP plan, the RMP Subcommittee recommends agencies implement programs that initiate management actions to assist landowners and that partnerships should be formulated with municipalities to address urban goose problems. Stable funding sources necessary to maintain such programs should be sought as well.

5. Relationship of Flyway Management Plans to the DEIS

Since the conception of flyway management in the 1930s by Frederick Lincoln (1935) and the Service's initiation of flyway management in 1948, flyways have served as the administrative units for waterfowl management. Likewise, the organization of States into flyway councils followed a logical progression in the development of flyway management (USDI 1988). Over the years, the history and function of the Councils has been well documented (see Hawkins et al. 1984) and their stature and influence have grown.

While the Service and the Councils initially focused attention on the establishment of hunting regulations, increased management capabilities have allowed this traditional relationship and role to expand. A natural progression of this relationship has led to the development of cooperatively developed management plans. These management plans have been developed for a wide variety of species and activities, and have been appropriate mechanisms to address national and international issues related to population goals and objectives, harvest considerations, and information needs.

The role of the DEIS is to act as an umbrella document for the management of resident Canada geese and to act as a comprehensive programmatic plan to guide and direct resident Canada goose population growth and management activities in the conterminous United States. In particular, the DEIS will evaluate the various alternative strategies to reduce, manage, and control resident Canada goose populations in the continental United States and to reduce related damages. Further, the objective of this DEIS and any ultimate proposal is to provide a regulatory mechanism that would allow State and local agencies, other Federal agencies, and groups and individuals to respond to damage complaints or damages by resident Canada geese. The means must be more effective than the current system; environmentally sound, cost-effective, flexible enough to meet the variety of management needs found throughout the flyways, should not threaten viable resident Canada goose populations as determined by each Flyway Council, and must be developed in accordance with the mission of the Service.

Formulating a national management strategy to reduce, manage, and control resident Canada goose populations in the continental United States and to reduce related damages is a complex problem and Flyway input is essential for incorporating regional differences and solutions. The DEIS emphasizes and synthesizes management recommendations from the Flyway plans that have national implications while maintaining Flyway autonomy for issues distinct to each.

As such, it should be remembered that the overall population objectives established by the Flyways were derived independently based on the States' respective management needs and capabilities, and in some cases, these objectives are an approximation of population levels from an earlier time when problems were less severe. In other cases, objectives are calculated from what is professionally judged to be a more desirable or acceptable density of geese. It should be further noted that these population size are only optimal in the sense that it is each Flyway's best attempt to balance the many competing considerations of both consumptive and nonconsumptive users and that population objectives should be periodically reviewed and/or revised in response to changes in goose populations, damage levels, public input, or other factors.

We also note that, as a whole, there are many points of similarity within the Flyway plans that can be used as elements of concordance. Improving surveys to better monitor population trends and harvest, increasing our ability to delineate population boundaries and breeding areas, establishing public

education programs about resident Canada goose issues, and prompting agencies to work cooperatively to solve problems are just a few of the common objectives.

F. SCOPING/PUBLIC PARTICIPATION

1. Background

On August 19, 1999, the Service, in cooperation with the Wildlife Services program of the United States Department of Agriculture, Animal and Plant Health Inspection Service, published a Notice of Intent to prepare an Environmental Impact Statement on resident Canada goose management (Federal Register 1999c) (**Appendix 6**). This action was in response to the growing numbers of Canada geese that nest and reside predominantly within the conterminous United States and the Service's desire to examine alternative strategies to control and manage resident Canada geese that either pose a threat to health and human safety or cause damage to personal and public property. The notice identified six preliminary alternatives:

No Action Alternative
Under the No Action Alternative, no additional regulatory methods or strategies would be authorized. We would continue the use of special hunting seasons, the issuance of depredation permits, and the issuance of special Canada goose permits. These permits would continue to be issued under existing regulations.

Increased Promotion of Non-lethal Control and Management
Under this alternative, we would actively promote the increased use of non-lethal management tools, such as habitat manipulation and management, harassment techniques, and trapping and relocation. While permits would continue to be issued under existing regulations, no additional regulatory methods or strategies would be introduced.

Nest and Egg Depredation Order
This alternative would provide a direct population control strategy for resident Canada goose breeding areas in the U.S. This alternative would establish a depredation order authorizing States to implement a program allowing the take of nests and eggs to stabilize resident Canada goose populations without threatening their long-term health. Monitoring and evaluation programs are in place, or would be required, to estimate population sizes and prevent populations from falling below either the lower management thresholds established by Flyway Councils, or individual State population objectives. Since the goal of this alternative would be to stabilize breeding populations, not direct reduction, no appreciable reduction in the numbers of adult Canada geese likely would occur.

Depredation Order for Health and Human Safety
This alternative would establish a depredation order authorizing States to establish and implement a program allowing the take of resident Canada goose adults, goslings, nests and eggs from populations posing threats to health and human safety. The intent of this alternative is to significantly reduce or stabilize resident Canada goose populations at areas such as airports, water supply reservoirs, swimming beaches, and other such areas, where there is a demonstrated threat to health and human safety, without threatening the population's long-term health. Monitoring and evaluation programs are in place, or would be required, to estimate population sizes and prevent populations from falling below either the

lower management thresholds established by Flyway Councils, or individual State population objectives. Under this alternative, some appreciable localized reductions in the numbers of adult geese could occur.

Conservation Order
This alternative would authorize direct population control strategies such as nest and egg destruction, gosling and adult trapping and culling programs, or other general population reduction strategies on resident Canada goose populations in the U.S. This alternative would establish a conservation order authorizing States to develop and implement a program allowing the take of geese posing threats to health and human safety and damaging personal and public property. The intent of this alternative is to significantly reduce or stabilize resident Canada goose populations at areas where conflicts are occurring without threatening the long-term health of the overall population. Monitoring and evaluation programs are in place, or would be required, to estimate population sizes and prevent populations from falling below either the lower management thresholds established by Flyway Councils, or individual State population objectives. State breeding populations would be monitored annually each spring to determine the maximum allowable take under the conservation order. Under this alternative, some appreciable localized reductions in the numbers of adult geese likely would occur and lesser overall population reductions could occur.

General Depredation Order
This alternative would authorize direct population control strategies such as nest and egg destruction, gosling and adult trapping and culling programs, or other general population reduction strategies on resident Canada goose populations in the U.S. This alternative would establish a depredation order allowing any authorized person to take geese posing threats to health and human safety and damaging personal and public property. The intent of this alternative is to significantly reduce resident Canada goose populations in areas where conflicts are occurring. Monitoring and evaluation programs are in place, or would be required, to estimate population sizes and prevent populations from falling below either the lower management thresholds established by Flyway Councils, or individual State population objectives. Under this alternative, some appreciable localized reductions in the numbers of adult geese likely would occur and lesser overall population reductions could occur.

In addition to describing the preliminary alternatives, the August 19 Notice reiterated that the primary purpose of the scoping process was to determine which management alternatives for the control of resident Canada goose populations would be analyzed in the DEIS. Public comment was solicited on each of the identified preliminary alternatives and other potential alternatives.

The notice also identified potentially affected resource areas and indicated that we would conduct an analysis of each area, by alternative, in the DEIS. Resource areas identified included:

(1) Resident Canada goose populations and their habitats
(2) Human health and safety
(3) Public and private property damage and conflicts
(4) Sport hunting opportunities
(5) Socioeconomic effects

Public comment was solicited on other potentially affected resource areas.

2. Public Scoping Meetings

A notice was published on December 30, 1999, identifying nine public scoping meeting locations (Federal Register 1999d) (**Appendix 7**). The meetings were held on the following dates at the indicated locations and times:

1. February 8, 2000; Nashville, Tennessee, at the Ellington Agricultural Center, Ed Jones Auditorium, 440 Hogan Road, 7 p.m.
2. February 9, 2000; Parsippany, New Jersey, at the Holiday Inn, 707 Route 46 East, 7 p.m.
3. February 10, 2000; Danbury, Connecticut, at the Holiday Inn, 80 Newtown Road, 7 p.m.
4. February 15, 2000; Palatine, Illinois, at the Holiday Inn Express, 1550 East Dundee Road, 7 p.m.
5. February 17, 2000; Bellevue, Washington, at the DoubleTree Hotel, 300 - 112th Avenue S.E., 7 p.m.
6. February 22, 2000; Bloomington, Minnesota, at the Minnesota Valley National Wildlife Refuge Visitors Center, 3815 East 80th Street, 7 p.m.
7. February 23, 2000; Brookings, South Dakota, at South Dakota State University, Northern Plains Biostress Laboratory, Room 103, Junction of North Campus and Rotunda Lane, Brookings Inn, 2500 Sixth Street, 7 p.m.
8. February 28, 2000; Richmond, Virginia, at the Virginia Department of Game and Inland Fisheries Headquarters, Board Room, 4000 West Broad Street, 7 p.m.
9. March 1, 2000; Denver, Colorado, at the Colorado Department of Wildlife, Northeast Region Service Center, Hunter Education Building, 6060 Broadway, 7 p.m.

At the scoping meetings, we accepted oral and/or written comments. All who wished to present comments were permitted to do so. Over 1,250 people attended the nine public scoping sessions.

3. Written Comments

Public comments were accepted from the opening of the comment period on August 19, 1999, until March 30, 2000. Over 3,000 comments, including approximately 1,500 electronic comments, were received. Analysis of the comments were separated into seven major groups: private individuals, businesses, non-governmental groups (NGOs), local government agencies and associations, Federal agencies, State agencies, and Flyway Councils and Canadian interests. A complete discussion of comments is contained in a separate report Scoping/Public Participation Report for Environmental Impact Statement on Resident Canada Goose Management (**Appendix 8**). All comments were considered in the development of the DEIS.

II. ALTERNATIVES, INCLUDING THE PROPOSED ACTION

A. DESCRIPTION OF GOOSE MANAGEMENT TECHNIQUES

The selection and successful implementation of an effective goose damage management strategy depends on many factors. The time of year, the geographic characteristics of the site, the cost-effectiveness of techniques, laws and regulations, and public acceptance are just a few of the factors affecting the overall success of any damage management program. Thus, before any management is undertaken, the responsible parties, regardless of whether they are a Federal, State, or local agency, or a private individual, must consider and weigh each of these factors.

Wildlife Services is the Federal agency with authority for dealing with wildlife damage complaints. As such, their expertise in wildlife damage management assessment and resolution is recognized by most wildlife professionals. Generally, the most effective approach to resolving wildlife damage problems is to utilize several methods, either simultaneously or sequentially. Wildlife Services's Integrated Wildlife Damage Management (IWDM) integrates and applies practical and proven methods of prevention and reduction of wildlife damage while minimizing negative impacts on humans, other species, and the environment. IWDM incorporates consideration of resource management, physical exclusion and deterrents, and localized population management, or any combination of these, depending on the characteristics of specific damage problems.

In selecting management techniques for specific damage situations, consideration is given to the responsible wildlife species and the magnitude, geographic extent, duration and frequency, and likelihood of wildlife damage or conflict. Consideration is also given to the status of target and potential non-target species, local environmental conditions and impacts, social and legal aspects, and relative costs of damage-reduction options. The cost of damage reduction may sometimes be a secondary concern because of the overriding environmental, legal, and animal-welfare considerations.

A variety of methods are potentially available regarding the management of damage from resident Canada geese. Wildlife Services develops and recommends or implements IWDM strategies based on resource management, physical exclusion and wildlife management approaches. Within each approach there may be available a number of specific methods or tactics.

Various Federal, State, and local statutes and regulations and Wildlife Services directives govern Wildlife Services use of damage management tools. The following methods and materials are considered, recommended or used in technical assistance and direct damage management efforts of the Wildlife Services program. A more detailed discussion of most of these techniques is contained in Smith et al. (1999).

1. Resource Management

Resource management includes a variety of practices that may be used by resource owners to reduce the potential for wildlife damage. Implementation of these practices is appropriate when the potential for damage can be reduced without significantly increasing a resource owner's costs or diminishing his/her ability to manage resources pursuant to goals. Resource management recommendations are made through Wildlife Services technical assistance efforts.

Habitat Alteration: Habitat alteration can be the planting of vegetation unpalatable to wildlife or altering the physical habitat (Conover and Kania 1991, Conover 1992). Conover (1991a, 1991b) found that even hungry Canada geese refused to eat some ground covers such as common periwinkle (*Vinca minor*), English ivy (*Hedera helix*) and Japanese pachysandra (*Pachysandra terminalis*). Planting less preferred plants or grasses to discourage geese from a specific area could work more effectively if good alternative feeding sites are nearby (Conover 1985). However, the manipulation of turf grass varieties in urban/suburban, heavy use situations such as parks, athletic fields and golf courses is often not feasible.

Fences, hedges, shrubs, boulders, etc. can be placed at shorelines to impede goose movements. Restricting a goose's ability to move between water and land will deter geese from an area, especially during molts (Gosser et al. 1997). However, people are often reluctant to make appropriate landscape modifications to discourage goose activity (Breault and McKelvey 1991, Conover and Kania 1991). Both humans and geese appear to find lawn areas near water attractive (Addison and Amernic 1983, Cooper[a] In Press), and conflicts between humans and geese likely will continue wherever this interface occurs.

Removal of water bodies would likely reduce the attractiveness of an area to waterfowl. Urban/suburban Canada geese tend to feed near bodies of water with good visibility over short grass (Conover and Kania 1991). Draining/removal of water bodies is considered unreasonable and aesthetically unacceptable. The draining of wetlands is strictly regulated and must be permitted by the U.S. Army Corps of Engineers and some State agencies.

Lure Crops: Lure crops are food resources planted to attract wildlife away from more valuable resources (e.g., agricultural crops). This method is largely ineffective for urban resident Canada geese since food resources (turf) are readily available in urban landscapes. For lure crops to be effective, the ability to keep birds from surrounding habitats and fields would be necessary, and the number of alternative feeding sites must be minimal (Fairaizl and Pfeifer 1988). Additionally, lure crops reduce damage for only discrete periods of time (Fairaizl and Pfeifer 1988) and potential damage by resident Canada geese is generally throughout the year. Furthermore, the resource owner is limited in implementing this method contingent upon ownership of, or otherwise ability to manage the property. Finally, unless the original waterfowl-human conflict is resolved, creation of additional waterfowl habitat could increase future conflicts in the long-term.

Modify Human Behavior: Food provided by people attracts and sustains more waterfowl in an area than could be supported by natural food supplies. This unnatural food source exacerbates damage by resident geese and should be eliminated. The elimination of feeding of waterfowl is a primary recommendation made by Wildlife Services, the Service, and State wildlife agencies, and many local municipalities have adopted policies prohibiting it. Some parks have posted signs, and there have been efforts made to educate the public on the negative aspects of feeding waterfowl. However, many people do not comply, and the policies are poorly enforced in some areas.

Alternatively, some entities encourage/permit the feeding of geese because the goose population in the location has not exceeded their wildlife acceptance capacity. It is unlikely that the feeding of geese in these locations would significantly contribute to conflicts with geese in other communities or locations.

Alter Aircraft Flight Patterns: In cases where the presence of waterfowl at airports results in threats to air traveler safety and when such problems cannot be resolved by other means, the alteration of aircraft

flight patterns or schedules may be recommended. However, altering standard operations at airports to decrease the potential for hazards is not feasible unless an emergency situation exists. Otherwise, the expense of interrupted flights and the limitations of existing facilities make this practice prohibitive.

Removal of Domestic Waterfowl: Flocks of urban waterfowl are known to act as "decoys" and attract migrating waterfowl (Crisley et al. 1968, Woronecki 1992, AAWV undated). Rabenold (1987) and Avery (1994) reported that birds learn to locate food resources by watching the behavior of other birds. The removal of domestic waterfowl from ponds removes birds that act as "decoys" in attracting Canada geese. Domestic and feral geese could also carry diseases which threaten wild populations (AAWV undated). Resource owners may be reluctant to remove some or all decoy birds because of the enjoyment of their presence.

2. Physical Exclusion and Deterrents

Physical exclusion and deterrents restrict the access of wildlife to resources and/or alter behavior of target animals to reduce damage. These methods provide a means of appropriate and effective prevention of resident Canada goose damage in many situations. No Federal migratory bird permits are needed for nonlethal aggressive harassment activities to harass geese out of an area. However, we note that some States have regulations which prohibit harassment of geese and other wildlife.

Electric Fence: The application of electrified fencing is generally limited to rural settings due to possible accidental interactions with people and pets. This practice has been used to keep geese enclosed within wetland complexes, and to exclude them from adjacent agricultural fields susceptible to goose damage during certain times of the year. The efficiency of electrical fencing can vary with the number of multiple landowners along the wetland, and the size of the agricultural field and its proximity to wetlands inhabited by resident geese. While electric fencing may be effective in repelling geese in some urban settings, its use can be prohibited in municipalities for human safety reasons. Problems that typically reduce the effectiveness of electric fences include; vegetation on fence, flight capable geese, fencing knocked down by other animals (e.g., white-tailed deer and dogs), time of year (seasonally effective) and inadequate electrical power.

Barrier Fence: The construction or placement of physical barriers has limited application for resident geese. Barriers can be temporary or permanent structures. Lawn furniture/ornaments, vehicles, boats, snow fencing, plastic hazard fencing, metal wire fencing, and multiple strand fencing have all been used to limit the movement of resident geese. Reports from cases in Minnesota indicate that permanent barriers were perceived to be highly effective, while temporary barriers were moderately effective (Cooper and Keefe 1997). The application of this method is limited to areas that can be completely enclosed and do not allow geese to land inside enclosures. Similar to most abatement techniques, this method has been most effective when dealing with small numbers of breeding geese and their flightless goslings along wetlands and/or waterways. Unfortunately, there have been situations where barrier fencing designed to inhibit goose nesting has entrapped goslings and resulted in starvation (Cooper 1998).

The preference for geese to walk or swim, rather than fly, during brood raising and molting contributes to the success of barrier fences. Geese that are capable of full or partial flight render this method useless, except for enclosed areas small enough to prevent landing. However, site-specific habitat alterations have merit, provided that landscape designs are based on biological diversity and human safety

objectives (Cooper, In Press).

Surface Coverings: Canada geese may be excluded from ponds using overhead wire grids (Fairaizl 1992, Lowney 1993). Overhead wire grids have been demonstrated to be most applicable on ponds ≤ two acres, but wire grids may be considered unsightly or aesthetically unappealing to some people. Wire grids render a pond unusable for boating, swimming, fishing, and other recreational activities. Installation costs are about $1,000 per surface acre for materials. The expense of maintaining wire grids may be prohibitive for some people.

Floating plastic balls approximately five inches in diameter can be used to cover the surface of a pond. A "ball blanket" renders a pond unusable for boating, swimming, fishing, and other recreational activities. This method is very expensive, costing about $131,000 per surface acre of water.

Visual Deterrents: Reflective tape has been used successfully to repel some birds from crops when spaced at three to five meter intervals (Bruggers et al. 1986, Dolbeer et al. 1986). Mylar flagging has been reported effective at reducing migrant Canada goose damage to crops (Heinrich and Craven 1990). Conversely, other studies have shown reflective tape ineffective (Tobin et al. 1988, Bruggers et al. 1986, Dolbeer et al. 1986, Conover and Dolbeer 1989). While sometimes effective for short periods of time, reflective tape has proven mostly ineffective in deterring resident geese. Flagging is impractical in many locations and has met with some local resistance due to the negative aesthetic appearance presented on the properties where it is used.

Mason et al. (1993) and Mason and Clark (1994) have shown white and black plastic flags to be effective at repelling snow geese from pastures when alternative grazing areas were available. However, some farmers in Wisconsin have reported that black plastic flags can actually attract geese to a location (R. Christian, Wisconsin APHIS/WS, April, 2000, pers. comm. as cited in USDA 2000).

Mute Swans: Mute swans are ineffective at preventing Canada geese from using or nesting on ponds (Conover and Kania 1994). Additionally, swans can be aggressive towards humans (Conover and Kania 1994, Chasko 1986) and may have undesirable effects on native aquatic vegetation (Allin et al. 1987, Chasko 1986). Furthermore, Executive Order 11987 May 24, 1977, states that federal agencies shall encourage states, local governments, and private citizens to prevent the introduction of exotic species into the environment. Mute swans are classified as an exotic species.

Dogs: Dogs can be effective at harassing geese and keeping them off turf and beaches (Conover and Chasko 1985, Woodruff and Green 1995). Around water, this technique appears most effective when the body of water to be patrolled is less than two acres in size (Swift 1998). Although dogs can be effective in keeping geese off individual properties, they do not contribute to a solution for the larger problem of overabundant goose populations (Castelli and Sleggs 1998). Swift (1998) reported that when harassment with dogs ceases, the number of geese return to pre-treatment numbers. Wildlife Services has recommended and encouraged the use of dogs where appropriate. Permits may be required.

Repellents: Methyl anthranilate (MA) is a registered repellent for Canada geese marketed under the trade names ReJeX-iT and Bird Shield. Results with MA appear mixed. Cummings et al. (1995) reported that MA repelled Canada geese from grazing turf for four days. However, Belant et al. (1996) found it ineffective as a grazing repellent when applied at 22.6 and 67.8 kg/ha which is the label rate and triple the label rate, respectively. MA is water soluble, therefore moderate to heavy rain or daily

watering and/or mowing render MA ineffective. Permits may be required to use chemical repellents for goose damage management in some States.

Research continues on other avian feeding repellents. A 50% anthraquinone product (FlightControl), shows promise for Canada geese (Dolbeer et al. 1998). Like MA, anthraquinone has low toxicity to birds and mammals. Activated charcoal has also been evaluated for use in deterring goose damage, but it requires frequent re-application to be effective (Mason and Clark 1995). Further, laboratory and field trials are needed to refine minimum repellent levels and to enhance retention of treated vegetation (Sinnott 1998).

Hazing: Hazing reduces losses in those instances when the affected geese relocate to a more acceptable area. Achieving that end has become more difficult as local goose populations have increased. Birds hazed from one area where they are causing damage, frequently move to another area where they cause damage (Brough 1969, Conover 1984, Summers 1985, Swift 1998). Smith et al. (1999) noted that others have reported similar results, stating: "...biologists are finding that some techniques (e.g., habitat modifications or scare devices) that were effective for low to moderate population levels tend to fail as flock sizes increase and geese become more accustomed to human activity". In most instances, birds tend to habituate to hazing techniques (Zucchi and Bergman 1975, Blokpoel 1976, Summers 1985, Aubin 1990).

Scarecrows: The use of scarecrows has had mixed results. Effigies depicting alligators, humans, floating swans and dead geese have been employed, with limited success for short time periods in small areas. An integrated approach (swan and predator effigies, distress calls and non-lethal chemical repellents) was found to be ineffective at scaring or repelling nuisance Canada geese (Conover and Chasko 1985). While Heinrich and Craven (1990) reported that using scarecrows reduced migrant Canada goose use of agricultural fields in rural areas, their effectiveness in scaring geese from suburban/urban areas is severely limited because resident geese are not afraid of humans as a result of nearly constant contact with people. In general, scarecrows are most effective when they are moved frequently, alternated with other methods, and are well maintained. However, scarecrows tend to lose effectiveness over time and become less effective as goose populations increase (Smith et al. 1999).

Distress Calls: Aguilera et al. (1991) found distress calls ineffective in causing either migratory or resident geese to abandon a pond. Although, Mott and Timbrook (1988) reported distress calls as effective at repelling resident Canada geese 100 meters from the distress unit, the geese would return shortly after the calls stopped. The repellency effect was enhanced when pyrotechnics were used with the distress calls. In some situations, the level of volume required for this method to be effective in urban/suburban areas would be prohibited by local noise ordinances. A similar device, which electronically generates sound, has proven ineffective at repelling migrant Canada geese (Heinrich and Craven 1990).

Pyrotechnics: Pyrotechnics (screamer shells, bird bombs, and 12-gauge cracker shells) have been used to repel many species of birds (Booth 1994). Aguilera et al. (1991) found 15mm screamer shells effective at reducing both resident and migrant Canada geese use of areas of Colorado. However, Mott and Timbrook (1988) and Aguilera et al. (1991) doubted the efficacy of harassment and believed that moving the geese simply redistributed the problem to other locations.

Fairaizl (1992) and Conomy et al. (1998) found the effectiveness of pyrotechnics highly variable among

flocks of waterfowl. Some flocks in urban areas required continuous day long harassment with frequent discharges of pyrotechnics. The geese usually returned within hours. A minority of resident Canada goose flocks in Virginia showed no response to pyrotechnics (Fairaizl 1992). Some flocks of Canada geese in Virginia have shown quick response to pyrotechnics during winter months, suggesting that migrant geese made up some or all of the flock (Fairaizl 1992). Shultz et al. (1988) reported fidelity of resident Canada geese to feeding and resting areas is strong, even when heavy hunting pressure is ongoing. Mott and Timbrook (1988) concluded that the efficacy of harassment with pyrotechnics is partially dependent on availability of alternative loafing and feeding areas. Although one of the more effective methods of frightening geese away, more often than not they simply move geese to other areas. There are also safety and legal implications regarding their use. Discharge of pyrotechnics is inappropriate and prohibited in some urban/suburban areas. Pyrotechnic projectiles can start fires, ricochet off buildings, pose traffic hazards, trigger dogs to bark incessantly, and annoy and possibly injure people.

Propane Cannons: Propane cannons are generally inappropriate for urban/suburban areas due to the repeated loud explosions, which many people would consider a serious and unacceptable nuisance. Although a propane cannon can be an effective dispersal tool for migrant geese in agricultural settings, resident geese in urban areas are more tolerant of noise and habituate to propane cannons in a relatively short period of time.

3. Population Management

Methods of managing the local population density include relocation, contraception, egg destruction, capture with oral hyphotics, toxicants, hunting, depredation permits, capture and process for human consumption.

Relocation: Relocating Canada geese can have mixed results. Cooper and Keefe (1997) found the rate of return of relocated geese to the capture sites was lowest for immatures and highest for adults. They reported 0–4 percent of relocated juveniles returned to capture sites and 42 - 80 percent of relocated adults returned to capture sites. Fairaizl (1992) found 19 percent of relocated juveniles returned to the capture area. Smith (1996) reported that the relocation of groups of juvenile geese from urban to rural settings can effectively eliminate geese from urban areas, help retain geese at the release site, expose them to the sport harvest, and increase the natural mortality. Smith (1996) also reported that multiple survival models indicated that survival estimates of relocated juveniles were half of those of urban captured and released birds.

Ultimately, the relocation of resident Canada geese from urban habitats can assist in the reduction of overabundant populations (Cooper and Keefe 1997), and has been accepted by the general public as a method of reducing goose populations to socially acceptable levels (Fairaizl 1992). In addition, the removal of geese posing or likely to pose a hazard to air safety at airports has been demonstrated to reduce the population of local geese and decrease the number of goose flights through the airport operations airspace, and has resulted in increased air safety at the Minneapolis-St. Paul International Airport (Cooper 1991).

Relocation of resident geese has the potential to spread disease into populations of other waterfowl, including migrants. The AAWV (undated) "..discourages the practice of relocating nuisance or excess urban ducks, geese and swans to other parks or wildlife areas as a means of local population control."

The Wisconsin Department of Natural Resources contacted wildlife management agencies of 49 States (excluding Hawaii) to determine if they were interested in obtaining resident Canada geese from Wisconsin. Responses indicated that no States were willing to accept geese from Wisconsin (J. Bergquist, personal communication as cited in USDA 2000). The Wisconsin Department of Natural Resources determined that a limited number of juvenile resident Canada geese may be relocated to designated sites within the state. The relocations would not be a population restoration effort, but rather would be allowed to alleviate nuisance situations and to provide additional hunting opportunities in the release areas.

Contraception: Contraceptives have not proven to be an effective long-term solution to controlling populations and reducing damage, and there are no contraceptive drugs registered with the FDA for Canada geese. Although Canada geese have been successfully vasectomized to reduce or prevent gosling production, this method can only prevent the production by a mated pair and is ineffective if the female forms a bond with a different male. In addition, the ability to identify breeding pairs for isolation and to capture a male goose for vasectomization becomes increasingly difficult as the number of geese increases (Converse and Kennelly 1994). Canada geese have a long life span once they survive their first year (Cramp and Simmons 1977, Allan et al. 1995); leg-band recovery data indicate that some geese live longer than 20 years. Thus, the sterilization of resident Canada geese would not reduce the damage caused by the current overabundance of the goose population since the population of Canada geese would remain relatively stable. Keefe (1996) estimated sterilization to cost over $100 per goose (see section **II.D.1. Use of Birth Control** for further discussion).

Egg Destruction: Addling, oiling, freezing, replacement, or puncturing of eggs can be effective in reducing annual recruitment into the local population (Christens et al. 1995, Cummings et al. 1997). While egg removal/destruction can reduce production of goslings, merely destroying an egg does not reduce a population as quickly as removing immature or breeding adults (Cooper and Keefe 1997). As with other species of long-lived geese, which require high adult mortality to reduce populations (Rockwell et. al 1997), it is likely that adult resident Canada geese must be removed to reduce the population to a level deemed acceptable to communities. Approximately five eggs must be removed to have the effect of preventing one adult from joining the breeding population (Rockwell et al. 1997, Schmutz et al. 1997). Keefe (1996) estimated egg destruction to cost $40 for the equivalent of removing one adult goose from the population. In addition, nest destruction is estimated to cost significantly more than other forms of population management (Cooper and Keefe 1997). Egg destruction, while a valuable tool, has fallen short as a single method for reducing local goose populations. Many nests cannot be found by resource managers in typical urban settings due to the difficulties in gaining access to search the hundreds of private properties where nests may occur. In addition, geese which have eggs oiled in successive years may learn to nest away from the water making it more difficult to find nests. Furthermore, any effective egg destruction program must consider possible renesting by geese within a particular year and the need for multiple years of treatment. If the eggs are destroyed improperly or too early in the breeding season, the possibility of renesting increases and implementation of a one-year or intermittent egg destruction program does little to curb population growth rates over the long-term.

Capture With Alpha Chlorolose: Alpha Chlorolose may be used only by Wildlife Services personnel to capture waterfowl. Pursuant to FDA restrictions, waterfowl captured with Alpha Chlorolose for subsequent euthanasia must be killed and buried or incinerated, or be held alive for at least 30 days, at which time the birds may be killed and processed for human consumption.

Toxicants: All pesticides are regulated by the EPA. There are currently no toxicants registered with the EPA for use on Canada geese.

Hunting and Depredation Permits: Wildlife Services sometimes recommends that resource owners consider legal hunting as an option for reducing goose damage. Although legal hunting is impractical and/or prohibited in many urban/suburban areas, it can be used to reduce some populations of resident Canada geese. Legal hunting also reinforces harassment programs (Kadlec 1968). Zielske et al. (1993) believed legal hunting would not reduce Canada goose populations where there is limited interest in hunting resident Canada geese.

Shooting: "Shooting" is the practice of selectively removing target birds by shooting with a firearm. Shooting a few individuals from a larger flock can reinforce birds' fear of harassment techniques. Shooting is used to reduce goose problems when other lethal methods are determined to be appropriate. The birds are killed as quickly and humanely as possible.

Capture with Option to Process for Human Consumption: The most efficient way to reduce the size of an urban flock is to increase mortality among adult geese. Nationwide, hunting is the major cause of goose mortality, but in an urban environment geese may seldom be available to hunters (Conover and Chasko 1985, Smith et al. 1999). For purposes of lethal control, resident geese are usually captured with rocket nets, drive traps, net guns, dip nets, and/or by hand. Rocket netting involves the setting of bait in an area that can be completely contained within the dimensions of a fully-deployed propelled net. Rocket nets are launched too quickly for the geese to escape. Rocket netting may take place anytime during the year.

The molt process, which renders Canada geese flightless, occurs during a short period in the summer. Migrant Canada geese are not present in the conterminous U.S. during the summer months, nor do they cause many of the conflicts in urban/suburban locations. Therefore, to target resident Canada geese for human consumption, capture would be restricted to the summer period (Wildlife Services may conduct activities at any time, as appropriate). Resident Canada geese captured during this period may be processed for human consumption and donated to charitable organizations.

It is estimated to cost $18-25 per goose for capture and processing for human consumption (Keefe 1996, Cooper and Keefe 1997). In most cases, these costs do not include the costs of holding and conditioning for processing.

The advantages of lethal damage management by Wildlife Services are that it would be applied directly to the problem population, its effects are obvious and immediate, and it carries no risk that the geese will return or move and create conflicts elsewhere. The primary disadvantage is that it is sometimes more socially controversial than other techniques. The use of lethal methods to reduce Canada goose damage can be very effective at alleviating damage and is more economical in this regard when compared to non-lethal methods (Cooper and Keefe 1997). Additionally, capture and removal of Canada geese is the most cost-effective lethal method to reduce damage, except for hunting (Cooper and Keefe 1997). Moreover, the use of lethal methods has longer effectiveness than non-lethal methods because it can take months to years before the original local population level of Canada geese returned. Lethal methods would also reduce conflict among resource owners, whereas non-lethal actions only move the Canada geese among resource owners (i.e., spread the damage) (Cooper and Keefe 1997, Smith et al. 1999), and possibly leave resource owners with the fewest financial means burdened with the Canada geese and the

damage.

B. PRINCIPAL ALTERNATIVE ACTIONS

We evaluated seven principal alternatives for strategies to control and manage resident Canada geese that either pose a threat to health and human safety or cause damage to personal and public property, agriculture, and natural resources. These alternatives were developed and further refined as a result of the public scoping process. Some of the alternatives are contain some or all of the elements of other alternatives or consist of combinations of other alternatives. We note that none of these alternatives authorize any entry onto private property without permission.

Further, all resident Canada geese taken under the various alternatives, *except those taken under expanded hunting methods* (Alternative D and the conservation order provisions of Alternative F) must be properly disposed of or utilized. Canada geese killed under these alternatives may be donated to public museums or public scientific and educational institutions for exhibition, scientific, or educational purposes, or charities for human consumption. Geese may also be buried or incinerated. No Canada geese taken under these alternatives, nor their plumage, may be sold, offered for sale, bartered, or shipped for purpose of sale or barter.

1. Alternative A - No Action

Under the No Action Alternative, the status quo would be maintained. All methods of nonlethal harassment would continue to be allowed as it is currently under Federal regulations. No additional regulatory methods or strategies would be authorized. We would continue the use of special and regular hunting seasons, issued under 50 CFR §20, and the issuance of depredation permits and special Canada goose permits, issued under 50 CFR §§21.41 and 21.26, respectively. Those conflicts not eligible for inclusion under the special Canada goose permit would continue to be dealt with on a case-by-case basis, requiring a separate Federal permit for every locality and occurrence within a State for implementation of any form of currently regulated management or control measure. All permits would continue to be issued by Regional Offices of the Service.

2. Alternative B - Nonlethal Control and Management (Non-permitted activities)

This is a nonlethal management alternative with no permitting. Under this alternative, the Service and Wildlife Services would actively promote (i.e., either provide staffing and/or funding) the use of non-lethal management tools, such as habitat manipulation and management and goose harassment techniques, and cease the issuance of all Federal permits for the management and control of resident Canada geese. Only those management techniques not currently requiring a Federal permit would be continued under this alternative and anyone could use these techniques where they are permitted by State law or regulation. Management activities such as trapping and relocation of geese or egg addling would not be allowed or permitted since all permit issuance would cease under this alternative, and we would not issue permits under existing regulations allowing the take of either goslings or adults. Additionally, special hunting seasons primarily directed at resident Canada geese would be discontinued. This alternative would require either the establishment of new positions, additional funding, reallocation of existing activities, or some combination of the above.

3. Alternative C - Nonlethal Control and Management (including Permitted activities)

This is a nonlethal management alternative with permitting for those activities generally considered nonlethal. Under this alternative, the Service and Wildlife Services would actively promote (i.e., either provide staffing and/or funding) the use of non-lethal management tools, such as habitat manipulation and management and goose harassment techniques and anyone could use these techniques where they are permitted by State law or regulation.. Management activities such as trapping and relocation of geese or egg addling would be allowed with a Federal permit. However, we would not issue permits under existing regulations, including the Special Canada goose permit, allowing the take of either goslings or adults. Special hunting seasons primarily targeted at resident Canada geese would be continued. This alternative would require either the establishment of new positions, additional funding, reallocation of existing activities, or some combination of the above.

4. Alternative D - Expanded Hunting Methods and Opportunities

This alternative would provide new regulatory options to State wildlife management agencies to potentially increase the harvest of resident Canada geese above that which results from existing special Canada goose seasons that target resident Canada geese. This approach would authorize the use of additional hunting methods such as electronic calls, unplugged shotguns, and expanded shooting hours (one-half hour after sunset). During existing, operational, special September Canada goose seasons (i.e., September 1-15), these additional hunting methods would be available for use on an operational basis. Utilization of these additional hunting methods during any new special seasons or other existing, operational special seasons (i.e., September 15 -30) would be experimental and require demonstration of a minimal impact to migrant Canada goose populations. These experimental seasons would be authorized on a case-by-case basis through the normal migratory bird hunting regulatory process.

All expanded hunting methods and opportunities would be in accordance with the existing Migratory Bird Treaty frameworks for sport hunting seasons (i.e, 107 day limit from September 1 to March 10) and would be conducted outside of any other open waterfowl season (i.e., when *all other waterfowl and crane hunting seasons were closed*). In addition, we would continue the issuance of depredation permits and special Canada goose permits, issued under 50 CFR §§21.41 and 21.26, respectively. Annual spring breeding population monitoring would be required in participating States to assess population status and provide for the long-term conservation of the resource if existing programs are not adequate. Since Federal harvest surveys are already in place, no additional harvest reporting by the States would be required.

5. Alternative E - Integrated Depredation Order Management

Under this alternative, any one or all of the strategies (Depredation Orders) listed below could be implemented by the applicable party (in most cases, the State wildlife management agency) if the State elects to participate in the program. The Orders would allow management activities for resident Canada goose populations only and, as such, in order to ensure protection of migrant Canada goose populations, could only be implemented between April 1 and August 31, except for the Nest and Egg Depredation Order which would allow the additional take of nests and eggs in March. In addition to these specific strategies, we would continue the use of special and regular hunting seasons, issued under 50 CFR §20, and the issuance of depredation permits and special Canada goose permits, issued under 50 CFR §§21.41 and 21.26, respectively. In all cases, participating States would be required to annually monitor the

spring breeding population to assess population status and provide for the long-term conservation of the resource if existing programs are not adequate. Additionally, States or other applicable parties (such as airports or public health officials) would be required to annually report all take of resident Canada geese.

a. Airport Depredation Order

This option would establish a depredation order authorizing airports (or their agents) to establish and implement a resident Canada goose management program that includes indirect (unintended or incidental take of a bird relative to a permitted management action) and/or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping and culling programs, or other general population reduction strategies on resident Canada goose populations posing threats to airport safety. The intent of this alternative is to significantly reduce resident Canada goose populations at airports, where there is a demonstrated threat to human safety and aircraft. Geese could only be taken under this order in conjunction with an established non-lethal harassment program as certified by Wildlife Services and persons operating under this order would not be allowed to use decoys, taped calls, or other devices to lure birds. Additionally, all management actions would have to occur on the airport premises.

b. Nest and Egg Depredation Order

This option would establish a depredation order authorizing States to allow the destruction of nests and the take eggs to stabilize resident Canada goose populations without threatening their long-term health. The goal of this alternative would be to stabilize resident Canada goose breeding populations, not directly reduce populations, and thus prevent an increase in long-term conflicts between geese and people.

c. Agricultural Depredation Order

This option would establish a depredation order authorizing landowners, operators, and tenants actively engaged in the production of commercial agriculture (or their employees or agents) to conduct indirect and/or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping and culling programs, or other general population reduction strategies on resident Canada goose populations when found committing or about to commit depredations to agricultural crops. Geese could only be taken under this order in conjunction with an established non-lethal harassment program as certified by Wildlife Services and persons operating under this order would not be allowed to use decoys, taped calls, or other devices to lure birds. Additionally, all management actions would have to occur on the premises of the depredation area.

d. Public Health Depredation Order

This option would establish a depredation order authorizing State, County, municipal, or local public health officials (or their agents) to conduct indirect and/or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping and culling programs, or other general population reduction strategies on resident Canada goose populations when recommended by health officials that there is a public health threat. Geese could only be taken under this order in conjunction with an established non-lethal harassment program as certified by Wildlife Services and persons operating under this order would not be allowed to use decoys, taped calls, or other devices to

lure birds. Additionally, all management actions would have to occur on the premises of the public health threat location.

6. Alternative F - State Empowerment (PROPOSED ACTION)

This alternative would establish a regulation authorizing State wildlife agencies (or their authorized agents) to conduct (or allow) management activities, including the take of birds, on resident Canada goose populations. This alternative would authorize indirect and/or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping and culling programs, expanded methods of take to increase hunter harvest, or other general population reduction strategies. The intent of this alternative is to allow State wildlife management agencies sufficient flexibility, within predefined guidelines, to deal with problems caused by resident Canada geese within their respective States. Other guidelines would include criteria for such activities as special expanded harvest opportunities during the portion of the Treaty closed period (August 1-31), airport, agricultural, and public health control, and the non-permitted take of nests and eggs.

States could choose to implement specific strategies, such as any of the specific depredation orders identified in Alternative E - Integrated Depredation Order Management, under the regulation conditions and guidelines. The Orders would be for resident Canada goose populations only and, as such, in order to ensure protection of migrant Canada goose populations, could only be implemented between April 1 and August 31, except for the take of nests and eggs which could additionally occur .

Special Canada goose hunting seasons within the existing Treaty frameworks (i.e., September 1 to March 10) would continued to be handled within the existing migratory bird hunting season regulation development process. Like Alternative D, this alternative would also provide new regulatory options to State wildlife management agencies to potentially increase the harvest of resident Canada geese above that which results from existing special Canada goose seasons that target resident Canada geese. This approach would authorize the use of additional hunting methods such as electronic calls, unplugged shotguns, and expanded shooting hours (one-half hour after sunset). During existing, operational, special September Canada goose seasons (i.e., September 1-15), these additional hunting methods would be available for use on an operational basis. Utilization of these additional hunting methods during any new special seasons or other existing, operational special seasons (i.e., September 15 -30) could be approved as experimental and would require demonstration of a minimal impact to migrant Canada goose populations. These experimental seasons would be authorized on a case-by-case basis through the normal migratory bird hunting regulatory process. All of these expanded hunting methods and opportunities under Special Canada goose hunting seasons would be in accordance with the existing Migratory Bird Treaty frameworks for sport hunting seasons (i.e, 107 day limit from September 1 to March 10) and would be conducted outside of any other open waterfowl season (i.e., when *all other waterfowl and crane hunting seasons were closed*).

Take of resident Canada geese outside the existing Migratory Bird Treaty frameworks for sport hunting seasons (i.e., 107 day limit from September 1 to March 10) would also be available under this alternative. This alternative would create a new Subpart to 50 CFR Part 21 specifically for the management of overabundant resident Canada goose populations. Under this new Subpart, we would establish a Conservation Order under the authority of the Migratory Bird Treaty Act with the intent to reduce and/or stabilize resident Canada goose population levels. The Conservation Order would authorize each State in eligible areas to initiate aggressive resident Canada goose harvest strategies, within the conditions that

we provide, with the intent to reduce the populations. The Order will enable States to use hunters to harvest resident Canada geese, by way of shooting in a hunting manner, during the August 1 through September 15 period when *all waterfowl and crane hunting seasons, excluding falconry, are closed, inside or outside the migratory bird hunting season frameworks*. The Order would also authorize the use of additional methods of take to harvest resident Canada geese during that period. The Conservation Order would authorize the use of electronic calls and unplugged shotguns, liberalize daily bag limits on resident Canada geese, and allow shooting hours to continue until one-half hour after sunset. The Service would annually assess the overall impact and effectiveness of the Conservation Order to ensure compatibility with long-term conservation of this resource. If at any time evidence is presented that clearly demonstrates that there no longer exists a serious threat of injury to the area or areas involved for a particular resident Canada goose population, we will initiate action to suspend the Conservation Order, and/or regular-season regulation changes, for that population. Suspension of regulations for a particular population would be made following a public review process.

Under this alternative, the Service would maintain primary authority for the management of resident Canada geese, but the individual States would be authorized to implement the provisions of this alternative within the guidelines established by the Service. In addition to specific strategies, we would continue the use of special and regular hunting seasons, issued under 50 CFR §20, and the issuance of depredation permits and special Canada goose permits, issued under 50 CFR §§21.41 and 21.26, respectively. Participating States would be required to annually monitor the spring breeding population to assess population status and provide for the long-term conservation of the resource. Additionally, States or other applicable parties (such as airports or public health officials) would be required to annually report all take of geese under authorized management activities.

7. Alternative G - General Depredation Order

This alternative would establish a depredation order, allowing any authorized person (State wildlife agency personnel, airport managers, public health officials, agricultural landowners, operators, and tenants, or any other State authorized person or their agents) to conduct damage management activities on resident Canada goose populations either posing a threat to health and human safety or causing damage to personal or public property. Authorized management activities could include indirect and/or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping and culling programs, or other general population reduction strategies. Geese could only be taken under this Order in conjunction with an established non-lethal harassment program as certified by Wildlife Services and persons operating under this order would not be allowed to use decoys, taped calls, or other devices to lure birds. All management actions would have to occur on the premises of the problem area. The Order would be for resident Canada goose populations only and, as such, in order to ensure protection of migrant Canada goose populations, could only be implemented between April 1 and August 31, except for the take of nests and eggs which would be additionally allowed in March.

Additionally, this alternative would provide new regulatory options to State wildlife management agencies to potentially increase the harvest of resident Canada geese above that which results from existing special Canada goose seasons that target resident Canada geese (same as Alternative D - "Increased Hunting"). This approach would authorize the use of additional hunting methods such as electronic calls, unplugged shotguns, and expanded shooting hours (one-half hour after sunset). During existing, operational, special September Canada goose seasons (i.e., September 1-15), these additional hunting methods would be available for use on an operational basis. Utilization of these additional

hunting methods during any new special seasons or other existing, operational special seasons (i.e., September 15 -30) could be approved as experimental and would require demonstration of a minimal impact to migrant Canada goose populations. These experimental seasons would be authorized on a case-by-case basis through the normal migratory bird hunting regulatory process.

All expanded hunting methods and opportunities would be in accordance with the existing Migratory Bird Treaty frameworks for sport hunting seasons (i.e, 107 day limit from September 1 to March 10) and would be conducted outside of any other open waterfowl season (i.e., when *all other waterfowl and crane seasons were closed*). In addition, we would continue the issuance of depredation permits and special Canada goose permits, issued under 50 CFR §§21.41 and 21.26, respectively. Annual spring breeding population monitoring would be required in participating States to assess population status and provide for the long-term conservation of the resource if existing programs are not adequate. Since Federal harvest surveys are already in place, no additional harvest reporting by the States would be required.

In addition to authorizing these new strategies, we would continue the use of special and regular hunting seasons, issued under 50 CFR §20, and the issuance of depredation permits and special Canada goose permits, issued under 50 CFR §§ 21.41 and 21.26, respectively. Under this alternative, unlike Alternative F "State Empowerment", the authorization for all management activities, including the take of geese, would come directly from the Service via the Depredation Order and the authorized person could implement the provisions of this alternative within the guidelines established by the Service. However, nothing in the Order would limit the individual States' ability to be more restrictive. Persons authorized by the Service under the Depredation Order would not need to obtain authority from the State unless required to do so under State law. The State would not be responsible for any such Service authorized action taken by a person working under the authority of the Order.

The intent of this alternative is to significantly reduce resident Canada goose populations in areas where conflicts are occurring. In all instances, participating States would be required to annually monitor the spring breeding population to assess population status and provide for the long-term conservation of the resource. Additionally, all authorized persons (i.e., States and/or other applicable parties, such as airports or public health officials) would be required to annually report all management activities and take of resident Canada geese.

C. SUMMARY OF ACTIONS BY ALTERNATIVE

See **Table II-1**.

D. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

There were a number of alternatives identified from the public scoping process that we considered but eliminated from further analysis. The following recommendations were considered but rejected because they did not have the capacity to address our responsibilities, and did not possess the potential to alleviate problems associated with large numbers of resident Canada goose populations. Many of the recommendations we received involved minor modification of existing migratory bird hunting regulations that would not significantly increase harvest. We chose not to analyze such alternatives because they would create unnecessary confusion to citizens concerning regulations without significantly

decreasing resident Canada goose abundance.

1. Use of Reproductive Inhibitors

A number of commenters suggested the use of birth control as a feasible and humane alternative. While sterilization by either surgical neutering or oral contraception are both conceptually very attractive, both methods have serious drawbacks. Surgical sterilization of male Canada geese (vasectomy) has been shown to be an effective means of reducing reproduction. However, the need for experienced field staff, the associated high labor costs, and the fact that males must be caught, identified, and treated greatly lessens most consideration for this method (Converse and Kennelly 1994; Keefe 1996). Similarly, oral contraception is not yet commercially available for Canada geese (Allan et al. 1995; Hill and Craven 2000). However, research on new experimental drugs that inhibit bird reproduction is currently being conducted by the USDA National Wildlife Research Center and other research institutions. Although some initial results on some compounds appear promising, much work remains on dosage levels, delivery systems, environmental effects, and long-term impacts. Further, even if reproduction could be prevented, existing goose populations would remain high for many years due to the long life span of adult birds.

2. Permit the Use of Lead Shot

It was suggested that liberalizing certain waterfowl hunting regulations to increase the harvest of resident Canada geese should include the option for hunters to use lead shot. In the United States, the use of lead shot for waterfowl and coot hunting was banned nationwide beginning with the 1991-92 season as a result of a recommendation by the International Association of Fish and Wildlife Agencies (IAFWA). The IAFWA recommendation resulted in large part from the high probability of prolonged litigation and a Federal District Court order to the Secretary of Interior to either prohibit the use of lead shot for hunting waterfowl or discontinue opening waterfowl hunting seasons, based principally on a finding of violation of the Endangered Species Act (16 U.S.C. 1538 et seq.). The Court found that ingestion by bald eagles of body tissue containing embedded lead from hunter-crippled birds was found to be adversely affecting recovery of these endangered birds, which opportunistically feed on dead and dying waterfowl in migration and wintering areas. The Court also considered the numerous research findings by State, Federal, university and private investigators on the broader effects of lead-shot use by waterfowl hunters. These findings indicated that spent lead shot from waterfowl hunting was resulting in the loss from lead poisoning of 2 to 3 percent of the fall flight, or as many as 1 to 4 million waterfowl annually. Spent lead shot from the most current hunting season, as well as that accumulating in soils and other substrate over longer periods, has been found to produce lead toxicosis in waterfowl and other migratory birds when ingested. Lead toxicosis, or lead poisoning, makes birds more vulnerable to hunter harvest and other predation, and it often has more acute mortality effects. The Court order was also based upon the fact that waterfowl hunters had available to them an effective, alternative nontoxic shot in steel. Since the advent of the nationwide lead shot ban, other alternative shot types have been approved for waterfowl hunters, e.g. bismuth-tin. Most waterfowl hunters now understand and support the need to use nontoxic shot and have adjusted well to the use of an alternative for lead.

In summary, we consider the use of lead shot for resident Canada geese unacceptable because: (1) the use of nontoxic shot is the only waterfowl and other migratory bird stewardship option open to the Secretary of the Interior if annual hunting seasons are to be sustained; (2) the promotion of the use of lead shot would only re-open an unnecessary and unproductive debate about the toxic effects of lead on birds and the crippling loss associated with steel; (3) the negative affects of lead shot on the health and welfare of

not only the target species but other wildlife as well - possibly including endangered and/or threatened species; (4) the level of crippling in the past with lead shot has been shown to be every bit as high as it has been with steel shot (Anderson and Roetker 1978, Anderson and Sanderson 1979, Humburg et. al 1982, and Brownlee et al. 1985); and (5) the list of alternative shot types is growing for the waterfowl hunter who does not want to use steel or bismuth-tin, and the hunter may now select from at least five types that approved for use in waterfowl hunting (50 CFR 20.21(j)).

3. Removal from the Migratory Bird Treaty

Canada geese are protected under the Migratory Bird Treaty Act of 1918 (as amended), which implements International migratory bird treaties with Great Britain (for Canada), the United Mexican States, Japan, and the Soviet Union. As such, the treaties expressly protect any migratory bird included in the terms of the various Conventions. All Canada geese are afforded such protection. To remove Canada geese from the protected list of migratory birds, or to reclassify resident Canada geese, would not only be contrary to the intent and purpose of the original treaties, but would require amendment of the original treaties - a lengthy process requiring approval of the U.S. Senate and President and subsequent amendments to each treaty by each signatory county. Thus, we believe this approach is neither likely nor in the best interest of the migratory bird resource.

4. Commercial Use of Birds

The Migratory Bird Treaty Act of 1918 (as amended) specifically prohibits the "offer to sale, sell, offer to barter, barter, offer to purchase, purchase, " of any migratory bird, part, nest, or egg, unless and except as permitted by regulations. Furthermore, Article II of the Migratory Bird Treaty between the United States and Canada specifically prohibits the sale or offer for sale of migratory birds, their nests, or eggs, except in the case of Aboriginal peoples of Canada. Changes to the Migratory Bird Treaty would entail time-consuming negotiations between the U.S. and Canadian Federal governments, with uncertain results. Many resident Canada goose populations would continue to increase during the negotiation period, thus making control more difficult if and when expanded commercial harvesting is eventually authorized. Therefore, we have chosen not to analyze this alternative.

5. Increased Research

For the past 20 years, the Service and Wildlife Services have actively supported research on resident Canada geese. Our present knowledge of the basic ecological, biological, and population status information on resident Canada geese has been possible because of the long-standing work and commitment of State, Federal, and private researchers. However, we do not believe that research is a stand-alone alternative, but rather should be a continuing, integral part of any viable alternative. It is only by both application and research that we will increase our understanding and ultimately better manage the resource.

6. Implement Land-Use Restrictions

The Service and Wildlife Services have no authority or jurisdiction over State, local, or private land use. Any land-use restrictions affecting resident Canada geese would require either State or local ordinances to that effect. Federal land management is normally based on land-use plans that are cooperatively developed through a public process that attempts to balance competing uses and benefits. We believe that it is highly unlikely that such restrictions, either at the Federal, State, or local level, would contribute

significantly to solving goose conflicts.

7. Increase Natural Predators

Adult Canada geese have very few natural predators. In fact, Sargeant and Raveling (1992) found that adult geese do not commonly fall prey to predators. Most predation of resident Canada geese, like most other goose species, occurs on eggs and goslings. Hanson (1997) speculated that the chief mammalian predator of giant Canada geese was coyote (*Canis latrans*) in the far west and Great Plains and red fox (*Vulpes fulva*) in the east and northeast. Naylor (1953), in a study of the western Canada goose (*Branta canadensis moffitti*), cited the coyote and striped skunk (*Mephitis mephitis*) as the chief mammalian predators of nests, and the black-billed magpie (*Pica pica*), crow (*Corvus branchyrhynchos*), ring-billed gull (*Larus delawarensis*), and California gull (*Larus californicus*) as the principal avian predators. Geis (1956) determined that over 90 percent of nest destruction in the Flathead Valley in Montana was due to crows and ravens (*Corvus corax*). However, Hanson (1997) speculated that the giant Canada goose, because of its superior size and strength, can be presumed to have an advantage over smaller Canada goose subspecies against predatory enemies. In an urban goose population, Conover (1998) found that raccoons (*Procyon lotor*), red foxes, and crows were responsible for most nest predation.

In recent years, participation in traditional furbearer trapping has declined, particularly in suburban and urban areas. This decline, coupled with human population growth and the resulting fragmentation and loss of wildlife habitat from land development, and the fact that species such as raccoons, coyotes, and foxes are highly adaptable to urban and suburban environments, has resulted in the growth of animal control businesses (Northeast Furbearer Resources Technical Committee 1996). Animal control activities indicate that urban and suburban predators are probably at all-time high population levels in many areas. Given that resident goose populations have also dramatically increased in recent years and continue to exhibit steady growth rates (U.S. Fish and Wildlife Service, 2000), we believe that predator populations are not limiting growth of resident goose populations, especially in urban and suburban environments. Additionally, rarely in wildlife management is the introduction or reintroduction of additional predators either a feasible, biologically responsible, or a publicly palatable alternative, to solve the conflicts caused by overpopulation of another species.

8. Compensation for Damages

A 1997 survey found that 19 States and 7 Provinces had damage compensation programs (Wagner et al. 1997). However, of these, only three States and three Provinces provided compensation for damage by waterfowl, and only Wyoming and Wisconsin covered bird damage to property other than cultivated crops (Wagner et al. 1997). Additionally, most programs had restrictions and limitations on benefit eligibility, such as thresholds for damage, requiring public access for hunting, and requiring producers to meet certain requirements prior to compensation.

Damage to agricultural crops and private and public property resulting from resident Canada geese has been conservatively estimated at more than $8.5 million annually (Division of Migratory Bird Management 2000). During 1997-99, Wisconsin provided $133,166 in Canada goose damage compensation, an average of $44,388 per year. However, of this total, only $84,978 (an average of $28,326 per year) could be attributed to damage from resident Canada geese (Sarah Carter, Wisconsin Department of Natural Resources, personal communication). Further, Rollins and Bishop (1998) reported that Wisconsin's program had been only partially successful in relieving tensions between

farmers and wildlife management.

The Service's entire FY2000 budget for migratory bird management was $21.6 million. Given the potential amount of claim requests and the costly administration and oversight for such a program, the Service does not have the financial resources to compensate landowners and property owners for damages resulting from resident Canada geese. Further, the Service has never provided compensation for any wildlife-related damage and to do so would most likely require Congressional authority.

9. Discontinue Wildlife Management Practices

Some commenters suggested that wildlife management agencies, including the Service, should discontinue any wildlife management practice that benefits resident Canada geese, especially in those areas where resident goose populations have reached conflicting levels. Such practices would include wildlife food plots, pond and wetland construction and management, wetland restoration, and migratory bird refuges. While we agree that wildlife management practices should be evaluated by agencies before implementation to determine their impact on local Canada geese, most wildlife management practices benefitting resident Canada geese (either purposefully or ancillary) provide benefits for many other migratory bird species and resident wildlife. To discontinue or dissuade these important wildlife management practices or wetland restorations would be contrary to the Service's mission and responsibilities and would be environmentally irresponsible. However, there are a number of things wildlife agencies and other land use planners can do to make both existing and planned wildlife areas less attractive to resident Canada geese. These techniques are discussed under section **II. A. Description of Goose Management Techniques**.

10. Allow Baiting

The use of bait to lure and hunt migratory birds was prohibited in 1935 because of its effectiveness in aiding the harvest of migratory birds. Since their establishment, baiting regulations have been a focal point of many regulatory, ethical, and conservation-oriented discussions. Amendments to baiting regulations have occurred relatively infrequently since the 1940s. However, in 1999, the migratory bird baiting regulations were revised to clarify the current regulations and to provide a framework for sound habitat management, normal agricultural activities, and other management practices as they relate to lawful migratory game bird hunting (Federal Register 1999a).

Baiting for Canada geese, as defined in 50 CFR §20.21(i), likely would enhance the ability to harvest resident Canada geese in some situations and contribute to efforts to reduce the population. However, we believe that the widespread use of bait to take resident Canada geese would lead to confusion and frustration on the part of the public, hunters, wildlife-management agencies, and law enforcement officials due to the inherent difficulties of different sets of baiting regulations for different species. Currently, the baiting regulations differentiate between waterfowl species and other migratory game birds, such as doves and pigeons. Some management practices allowed for the hunting of doves are not allowed for the hunting of waterfowl. To complicate this current difference with a further division between resident Canada geese and other waterfowl would only serve to further complicate the regulations.

Table II-1. Comparison of actions by alternative.

Action	Alternative A No Action	Alternative B Nonlethal Control & Management (Non-permitted Activities)	Alternative C Nonlethal Control & Management (Permitted Activities)	Alternative D Increased Hunting	Alternative E Airport Depredation Order	Nest and Egg Depredation Order	Agricultural Depredation Order	Public Health Depredation Order	Alternative F State Empowerment	Alternative G General Depredation Order
Targeted public	General	General	General	General	General and Airports	General	General and Agricultural Operators	General and Public health sites	General and specific sites at State's discretion	General and specific sites
New regulatory strategies	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Continued issuance of depredation permits	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Continued issuance of special Canada goose permits	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Continue special hunting seasons	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Expansion of hunting methods	No	No	No	Yes	No	No	No	No	Yes	Yes
Conservation Season	No	No	No	No	No	No	No	No	Yes	No
Increased Service staffing and/or funding	No	Yes	Yes	No	No	No	No	No	No	No
Increased Service promotion of non-lethal management	No	Yes	Yes	No	No	No	No	No	No	No
Allows take of nests and eggs	Yes - with permit	No	Yes - with permit	Yes - with permit	Yes - with permit or under Depredation Order at airports	Yes - under State discretion	Yes - with permit or under Depredation Order at ag sites	Yes - with permit or under Depred. Order at health sites	State decision	Yes
Allows take of adults and goslings	Yes - with permit	No	No	Yes - with permit	Yes - with permit or under Depredation Order at airports	Yes - with permit	Yes - with permit or under Depredation Order at ag sites	Yes - with permit or under Depred. Order at health sites	State decision	Yes
Take of adults **only** in conjunction with non-lethal harassment program certified by Wildlife Services	No	N/A	N/A	No	No - with permit Yes - under Depredation Order at airports	N/A	No - with permit Yes - under Depredation Order at ag sites	No - with permit Yes - under Depred. Order at health sites	State decision	Yes
Management activities must occur on conflict premises	Depends on permit	No	No	No	No - with permit Yes - under Depredation Order at airports	No	No - with permit Yes - under Depredation Order at ag sites	No - with permit Yes - under Depred. Order at health sites	State decision	Yes

Require new monitoring and evaluation	No	No	No	No	No	No	No	No	Yes	Yes

III. **AFFECTED ENVIRONMENT**

A. BIOLOGICAL ENVIRONMENT

1. Canada Geese

Canada geese (*Branta canadensis*) are endemic to North America, where they occur in each of the United States except Hawaii, each Province of Canada, and many States of Mexico. Canada geese are readily recognized by their characteristic black neck and white cheek patch. Most authorities currently recognize 11 extant subspecies of Canada geese which differ primarily in body size and color (Johnsgard 1978, Bellrose 1980). Two subspecies, the giant Canada goose (*B. c. maxima*) and the western Canada goose (*B. c. moffitti*), and possible hybrids between these and other subspecies, are included in the definition of "resident" geese in this document (Palmer {1976} considered giant and western Canada geese as one subspecies *B. c. moffitti*). Giant and western Canada geese are the largest 2 of the 11 subspecies, ranging in weight from 8 to more than 15 pounds. These two subspecies nest in southern Canada and the conterminous United States, and winter relatively near their nesting areas, except in severe winters. The other nine subspecies of Canada geese (hereafter referred to as migrant geese) generally nest in more northerly locations and undertake semi-annual migrations each year. These migrations may encompass up to 3,000 miles, like that of the Richardson's Canada goose (*B. c. hutchinsii*) which nests as far north as Baffin Island, Nunavut, Canada, and winters as far south as the eastern States of Mexico. Migrant geese nest across the Arctic, subarctic, and boreal regions of Canada and Alaska and range in size from the 2-4 pound cackling Canada goose (*B. c. minima*) to the 7-10 pound dusky Canada goose (*B. c. occidentalis*).

a. Ecology and Behavior

Although the general ecology and behavior of migrant and resident Canada geese are similar, several aspects of their life histories differ. These differences are due predominantly to variation in body size and migration behavior. The section below on the general characteristics of all Canada geese is followed by sections comparing and contrasting migrant and resident Canada geese.

(1) General Canada geese

(a) Appearance

Size and color are the major visible indicators of subspecies in Canada geese (see **Table III-1** from Bellrose 1980:141). However, there is enough overlap in one or more of these characters among some subspecies that classification to subspecies may be possible only by trained biologists. The sex and age of Canada geese in the hand can be determined by characteristics of the cloaca (the urogenital opening), the wing, and tail feathers. At a distance, however, the plumage of males and females and young and adults appear very similar. The sex of geese in the field can only be surmised by the larger size of the male (also with overlap), behavior, or secondary characteristics (Caithamer et al. 1993). Young Canada geese may be identified by their smaller and slimmer appearance, a less distinct division between the black neck and the breast coloration, and at very close range other plumage characters (Caithamer et al. 1993).

Table III-1. Vital statistics for various subspecies of Canada geese (from Bellrose 1980).

(b) Food Habits

Canada geese are herbivores, obtaining nutrition only from plants, including their leaves, roots, seeds,

and fruits. Before the advent of modern agriculture, geese relied primarily on natural wetland vegetation throughout their annual life cycle (Bent 1925, Hanson and Smith 1950). Geese now also make extensive use of grain (e.g., corn, soybeans, and milo) and leafy portions of agricultural crops (wheat, rye, and alfalfa), as well as moist-soil foods managed for wildlife (Eggeman et al. 1989). Vegetative diets generally provide higher fiber and lower protein content than the insectivorous or omnivorous diets of many birds. Canada geese are primarily grazers, especially during periods when accumulation of protein is especially important. These periods include preparation for spring migration and nesting, during rapid growth of goslings, and during the post-nesting replacement of feathers. During these periods geese may feed nearly constantly during daylight hours to obtain adequate protein. Geese prefer to feed on young and actively growing portions of plants which are highest in protein. The generally high fiber content of goose diets and the relatively inefficient digestive systems of geese result in high consumption rate and rapid turnover of foods. During periods of high energy use (i.e., winter or during migration), geese feed more intently on high energy foods, often waste grain remaining after agricultural harvest. Medium-sized geese (e.g., *B. c. interior*) may consume 0.4-0.5 pounds of corn a day under general wintering conditions (Vaught and Kirsch 1966, extrapolated from Frederick and Klaas 1982). When actively feeding, individuals of most goose species defecate up to once every 3-4 minutes (Owen 1980).

(c) Spring Migration

Canada geese are among the earliest spring waterfowl migrants. For most Canada geese, spring migration and nesting activities are timed so that the subsequent hatch of goslings occurs concurrently with the most vigorous growth of spring vegetation (Owen 1980). Migrating Canada geese move northward fairly gradually following the retreating snow cover and an isotherm of about 35° F (Bellrose 1980). For the last portion of migration, northern-nesting geese often overfly areas of snow in boreal forests to arrive on Arctic and subarctic nesting areas just as spring breaks. The most southerly wintering geese leave their wintering areas in January and geese wintering at middle-latitudes move northward in March or April (Bellrose 1980, Tacha et al. 1991).

(d) Pairing

Some geese form pair bonds during their first year of life but most defer pairing until subsequent years. Pair bonds are predominantly formed in the spring and are long-lasting in Canada geese. Generally, pair bonds are maintained until one of the pair dies, but at times, geese will form new pairs even when their old mates are still alive (MacInnes et al 1974). Pairs copulate over water during spring migration and on their nesting grounds.

(e) Nesting

Nesting-age geese arrive on the breeding areas already paired. Pairs begin to establish territories and search for nest sites as soon as snow cover melts and nest sites become exposed. Most Canada geese nest within 50 meters of a water body, most often on raised areas that afford good visibility from the nest site (Bellrose 1980). Common nest sites include islands, hummocks, pond banks, and muskrat houses, but a variety of sites are used including cliffs and trees. The resident subspecies readily use man-made nesting structures (e.g., elevated tubs and platforms). Canada geese are very philopatric to their previous nesting areas and often use the exact same nest site year after year (Brakhage 1965).

Canada goose females prepare their nest sites by scraping shallow depressions in the soil and lining them

with vegetation pulled from the immediate area. Clutches of one to eight large cream-colored eggs are laid approximately one per day until the clutch is complete. As egg-laying progresses the female plucks down from her breast to line the nest. Incubation is conducted exclusively by the female and does not start until the entire clutch is laid. The female will incubate from 24 to 30 days (depending on subspecies) taking only a few brief recesses each day. During the incubation period females spend from 91 to 99 percent of their time on the nest (Afton and Paulus 1992).

As an adaptation to initiating nests prior to the growing season, laying large clutches, and high incubation constancy, Canada geese accumulate the fat and protein required to conduct nesting activities in "nutrient reserves" within their body. These reserves are built prior to and during migration but supply the energy required to complete migration, produce eggs, and survive through the prenesting and incubation periods. Females are at their highest annual body weight just prior to arrival on their breeding grounds, nearly twice as heavy as during the winter months. The weights of all eggs in a clutch may represent as much as 22 percent of females' basal winter weight (Raveling and Lumsden 1977, Moser and Rusch 1998). By the end of incubation females may have lost up to 34 percent of their prelaying body weight (Raveling and Lumsden 1977, Gates et al. 1998, Moser and Rusch 1998), will be at their lowest annual weight, and may be near starvation. Harsh conditions during migration or prenesting periods may require further depletion of these reserves and force females to lay fewer eggs, to abandon nests prior to hatching, or even to forego nesting (Newton 1977, Krapu and Reinecke 1992). Weather conditions in some years may be so harsh that few females in northern areas have adequate reserves to successfully complete nesting activities (Moser and Rusch 1998), or time to allow goslings to fledge before the breeding grounds become inhospitable (Barry 1962).

The gander's contribution to the nesting effort is to provide protection for the female before nesting and during incubation recesses, and to assist the female in defense of the nest from predators. The cooperative defense of the nest is quite effective against most natural predators. Egg predation by gulls, crows, other avian predators and all but the larger mammalian predators is uncommon except when geese are away from their nests during recesses or due to human disturbance (MacInnes and Misra 1972). Larger mammals may be able to displace the pair and take eggs and/or adults (Bellrose 1980, Campbell 1991, Stephenson and Van Bellenberghe 1995). In some areas, substantial numbers of nests may be destroyed by flooding. Eggs also may fail to hatch due to abandonment by the female, infertility of all eggs, or death of the eggs' embryos. In some cases, females may continue to incubate a clutch of infertile eggs, or eggs containing dead embryos for indefinite periods. At southern latitudes, if all eggs in a nest are destroyed the goose may make another nesting attempt. At northern latitudes (except where coastal currents ameliorate conditions), renesting is rare and may be restricted by female energy reserves and/or lack of adequate time to fledge young before fall migration is required (Bellrose 1980). If one or some eggs remain intact the female will likely continue to incubate the nest. Overall nest success varies among locations and years, ranging from 10 to 95 percent, but is generally high on an annual basis, averaging 50 to 80 percent for most populations (Bellrose 1980, Sargeant and Raveling 1992, Bromley et al. 1998, Bruggink et al. 1998, Huskey et al. 1998a, Conover 1998, Rusch et al. 1998).

Not all geese nest each year. Canada geese exhibit delayed sexual maturity and most geese are not physiologically capable of breeding until they are at least 2 years old. Although many young geese form pair bonds and may even defend territories, many do not nest for the first time until the age of at least 2, 3, or 4 (Kossack 1950, Craighead and Stockstad 1964, Moser and Rusch 1989). Further, success in raising young also increases with age (Raveling 1981, Hardy and Tacha 1989). Some geese that have nested previously do not nest every year and the proportion of females that attempt to nest and their

nesting success may depend on the severity of spring conditions (MacInnes et al. 1974, MacInnes and Dunn 1988).

(f) Brood-rearing

Eggs within individual clutches hatch nearly synchronously and goslings spend less than 24 hours in the nest before being led to preferred brood-rearing areas by the goose and gander. Preferred areas provide protein-rich vegetation that goslings require to build body tissues and open water that provides escape from predators. Accompanied by both parents, the precocial goslings will spend nearly all their daylight hours feeding for the next 6-8 weeks. During this period goslings will build body tissues, replace their natal down with juvenal body feathers, and grow the wing feathers (i.e., primaries, secondaries, and tertials) necessary for flight. Females also feed extensively during this period to replace energy reserves used during the energy-demanding laying and incubation periods.

(g) Family structure

Family unity is strong in Canada geese. Adult geese with goslings aggressively protect their mates and offspring. Disputes with other geese often arise at feeding areas when flocks feed in close proximity. In disputes, larger families usually displace smaller families, which in turn displace barren pairs, which in turn displace single geese (Raveling 1970). These aggressive encounters often solicit the "triumph ceremony" among members of the pair or family, a behavior including rushing, gaping, neck-waving, and calling (Balham 1954). Goose families generally migrate south and spend much of the fall and winter together (Raveling 1968, 1969).

(h) Molt

Adult Canada geese replace all their feathers once per year. Body feathers are gradually molted throughout the year, but the flight feathers are molted simultaneously during summer. For geese that have produced young, the loss of flight feathers occurs 2-3 weeks after hatch and leaves them as flightless as their young. During this flightless period goose families are susceptible to predators so they become more secretive, call little, and remain close to bodies of water for safety. The adults regain flight capability in 4-6 weeks, about the same time their young reach flight stage (Bellrose 1980).

Non-breeding geese and unsuccessfully nesting geese often congregate in local or distant places to undergo the molt. In most populations, non-productive Canada geese complete a "molt migration" to molting areas generally northward of the breeding areas, often by hundreds of miles (Hanson 1965:78-82, Abraham et al. 1999). Regardless of the location, these molting areas provide open water for safety, abundant food, and are often separate from areas occupied by successfully breeding geese which reduces competition with the more dominant family groups. Far-northern areas offer additional advantages of longer day lengths in which to feed, different predator communities, and little human disturbance.

(i) Fall Migration and Wintering

Instinct, tradition, and opportunity, as well as weather, food, and disturbance affect the migration patterns of Canada geese. Some geese move south from their nesting or molting areas in response to freezing temperatures, snowfall, and advantageous winds; others migrate before conditions become harsh. Before arriving at their final wintering destination geese often gather at staging grounds, places that provide

attractive but temporary conditions prior to further movement. Fall migration may start as early as late August from northern areas and southern-nesting geese may not move at all from their nesting areas. The latitude at which geese ultimately spend the winter depends largely on weather, food availability, and goose body size. Larger geese are better able to withstand cold temperatures and tend to winter farther north than smaller geese (Lefebvre and Raveling 1967).

Geese in fall and winter are extremely gregarious and are attracted to areas that provide adequate foraging opportunities, water, protection, and other Canada geese. Federal, State, and Provincial wildlife areas throughout migration corridors have been important staging and wintering areas for geese in the past. Some individuals or populations of Canada geese now winter farther north and are less reliant on refuges than they were historically. The current, more northerly distribution of Canada geese (see Flyway summaries) has been attributed to the influence of northern refuges, cumulative harvest that depressed survival rates of goose stocks that traditionally wintered in the south, the decoying effect of northern resident Canada geese, and global warming (Crider 1967, Raveling 1978, Rusch et al. 1985, Malecki and Trost 1986). Geese now winter as far north as Washington, South Dakota, Minnesota, and New York in mild winters.

During winter, geese generally make two foraging trips from their roosting sites each day, one shortly after sunrise and another in late afternoon, depending on temperature and daylight intensity. Geese will travel considerable distances during these feeding flights, if conditions warrant. Canada geese are large enough to withstand cold temperatures and harsh conditions for prolonged periods; however, geese have to emigrate if their food resources become covered with deep snow or open water is unavailable for more than a few days.

(j) Annual Survival

Canada geese are long lived birds with generally high annual survival rates. The oldest known wild Canada goose was banded as an adult and recaptured 28 years and 5 months later (Klimkiewicz 2000).

Many species prey on goslings (including gulls, jeagers, crows, ravens, raptors, foxes, wolves, bears, dogs, and cats) and exposure to the elements can cause mortality. Most gosling mortality occurs within the first 2-3 weeks after hatching and Canada goose gosling survival is generally high (Bellrose 1980, Sargeant and Raveling 1992, Ely 1998, Huskey et al.1998b, Lawrence et al. 1998a). Reported gosling survival rates for Canada geese are generally from 60 to 80 percent, but range from 4 to 95 percent (MacInnes et al. 1974, Krohn and Bizeau 1980, Baker et al. 1990).

Annual survival rates for Canada geese vary by subspecies and population but generally range from 65 to 85 percent for adults and from 30 to 70 percent for juveniles (Bellrose 1980, Hestbeck and Malecki 1989, Samuel et al. 1990, Raveling et al. 1992, Harris et al. 1998, Johnson and Castelli 1998, Lawrence et al. 1998b).

Few predators regularly take adult Canada geese and other forms of natural mortality are limited. Hunting is thought to be the predominant source of post-fledging mortality for most hunted populations of Canada geese (Chapman et al. 1969, Raveling and Lumsden 1977, Krohn and Bizeau 1980, Tacha et al. 1980). Estimates of legband recovery rates of hunted goose populations vary among regions but range from <1 to 9 percent for adults and < 1 to 12 percent for juveniles (Tacha et al. 1980, Harris et al. 1998, Johnson and Castelli 1998, Lawrence et al. 1998b).

(2) Comparison of Resident and Migrant Canada Geese

Although resident and migrant Canada geese share basic life histories, several differences between these groups confer advantages upon resident geese regarding reproductive success and annual survival. Migrant Canada geese have life history strategies that accommodate the reduced length of the growing season on the breeding grounds, the additional energetic rigors of migration, reduced food availability, and harsher climate on their northern breeding grounds. Many life history differences result in energy benefits to resident geese that allow them to allocate more energy to reproductive efforts or to reduce their exposure to hunting pressure, both of which contribute to the higher potential population growth rates for resident Canada geese.

(a) Food Habits

Food habit differences between resident and migrant Canada geese are due mainly to their disjunct breeding areas. Resident geese remain in areas associated with human activity and longer growing seasons all year. Their residency there ensures a consistently available source of food (actively growing crops, pasture, and lawn vegetation, as well as waste grains and natural wetland vegetation) right up to and after the nesting period. The human practice of mowing grasses (e.g., lawns, parks, cemeteries) stimulates the tender new grass growth preferred by geese. Resident geese may also forage in urban gardens and consume a variety of native and exotic plants, as well as human hand-outs (Conover and Kania 1991). In contrast, migrant geese begin moving north in time to arrive on their breeding grounds concurrent with the disappearance of snow cover and the availability of nest sites. Many northern-nesting geese migrate over vast boreal forests which provide only limited food resources and often are snow-covered. When they reach their breeding grounds, food availability is restricted primarily to the underground portions of plants, and goose caloric intake is limited. Even this limited food may be rendered unavailable by additional snowfall. Food availability remains low during most of the nesting period but lush grass and sedge forage becomes available some time prior to hatch. Thus migrant geese undergo longer periods of restricted food availability and consume a diet less subsidized by agricultural and horticultural practices than do resident geese.

(b) Spring Migration

For Canada geese, flight requires about 12 times as much energy as loafing/resting (LeFebvre and Raveling 1967, Raveling and Lumsden 1977). A flight of 660 miles (a moderate final migration distance) for a medium-sized goose can require the expenditure of approximately 2,015 Kcal of energy, equal to the energy in 210 grams of fat, or more than the dry weight of 2 eggs (Raveling and Lumsden 1977). Longer migrations would further deplete the nutrient reserves that are used by geese for subsequent reproduction. Migration also exposes geese to risks such as collision with man-made towers or aircraft, uncertain terrain, predation risk, and subsistence harvest (adults and subsequently their eggs) near some native communities in Canada and Alaska. Spring goose harvests by aboriginal peoples, while generally not of great magnitude (Dickson 1996, Wentworth 1998) is another source of mortality incurred by migrant geese to which resident geese are not subjected.

Migrant Canada geese arrive on the breeding grounds from mid-April on James Bay, late April for Hudson Bay, mid-May for the Yukon-Kuskokwim Delta in Alaska, to June for islands in the Arctic (Bellrose 1980). In contrast, resident geese arrive on their northern U.S. breeding areas in March and on Canadian breeding areas in early April. In southern nesting areas, resident birds may winter on or near

nesting areas and may begin nesting as early as February.

(c) Nesting, Molting, and Brood-Rearing

Migrant Canada geese have adapted to the shorter growing seasons on their nesting areas by shortening many of their summer activities, while resident geese have additional time (**Table III-2**). Relative to migrant geese, resident geese lay eggs at a slower rate, incubate eggs longer, have longer nesting (and renesting) periods, and have longer flightless periods for molting adults and maturing goslings.

Sexual maturity occurs in resident geese at an earlier age than most migrant geese (**Table III-2**). While most resident geese breed first at 2-3 years of age (Brakhage 1965, Cooper 1978), most individuals of migrant subspecies do not nest until the ages of 3-5 years (Hardy and Tacha 1989, Moser and Rusch 1989, Rusch et al. 1996).

Table III-2. Comparison of biological attributes of Canada geese of various migration behavior and size (modified from Rusch et al. 1996, additional data from Hanson 1965).

Attribute	Resident Geese	Medium-sized Migrants	Small Migrants
Population dynamics			
Age at first nesting	2-3 years	4-5 years	4 years
Clutch size	5-7	3-5	2-5
Nest Success	High	Variable	Variable
Renesting	Yes, frequent	Rare-infrequent	No
Annual Reproductive Success	High, constant	Medium, variable	Low, boom-bust years
Adult survival	>0.90	0.70-0.90	<0.70
Migration distance	Short	Medium	Long
Hunting exposure	50-100 days	120 days	160 days
Population trend	Long-term increase	Fluctuation	Fluctuation
Time constraints			
Nesting period	Feb - Jun	Apr - Jun	Jun - Jul
Incubation period	28-30 days	28 days	24 days
Egg-laying rate	1 egg/1.5 days	1 egg/day	1 egg/day
Gosling time to fledge	85 days	63 days	43-55 days
Adult molt time	35 days	32 days	26 days

Migrant Canada geese, because of their smaller body size, cannot store as much fat and protein internally as can resident geese (proportionally or absolutely) (Ankney and MacInnes 1978). Resident geese, therefore, have the potential to store the most nutrient reserves, migrate the shortest distances, have the greatest access to food prior to and during nesting, and have the longest growing season in which to reproduce. Accordingly, clutch size varies along the size gradient of geese, as do average indices of nest success and other reproductive parameters (**Table III-2**). Reproductive rates for resident geese are quite consistent from year to year, while northern-nesting migrants may experience nearly complete reproductive failures in some years due to delayed spring phenology or inclement weather (Rusch et al.

1996).

(d) Fall Migration and Wintering

Migrant Canada geese move much farther to wintering areas than do resident geese. In addition to the increased energy expenditure of longer migrations and other risks of migration, migrant geese are exposed to hunting pressure for a greater period. Traditionally, States and Provinces have set their goose hunting seasons to correspond with the peak abundance of migrant geese. Geese are subject to hunting pressure consecutively in each State/Province along their migratory path. Resident geese that undertake short or no migrations are exposed to hunting seasons in only one or a few States/Provinces. Hunting seasons in the Mississippi Flyway exposed interior and Richardson's geese there to 120 and 160 days of sport hunting, respectively, while the resident geese were exposed to only 50-100 days (Rusch et al. 1996). Rusch et al. (1996) reported a declining trend in general annual survival from resident Canada geese to small migrant Canada geese (**Table III-2**). In recent years, some States and Provinces have set hunting seasons to better coincide with peak abundance of resident geese (in addition to establishing special seasons for resident Canada geese). However, setting goose seasons to harvest only resident geese is temporally and spatially difficult under the existing Migratory Bird Treaty Act, and social and other constraints.

Resident geese also avoid hunting mortality through their extensive use of urban environments. Urban environments can provide all resident goose life cycle requirements, at least for short periods, and allow geese to remain in urban "refuges" and avoid peak harvest periods (i.e., weekends). Urban resident geese also likely benefit from the less dangerous predator communities within cities. Additionally, the larger size of resident Canada geese likely makes them even less susceptible to the predators they do encounter in both urban and rural areas. Urban geese however, are subjected to herbicides, pesticides, pollution, automobiles, illegal take, pets, and transmission of disease from domestic fowl.

(e) Population Growth

Canada geese are one of North America's greatest wildlife success stories. The total number of Canada geese counted during winter in North America has increased from 980,000 in 1960 to 3,734,500 in 2000 (Mid-winter Survey unpublished reports), and most biologists believe there are more Canada geese now than at any time in history (Rusch et al. 1995, Ankney 1996). The giant Canada goose, thought to be extinct from the 1930s until the 1960s, is now the most abundant of all subspecies and is considered overabundant in many regions. Of the 15 recognized Canada goose populations assessed in the North American Waterfowl Management Plan, all show increasing or stable population trends (Department of the Interior 1998). The following few populations which had declined substantially since 1900 are doing well:

- The Aleutian Canada goose suffered drastic declines during the early 1900s due primarily to introduction of arctic fox to their restricted insular breeding habitats and were listed as endangered in 1967. A Recovery plan was devised in 1974, the population has since rebounded, and the Aleutian Canada goose was delisted in 2001.

- Dusky Canada goose numbers declined drastically due to changes in their Alaskan nesting habitat resulting from earthquakes in 1964. Surveys suggest dusky goose populations are now approximately mid-way between population lows and population

highs estimated since 1969 (U.S. Fish and Wildlife Service 2000).

- Cackling Canada goose population levels declined rapidly to a low level in 1984, but have reached record highs (since surveys began in 1980) in the last several years.

- Atlantic Population Canada geese declined in the mid-90s due to an unrecognized imbalance in production and survival (see **section III.A.1.a.(3)(a)**) but have recovered in recent years.

- Southern James Bay Population Canada geese have remained at a relatively low but stable level for many years. Distribution of geese between insular and mainland areas and resultant estimation of population size may be influenced by light goose induced habitat degradations.

While most North American Canada goose populations are increasing or stable, resident populations, in general, are growing more rapidly than migrants (U.S. Fish and Wildlife Service 2000). The foregoing text provides substantial background on the reasons for the disparate growth of resident and migrant Canada goose populations. In general, resident geese exhibit more advantageous reproductive (i.e., younger breeding age, fewer or no years of population reproductive failures, larger clutch sizes, greater nest success rates, renesting propensity) and survival parameters than migrant geese. Given these advantages, the greater rate of population growth of resident geese in relation to migrant populations is expected. Urban populations of resident geese likely have even higher reproductive and survival rates that do rural resident geese (Smith et al. 1999). The growth of Canada goose populations within Flyways is documented in cooperative waterfowl monitoring programs (see Flyway summaries).

(3) Population Interactions

Although resident and migrant Canada geese are allopatric during portions of their respective nesting seasons, it is apparent that individuals of these groups concurrently occupy much of their wintering and staging areas and, through the molt migrations of resident birds, also concurrently occupy migrant Canada goose breeding areas for a portion of the summer. The concurrent presence of these groups in space and time and their interactions introduce complexities for Canada goose management, deleterious impacts upon geese and their habitats, and have potential socioeconomic and sociologic implications. These include problems in assessing population parameters of various populations, competition for food and space, disadvantageous changes in goose distribution and habitat use, potential for disease transmission, loss of genetic diversity, and sociological perceptions.

(a) Assessment of Population Parameters

Canada goose management focuses on maintaining population levels that maximize sociological benefits and minimize sociological conflicts consistent with ecosystem status. Managers attempt to maintain populations at these levels by balancing annual production of young with annual mortality, monitoring these parameters through a variety of surveys and other methods. Survey data are examined annually and changes in harvest strategies are enacted when appropriate. Prior to the growth of resident Canada goose populations, migrant geese were monitored predominantly on wintering areas, where geese were concentrated and costs of conducting local surveys were minimized. However, as resident goose populations grew and commingled with migrant geese on wintering grounds, differentiation of resident

and migrant populations became increasingly difficult. In response to difficulties in assessing populations on wintering areas, many agencies initiated surveys on the breeding grounds of migrant (and later resident) goose populations. As resident goose populations grew even larger it became apparent that groups of molting resident geese were present during later periods of migrant breeding ground surveys. The concurrent presence of resident geese within the breeding range of migrant geese also has the potential to compromise the reliability of these surveys (Abraham et al. 1999).

Assessment of the annual production of young geese is an important management function. In some populations, the production of young per adult is ascertained during goose capture and banding operations conducted during the brood-rearing period on the migrant goose breeding grounds. The presence of molt migrant resident geese (adults) in these captured samples degrades the quality of production information. During these summer banding operations, geese are banded with individually numbered legbands and, at times, also with coded neck collars. These banded geese subsequently provide information on migration, distribution, and population characteristics (natural mortality, hunting mortality) when they are recovered and reported by hunters or observers. It is therefore important that banded geese be representative of a particular group of geese (e.g., Mississippi Valley Population). Due to the increased prevalence of resident molt migrants on northern breeding areas, goose banders must identify and separate resident molt migrants from locally produced migrant geese if banding information is to be meaningful.

Managers also obtain estimates of Canada goose harvest from a mail Hunter Questionnaire Survey (HQS) and a Parts Collection Survey (PCS) of randomly selected hunters (Martin and Padding 2000). Randomly selected hunters are asked to report the numbers of geese they harvested, the county of harvest, and to send in tail feathers from each goose. The total number of geese harvested is calculated from the HQS survey and the species and age composition of the harvest is determined from the PCS. Traditionally, managers associated the harvest from specific geographic areas with various migrant or resident Canada goose populations. However, as resident populations and their harvest have increased, association of harvest data with various populations of migrant or resident geese has become increasingly complicated.

Biologists also gain information on the annual production of young by examining the ages of geese shot in the fall/winter using tail feathers collected in the PCS. However, resident Canada geese replace their juvenal tail feathers with adult-type feathers (thus appear to be adults in the PCS) earlier than do migrant geese. Therefore, a production ratio based on tail-feathers alone from a sample which includes substantial number of resident geese will incorrectly lower the production index obtained (Tacha et al. 1987).

Fortunately, agencies and biologists have devised ways to minimize the influence of resident geese on many of these surveys. For example, the recent addition of wing feathers in the PCS may help reduce the bias in Canada goose age ratios obtained from the PCS. However, many of the methods devised are often costly in terms of dollars and staff-time and some surveys are still partially influenced by high resident goose population levels.

(b) Competition for Food

Numbers of resident Canada geese rival or exceed the numbers of migrant geese in all 4 Flyways. These numbers are in stark contrast to 30 years ago when resident goose prevalence was only a fraction of the

migrant goose numbers. Although both resident and migrant geese have benefitted from increased agricultural activities, food resources on their shared wintering and staging grounds are not limitless. Recent improvement in the efficiency of harvest machinery is reducing the amount of waste grain available for wildlife consumption. With the exception of year-around urban dwelling geese, food preferences of resident and migrant geese during winter are very similar. Resident geese likely have an advantage in exploitation of wintering foods due to their increased familiarity and experience with local feeding areas, competitive edge of larger family sizes, and their larger body size. Fat and protein accumulation is an important component of Canada goose reproductive strategy and reductions in food availability due to competition could potentially impact the reproductive success of migrant geese.

Increasing numbers of molt migrant resident Canada geese also deplete food resources of migrant geese on the northern brood-rearing areas (Ankney 1996, Abraham et al. 1999). Food consumption and brood-rearing area degradation have been implicated in poor gosling growth, poor reproduction, low population growth rate, and declining adult body size of migrant Canada geese on Akimiski Island in James Bay (Ankney 1996, Leafloor et al. 1998, Abraham et al. 1999).

(c) Goose Distribution

The winter distribution of migrant Canada geese has been shifting northward for decades (Hankla and Rudolph 1967, Hestbeck 1998, Pacific Flyway Council 1998). Many reasons for historical and recent shifts have been postulated (Crider 1967, Hankla and Rudolph 1967, Hestbeck 1998) but a definitive reason(s) for this shift is difficult to ascertain. In many areas, a more northerly wintering terminus for migrant geese has been attributed at least in part to the decoying effect of resident goose flocks (Mississippi Flyway Council 1996, Central Flyway Council 1998, Atlantic Flyway Council 1999). Perhaps the greatest evidence of this decoying effect is the winter use of urban areas by migrant subspecies (Smith et al. 1999; H. L. Alexander, unpublished data; J. Gammonley, personal communication). This effect, when and where it occurs, can further disrupt traditional goose wintering distribution and normal migration patterns, and exacerbates urban goose nuisance problems.

(d) Disease

Urban parks are often inhabited by an assortment of exotic, domestic, or hand-reared waterfowl (e.g., muscovy, pekin, domestic mallard). The combination of these types of fowl and the waterfowl densities often found in parks are conducive to the transmission of disease and are associated especially with Duck Virus Enteritis (Friend and Franson 1999:151). Resident Canada geese also frequent these areas, and their interaction with wild waterfowl outside urban areas, or by decoying wild birds into these areas, is reason for concern. Some diseases of fowl, such as Duck Virus Enteritis can be transmitted to other bird by "carriers" that do not show signs of the disease.

(e) Genetics

The taxonomy of morphologically diverse Canada goose species has been debated for decades (Swarth 1913, Palmer 1976, Johnsgard 1978). Some biologists believe subspecies of Canada geese were originally more distinct than they are presently. They consider the advent of agriculture and establishment of refuges as factors that contributed to the loss of genetic integrity of subspecies and the formation of hybrids among subspecies (*B. c. canadensis x maxima*, Pottie and Heusmann 1979; *B. c. occidentalis x moffitti*, P. Miller and D. Kraege personal communication). If subspecies do interbreed commonly, the

frequency of this has been exacerbated by the increased numbers and broader distribution of resident geese.

(f) Sociologic Implications

In "A Sand County Almanac", Aldo Leopold (1949) celebrated the connection to wildness that Canada geese and their "music" instilled in humans. Although many people still thrill at overhead honking or the V-shaped wedge of migrating geese, there are many that associate these birds only with the nuisance and mess with which they are familiar at the park or golf course. Once considered a trophy bird for hunters and an awe-inspiring sighting for outdoor enthusiasts, Canada geese have been degraded in the eyes of some humans. The separation of the embodiment of wildness from Canada geese certainly has some cost to society, albeit hard to measure. However, a more tangible loss to society was reported by Ankney (1996), that some landowners have pursued wetland drainage on their lands to discourage the presence of resident Canada geese.

b. Population Status, Trends, and Distribution

(1) Atlantic Flyway

For management purposes, Atlantic Flyway "resident" Canada geese are defined as geese that were hatched or nest in any Atlantic Flyway State, or in Canada at or below 48° N latitude and east of 80° W longitude, excluding Newfoundland (Atlantic Flyway Council 1999).

Atlantic Flyway resident geese are different from Canada geese that nested in the Flyway historically. The original stock in pre-colonial times was primarily *Branta canadensis canadensis* (Delacour 1954), but they were extirpated long ago. The present-day population was introduced and established during the early 20th century, and is comprised of various subspecies or races of Canada geese, including *B. c. maxima*, *B. c. moffitti*, *B. c. interior*, *B. c. canadensis*, and possibly other subspecies, reflecting their diverse origins (Dill and Lee 1970, Pottie and Heusmann 1979, Benson et al. 1982).

The numbers of resident Canada geese have increased dramatically in recent years across North America (Ankney 1996, Nelson and Oetting 1998). The dramatic growth and importance of resident goose populations in the Flyway was not fully recognized until recently. In the 1980s, biologists became concerned that increasing numbers of resident geese might be masking a decline in number of migratory Atlantic Population (AP) Canada geese wintering in the flyway. Banding studies confirmed that resident geese were not AP geese that simply stopped migrating north to breed; they are distinct populations with very different management needs and opportunities.

(a) Origins

Giant Canada geese (*B. c. maxima*) did not nest in the Atlantic Flyway historically (Hanson 1965), so releases here were never considered part of a restoration program. Stocking and translocation of geese were done to establish new breeding populations and provide additional recreational opportunities (primarily hunting) in Atlantic Flyway States and Provinces.

Releases of Canada geese in the Atlantic Flyway were not well documented. As indicated, the first Atlantic Flyway resident geese were birds released by private individuals in the early 1900s. When use of

live decoys for hunting was prohibited in 1935, captive flocks of domesticated or semi-domesticated geese were numerous (estimated at more than 15,000 birds in Maryland and more than 8,000 in Massachusetts), and many were liberated in parks or allowed to wander at large (Dill and Lee 1970). The first State agency release programs began in New York (1919) and Pennsylvania (1936) using imported game farm stock, and in Maryland (1935) using migrant geese trapped during winter. From the 1950s through the 1980s, wildlife agencies in many Atlantic Flyway States were actively involved in relocation and stocking programs to establish resident populations, primarily in rural areas (**Table III-3**). These programs were highly successful and most were discontinued by 1990.

Table III-3. Stocking and translocations of resident Canada geese in the Atlantic Flyway.

State	Summary of known origins or translocations
CT	85 geese were transplanted from Brigantine National Wildlife Refuge (NJ) during 1963-68; <50 were moved in-State during the 1960s (P. Merola)
DE	No birds brought in from out-of-State; moved geese in-State during 1980-1997 (T. Whittendale)
FL	1,598 geese from NJ, SD and Canada were released during 1968-1978 to establish a resident flock (D. Eggeman)
GA	>8,000 geese from NY and other Atlantic Flyway States were released during 1975-1987 (G. Balcomb)
ME	2,341 geese transplanted from NY, NJ and CT during 1965-1975; 1,723 more from CT during 1981-1985; moved 50-75 geese/yr in-State in recent years (B. Allen)
MD	Earliest stockings were 41 geese at Blackwater National Wildlife Refuge (1935) and 8 geese moved to Patuxent in 1946; >2,000 geese moved in-State prior to 1991 (L. Hindman)
MA	Releases from decoy flocks in 1930s originally from MI and NC; no geese were imported by MA Fish and Wildlife; moved <500 in-State during 1960s-1970s (H Heusmann)
NJ	Releases at Great Swamp and Brigantine National Wildlife Refuges during 1950s (source unknown); more came from CT and NY during 1960s-1970s; some in-State transplants during 1960s-1970s (P. Castelli)
NH	Population in MA expanded into NH; additional geese were brought in from southern New England during late 1970s (E. Robinson)
NY	Private releases before 1900; in 1919 NY began releasing game farm geese upstate; approximately 1,000 game farm geese released during 1957-1964 in upstate NY; moved an estimated 25,000 geese from problem sites in southeastern NY to other States or rural areas in NY during 1960s-1990s (B. Swift)
NC	Several thousand geese obtained from ON, PA, NY, NJ, CT and DE during 1980s (D. Luszcz)
PA	Game Commission and others brought 30 pinioned geese in 1936 to Pymatuning; this flock provided stock for other areas of PA; during 1975-1992, >32,000 geese were translocated both within and outside of Pennsylvania (J. Dunn)
RI	First reported nesting in 1958; transplanted 167 geese from out-of-State during 1960-1967 (C. Allin)
SC	Obtained original stock from NY and other States during 1980s; numbers unknown
VT	First reported nesting in 1960, after release of 44 geese from DE in 1956; release of 723 at Mississquoi National Wildlife Refuge during 1951-1964 failed; no in-State movement of geese in VT (B. Crenshaw)
VA	Obtained geese from NY and other States during 1980s; in-State relocations from problem sites through 1990s
WV	Obtained 10 wild live-trapped geese from U.S. Fish and Wildlife Service in 1954 (Moser 1973); 5,442 were imported from NY, CT, NJ and MD during 1976-1983 in-State transplants began in 1967, 814 moved in-State during 1989-2000 (S. Wilson)

Resident goose populations became established in most Atlantic Flyway States as a direct result of these stocking programs (**Table III-4**). Following establishment of breeding populations, many States used in-State translocation to reduce goose flocks in urban-suburban conflict areas and to expand the distribution of nesting birds in rural areas. In-State translocations are still used in a few Atlantic Flyway States (e.g., Virginia) to help alleviate problems caused by resident geese (**Table III-3**).

Table III-4. Population estimates for resident Canada geese in the Atlantic Flyway prior to 1990[a].

Years	ME	VT	NH	MA	CT	RI	NY	PA	NJ	DE	MD	WV	VA	NC	SC	GA	FL
1900s	0	0	0	tr	tr	0	tr	0	0	0	0	0	0	0	0	0	0
1910s	0	0	0	tr	tr	0	tr	0	0	0	0	0	0	0	0	0	0
1920s	0	0	0	tr	tr	0	tr	na	na	0	0	0	0	0	0	0	0
1930s	0	0	0	na	tr	0	1,000	na	tr	na	tr+	0	tr	tr	0	0	0
1940s	0	0	na	500	na	0	na	na	tr	na	na	0	tr	na	0	0	0
1950s	0	0	na	na	na	tr	na	na	na	500	na	tr	na	na	0	0	0
1960s	0	na	na	6,00	600	tr	5,200	na	2,50	1,00	na	100	na	na	0	0	tr
1970s	na	300	na	na	na	500	na	na	na	na	na	na	na	na	na	na	na
1980s	500	300	300	8,00	6,00	775	24,00	44,00	9,00	700	5,50	4,30	12,60	2,50	300	8,00	800

[a] tr = trace (a few nesting pairs reported, <100 birds total); na = no estimate available. Sources: 1960s - Dill and Lee (1970); 1980s - Sheaffer and Malecki (1998) and R. Malecki, unpubl. data); other years - State biologists and unpublished reports.

(b) Breeding Distribution

Over the past 50 years, the Atlantic Flyway resident goose population has expanded from a few early releases to a breeding range that now includes every State and Province in the flyway (Hindman and Ferrigno 1990). Their range continues to expand at the North ans South ends of the flyway and within most States and Provinces. The resident population may someday merge with migrant geese nesting in the boreal forest zone of Quebec above 48° N latitude. Throughout this range, breeding habitats of Atlantic Flyway resident Canada geese vary widely from agricultural landscapes to forested wetlands to urban and suburban environments.

Highest densities (>2/km^2 in spring) of resident geese occur in Atlantic coastal regions, such as southern New England, southeastern New York, New Jersey, southeastern Pennsylvania, Delaware, Maryland, and eastern Virginia. This may reflect the long history of resident geese nesting in those areas. Densities as high as 5/km^2 occur in some localities. Moderate densities (1-2/km^2) occur in interior regions of the Atlantic Flyway, from southern Ontario to Georgia, and low densities (<0.5/km^2) occur in mountainous areas of northern New England, northern New York, and in southern Maritime provinces (H W. Heusmann, Massachusetts Division of Fisheries and Wildlife, unpublished data; J. D. Goldsberry, U.S. Fish and Wildlife Service, unpublished data).

(c) Migration and Winter Distribution

Most Atlantic Flyway resident geese are non-migratory or undertake short local movements between breeding and wintering areas. Geese nesting inland in northern States and Provinces tend to exhibit more regular "migration" behavior than those nesting in coastal regions or at mid or southern latitudes. Some

flocks in northern and interior parts of the flyway travel several hundred kilometers between breeding and wintering areas, but most travel <35 km or remain year-round in local areas (Johnson and Castelli 1998).

Winter distribution of Atlantic Flyway resident geese is similar to their breeding distribution, with wintering flocks found from southern Canada to northern Florida. In northern States, concentrations occur inland in agricultural areas near large unfrozen water bodies, such as the Finger Lakes and Hudson River Valley in New York, and water supply reservoirs. In southern New England and States to the south, where ice and snow cover are less common, wintering resident geese are more widely distributed throughout the Atlantic Coastal Plain.

Resident geese use a variety of habitats in winter, including agricultural fields, parks, golf courses and open lawns in urban/suburban areas. Resident geese often remain in urban areas during winter because those areas are typically not hunted, contain good roosting sites that remain ice-free well into winter, and have readily available foods, such as lawn grasses, supplemental feeding by local citizens, or waste grain on nearby croplands.

There is growing evidence that a molt migration occurs among Atlantic Flyway resident geese (Abraham et al. 1999; B. L. Swift, New York State Department of Environmental Conservation, unpublished data), but the extent to which this occurs, where the birds go, and when they return, is largely unknown.

(d) Population Trends

Numbers of resident geese in the Atlantic Flyway have increased dramatically since their establishment. Breeding waterfowl surveys in the northeastern U.S. (from New Hampshire to Virginia), aerial surveys in eastern Canada and Maine, and estimates provided by biologists in other States and Provinces indicate a total spring population of approximately 1.1 million resident Canada geese in the Flyway in 2000, including 1 million in the U.S. (**Table III-5**).

Table III-5. Estimated spring populations of resident Canada geese (1,000s of birds) in the Atlantic Flyway[a].

Year	ME	VT	NH	MA	CT	RI	NY	PA	NJ	DE	MD	VA	Total
1990	na	0.8	2.9	11.6	9.1	2.2	64.0	66.3	28.0	1.1	16.8	35.0	237.8
1991	na	2.5	2.5	13.0	15.1	1.4	58.6	65.0	43.4	0.5	35.1	68.7	305.8
1992	na	18.9	11.5	12.8	17.2	2.7	108.1	74.3	30.9	1.1	18.1	81.5	377.1
1993	na	0.0	7.6	16.3	16.5	1.9	167.7	196.5	37.7	4.1	33.2	128.6	610.1
1994	na	2.8	3.1	13.2	22.7	0.9	91.9	177.0	61.1	1.3	75.7	129.4	579.1
1995	na	1.4	13.5	16.1	23.2	2.5	78.4	208.1	67.4	4.7	62.7	207.6	685.6
1996	7.5	0.3	36.0	25.7	23.3	1.6	199.5	219.2	69.6	1.8	66.9	208.1	859.5
1997	9.6	18.2	16.6	16.8	31.1	3.4	119.5	194.6	85.3	4.8	69.9	332.5	902.3
1998	14.1	3.0	24.2	19.8	30.8	2.9	133.4	210.8	86.0	7.2	93.4	253.6	879.2
1999	48.0	3.7	23.1	18.3	23.7	3.4	158.8	262.0	82.3	5.5	58.9	198.2	885.9
2000	9.5	7.0	21.3	21.4	36.3	1.3	152.3	225.5	106.3	9.1	63.3	229.6	882.9

a Sources: ground plot surveys for NH to VA; aerial surveys for ME; na = no annual estimate available. State biologists estimated an additional 196k in 5 other States in 1999 (WV-28k, NC-97k, SC-22k, GA-44k, AND FL-<5k).

b Totals of State estimates differ from flyway totals calculated by physiographic strata.

The estimated number of resident Canada geese in the northeastern U.S. increased more than 3-fold between 1990 and 2000 (**Table III-5**). However, spring population estimates have leveled off since 1997 after special hunting seasons were established throughout the Flyway. Population trends in other States are not as well documented, but similar growth rates were indicated by Breeding Bird Survey (BBS) data, which increased between 1990 and 1996 for every physiographic region of the eastern U.S. (J. Sauer, U.S. Geological Survey, unpublished data).

Midwinter counts of Canada geese must be interpreted with caution because resident and migrant geese cannot be distinguished during these surveys. Neckband observation data indicate that resident Canada geese comprise the largest proportion of geese wintering in the mid-Atlantic and New England regions. The average total midwinter counts of Canada geese in those two regions increased approximately 29,000 birds during 1966-1970 to nearly 350,000 during 1996-1999 (Serie and Vecchio 1999), due largely to the growth of resident populations. Winter surveys in the southernmost Atlantic Flyway States (SC, GA, FL), where very few migrant geese winter, do not cover areas typically used by resident geese and may not accurately reflect population trends.

(e) Population Goals

Most State wildlife agencies in the Atlantic Flyway consider their resident goose populations to be at or above "social carrying capacity" (public tolerance level) with respect to damage and conflicts associated with the birds. Population goals, i.e., desired population size, were proposed by each State in 1999 (**Table III-6**). These goals were derived independently by State waterfowl biologists based on their respective management needs and capabilities and assessment of public desires (Atlantic Flyway Council 1999). Unlike traditional population goals for waterfowl, these population goals represent an optimal size, not a minimum number above which "more is better".

In some cases, goals were an approximation of population levels at an earlier time when problems were less frequent or less severe. In other cases, goals were calculated from what was judged to be a more desirable or acceptable density of birds. For States where resident geese have just recently become established, goals are near current population levels. In addition to wanting fewer geese, most States desire a more uniform distribution of geese to reduce severity of problems in many areas and help prevent new problems from occurring.

(2) Mississippi Flyway

For management purposes, the Mississippi Flyway giant (resident) Canada goose population is defined as Canada geese nesting in Mississippi Flyway States as well as Canada geese nesting south of latitude 50° N in Ontario and 54° N in Manitoba. This population may include geese belonging to the subspecies *B. c. maxima*, *B. c. moffitti*, and possibly other subspecies because the origins of the Canada geese used in some of the restoration projects in the Flyway are unknown (Mississippi Flyway Giant Canada Goose Management Plan, 1996).

Moser and Rolley (1990) found that Canada geese that nest in the area described above were similar in size and coloration to the giant Canada goose described by Hanson (1965). Giants historically nested throughout central North America (Cooke 1906, Hanson 1965). At the time of European settlement, the nesting range of giants probably extended from central Alberta, Saskatchewan, and Manitoba, south to central Kansas and Missouri, and east to the shores of Lake Erie, exclusive of the shield lake areas of

northeastern Minnesota, Wisconsin, Michigan and Ontario (**Figure III-1**; Hanson 1965).

Table III-6. Spring breeding population (BPOP) estimates (in thousands of geese) and population goals for resident Canada geese in Atlantic Flyway States (adapted from Atlantic Flyway Council 1999).

State	Land area (km^2)	Current BPOP[a]	BPOP per km^2	BPOP Goal	Goal per km^2	Goal per mi^2
CT	12,593	29	2.3	15	1.2	3.1
DE	5,135	6	1.1	1	0.2	0.5
FL	140,158	<5	0.0	<5	0.0	0.1
GA	150,259	44	0.3	30	0.2	0.5
ME	80,215	24	0.3	15?	0.2	0.5
MD	25,618	74	2.9	30	1.2	3.0
MA	20,267	18	0.9	≤ 20	1.0	2.6
NJ	19,477	85	4.3	41	2.1	5.5
NH	23,378	21	0.9	≈16	0.7	1.8
NY	124,730	137	1.1	85	0.7	1.8
NC	126,406	97	0.8	<30	0.2	0.6
PA	116,461	223	1.9	≈100	0.9	2.2
RI	2,717	3	1.2	3	1.1	2.9
SC	78,176	22	0.3	20	0.3	0.7
VT	24,002	8	0.3	5	0.2	0.5
VA	103,021	261	2.5	180	1.7	4.5
WV	62,433	28	0.4	24	0.4	1.0
Total	1,111,838	1,084	1.0	620	0.6	1.4

a Mean annual estimate for 1997-1999 or best estimate of wildlife agency staff.

Numbers of giant Canada geese were greatly reduced by unregulated harvest, egg gathering, and wetland destruction that accompanied 19th-century settlement of their breeding range. Cooke (1906) reported very small numbers of Canada geese nesting south of central Iowa. By the early 1930s, giants had disappeared from Minnesota, North Dakota, and northern Wisconsin (Hanson 1965). By 1950, many authorities believed the giant race of Canada geese to be extinct (Delacour 1954). However, in January of 1962, a wintering population of free-flying giant Canada geese was discovered at Rochester, Minnesota (Hanson 1965).

(a) Reintroduction Efforts

Efforts to re-establish giant Canada goose flocks in the Mississippi Flyway began as early as the 1920s in Michigan, and the 1930s in Wisconsin, Ontario and Minnesota (**Table III-7**). During the 1940s and

1950s, wildlife agencies in Wisconsin, Manitoba, Minnesota, Missouri, and Ohio also implemented giant restoration programs. In the 1960s State agencies in Iowa, Illinois, Indiana, Louisiana and Tennessee joined the restoration effort while the U.S. Fish and Wildlife Service initiated programs to establish nesting populations of giants on national wildlife refuges in Mississippi, Tennessee and Alabama. These projects were soon followed by State efforts to establish populations of giants in Kentucky, Arkansas, Alabama, and Mississippi in the 1970s and 1980s.

(b) Population Trends and Goals

Historically, populations of Canada geese in the Flyway were monitored on their wintering grounds through coordinated annual winter surveys (i.e., mid-December and Mid-winter; **Table III-8**), because each population exhibited a strong affinity for specific wintering sites. Winter surveys appeared to produce reliable estimates of the magnitude of most Canada goose populations in the Flyway through the 1970s; however, in the 1980s, increasing numbers of giants began to complicate winter estimates of other Canada goose populations.

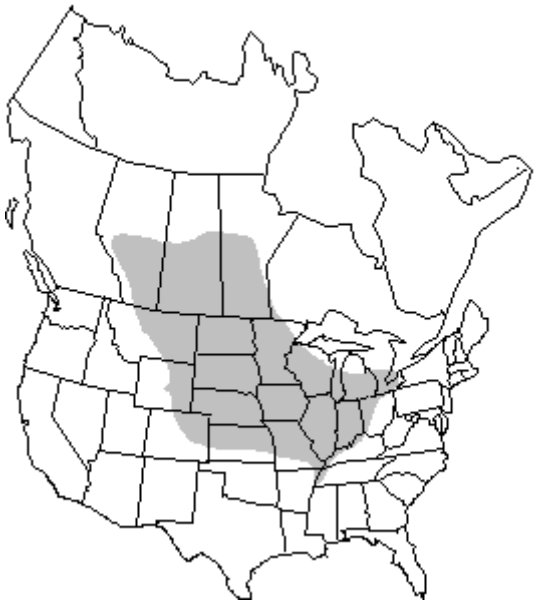

Figure III-1. Approximate breeding range (shaded area of the giant Canada goose prior to European settlement (Hanson 1965).

In the late 1980s, biologists became concerned that increasing numbers of giant Canada geese might be masking changes in populations of interior Canada geese. It was becoming increasingly difficult to sperate large concentrations of geese into appropriate populations (i.e., MVP, EPP, SJBP, and giants) during winter surveys, and biologists were becoming uncomfortable with relying on population estimates obtained from winter surveys.

Despite these concerns, winter surveys for Canada geese continued in the early 1990s, and numbers of Canada geese observed were reported by population. Annual population estimates obtained from winter counts must be interpreted cautiously because survey efforts have been inconsistent in recent years, varying from State to State as well as within States, and the methods used to allocate geese to the various populations have changed in some cases.

Prior to 1992, monitoring of breeding Canada goose numbers in the Mississippi Flyway States was limited. North American Breeding Bird Survey data indicate that Canada geese within the Mississippi Flyway region increased at a rate of 17 percent annually during 1966-98. However, this trend has decreased in recent years to approximately 9 percent during 1990-98, and to approximately 4 percent during 1994-98 (Sauer et al. 2000). Wisconsin's annual breeding waterfowl survey indicates that statewide Canada goose numbers increased from 6,900 to 102,600 during 1986-2000 (Bergquist et al. 2000). Spring Canada goose numbers in Minnesota have increased from approximately 50,000 to over 300,000 during 1988-2000 (Lawrence 2000).

To determine the feasibility of estimating breeding populations of giant Canada geese, experimental surveys were conducted in 1992 in Ohio and Michigan. By 1995, breeding surveys had been implemented in 25 States and 2 Provinces of the Mississippi and Atlantic Flyways. The Mississippi Flyway began formally

Table III-7. A synopsis of giant Canada goose restoration efforts in the Mississippi Flyway.[a]

State	Year	Release Sites	No. of Geese	Agency/Group Directing Project	Source of Geese
MI	1936	Seney NWR	332	USFWS	HM Wallace, Livingston Co., MI. B.c maxima from Owatonnia, MN (Hanson 1965)
MI	1928-64	30 Sites	2,500	MI DNR	HM Wallace, Livingston Co., MI
MI	1972-73	Various Sites	32,000	MI DNR	Translocated from within State
WI	1932	Barkenhausen Pres.	6	Jack Miner	HM Wallace, Livingston Co., MI
WI	1939	Necedah NWR	Unk.[b]	USFWS	B.c moffitti from UT
WI	1932-57	12 sites	Unk.	WI DNR	T. Yeager, Owatonna, MN, HM Wallace, MI, Rock Prarie, WI, and Barrington, IL
WI	1969-95	56 sites	3,500	WI DNR	Translocated from within State
MN	1930s	Agassiz NWR	Unk.	USFWS	B.c moffitti from OR,UT, & MT
MN	1949	Agassiz NWR	Unk.	USFWS	Seney NWR
MN	1950s	Rice Lake & Tamarack NWR's	Unk.	USFWS	Seney NWR
MN	1958-70	Thief Lake, Roseau River, Lac qui Parle & Talcot Lake WMA's	Unk.	MN DNR	Carlos Avery Game Farm
MN	1955-77	13 sites in the Twin Cities	Unk.	Private	Unknown
MN	1982-95	Various sites	34,000	MN DNR, Univ. MN	Translocated from within State
IN	1935	Jasper-Pulaski WA	Unk.	IN DFW	Offspring of captive giant C. geese
IN	1966-73	Jasper-Pulaski WA	650	IN DFW	Offspring of captive giant C. geese
IN	1970	Pigeon River, Atterbury and Glendale WA's	267	IN DFW	Jasper-Pulaski WA
IN	1979-82	82 Sites	200 pair	IN DFW	Translocated from within State
ON	1930s	Lake St. Clair, Holstein, Guelph Amherstburg	Unk.	Private	Offspring of decoy flocks
ON	1954	Pembroke Hatcher	Unk.	OMNR	Pea Island, NC
ON	1959-60	Morrisburg & St. Lawrence Seaway Pk	61	OMNR	Bombay Hook, DE & Mason Game Farm, MI

Table III-7, continued.

State	Year	Release Sites	No. of Geese	Agency/Group Directing Project	Source of Geese
ON	1968-80s	Southern ON, Thunder Bay & Sault Ste. Marie	Unk.	OMNR & ON Waterfowl Res. Foundation	Primarily Toronto & Codrington Game Farm
MB	1945	Delta Marsh	Unk.	MB DNR	Offsring of domesticated giant Canada geese
MB	1940s	Rennie	Unk.	Alf Hole	Offsring of giant Canada geese captured in area
MB	1951	Marshy Point	Unk.	MB DNR	Island Pk, Delta Marsh & Dog Lake, MB
MB	1965	Oak Lake	Unk.	MB DNR	Regina, SK
MO	1949	A.A. Busch Memorial WA	Unk.	MO DOC	Private aviculturalist
MO	1952	Trimble Lake WA	Unk.	MO DOC	Private aviculturalist
MO	1949-91	44 Sites	4650	MO DOC	Trimble Lake & Busch Memorial WA
OH	1956	Mercer, Mosquito Creek & Killdeer Plains WA	20 each	OH DOW	Offspring of domesticated giant Canada geese
OH	1967	Ottawa NWR	100	OH DOW	Mosquito Creek WA
OH	1979	Muskingum Co.	1500	OH DOW	Toronto, ON
OH	1980s	W.A.'s Statewide	Unk.	OH DOW	Translocated from within State
IA	1965	Ingham Lake WA	Unk.	IA DNR	Offspring of domesticated giant Canada geese
IA	1971-72	Ruthven, Spirit Lake & Rice Lake	Unk.	IA DNR	Offspring of Ingham Lake flock
IA	1977-79	Rathbun, Lake Icaria & Bays Branch WA's	Unk.	IA DNR	Offspring of previously established flocks
IA	1983-93	33 Sites	5964	IA DNR	Translocated from within State
IL	1967-72	Fulton, Knox & Henry Co.	464	IL DOC	Des Plaines Game Farm, Wilimington, IL
IL	1970s	Mined areas in S. IL	Unk.	IL DOC	DesPlaines Game Farm, Wilmington, IL
IL	1970s	Kankakee & Grundy Counties	Unk.	IL DOC	DesPlaines Game Farm, Wilmington, IL
IL	1980-91	46 counties	8000	IL DOC	Offspring of previously established flocks
TN	1951	Old Hickory Resvr	12	Wick Comer	North Caroline game farm
TN	1964-67	Cross Creeks NWR	26	USFWS	15- Swan Lake NWR, 11 - MN

Table III-7, continued.

State	Year	Release Sites	No. of Geese	Agency/Group Directing Project	Source of Geese
TN	1968	Old Hickory Resvr	60	TWRA	Missouri game farm brood stock
TN	1971	Buffalo Springs Game Farm	23	TWRA	Old Hickory, MI & OH brood stock
TN	1972-77	Various reservoirs	1073	TWRA, TVA	Buffalo Springs Game Farm
TN	1974-80S	Various ponds & reservoirs	Unk.	TWRA, TVA	TVA & COE reservoirs
MS	1966	Noxubee NWR	76	USFWS	Sand Lake NWR, SD
MS	1966-68	Yazoo NWR	70	USFWS	20- Sand Lake NWR, SD 20- MN, 30- OH
MS	1960s	Sardis Waterfowl Refuge	Unk.	MS DWFP	Ohio and Louisiana
MS	1985-95	Various sites	20,000	MS DWFP	From GA, IL, OH, PA, NC, MN, TN, ON
LA	1966-69	Rockefeller Refuge 9	60	LA DFW	Translocated from MN & SK
LA	1973-88	16 private sites	607	LA DFW	Translocated from Rockefeller Refuge
AL	1967-69	Eufaula NWR	75	USFWS	New Jersey and Minnesota
AL	1980	Central Alabama	53	AL DCNR	Land-Between-the-Lakes, KY & TN
AL	1981	Jackson Co. & Central AL	313	AL DCNR	MI
AL	1987-90	Northern & Central AL	1740	AL DCNR	TN, IL, MI and PA
AL	1991-95	Southern & Central AL	1600	AL DCNR	Translocated from within State
KY	1970s	Frankfort, Lexington and Louisville areas	Unk.	KDFWR	Unknown
KY	1977	Daniel Boone National Forest	Unk.	USFS	Unknown
KY	1979	Land-Between-the-Lakes	Unk.	TN Valley Authority	MI and Others
KY	1980s	10 Locations	Unk.	KDFWR	MI, IL, TN
AR	1970	Holla Bend NWR	18	USFWS	Unknown
AR	1973	Wapanocca NWR	30	USFWS	Unknown
AR	1981-83	Arkansas River	Unk.	ARGF, USFWS,	Ontario, Mississippi, and Illinois

Table III-7, continued.

State	Year	Release Sites	No. of Geese	Agency/Group Directing Project	Source of Geese
AR	1983-90	Arkansas River Valley	4200	ARGF, USFWS, COE	TN, KT, ND, IL, MN, AL, ON, OH

[a] Mississippi Flyway Council Technical Section Giant Canada Goose Committee.
[b] Unk. = Unknown number released.

monitoring spring populations of giant Canada geese Flyway-wide in 1993 (**Table III-9**). From 1993 to 2000, the estimated number of Mississippi Flyway giant Canada geese has nearly doubled (from 700,000 to 1.3 million). During that time, estimated giant populations in seven States have more than doubled, while only two States (Illinois and Louisiana) have experienced population decreases (**Table III-9**).

Spring population objectives for Mississippi Flyway States were first established in 1996 and revised in 2001. Current objectives are shown in **Table III-10**. Since that time, the majority of States have exceeded their goals by at least 50 percent (five States are still below goal). The 2000 spring population estimates were 35 percent above the spring population objectives.

Of the 3 subspecies of Canada geese in the Flyway, giant Canada geese have both the highest reproductive rate and highest adult survival rate. Unlike arctic nesting geese, whose annual production is greatly influenced by weather conditions, giants inhabit temperate environments with relatively stable breeding habitat conditions, are tolerant of human disturbance, and are willing to nest in close proximity to other goose pairs (densities as high as 100 nests per acre have been found on islands; Klopman 1958, Ewaschuk and Boag 1972, Zenner et al. 1996). These factors, combined with the ability of this subspecies to utilize a wide range of habitats, has resulted in consistently high annual production across most of the breeding range (Mississippi Flyway Giant Canada Goose Management Plan, 1996).

More recently, summer-banded giant Canada geese from 26 States and 6 Provinces have been recaptured in late May or early June on James Bay. The majority of these were banded as flightless goslings in the eastern Mississippi Flyway - primarily Ohio and Michigan (Abraham et al. 1999). These molting giants may be compromising spring breeding grounds surveys for interior Canada geese, as well as impacting the availability and quality of nesting and brood rearing habitat for interior Canada geese.

(3) Central Flyway

The Central Flyway is comprised of ten States (Montana, Wyomong, Colorado, New Mexico, Texas, Oklahoma, Kansas, Nebraska, South Dakota, and North Dakota), two Canadian Provinces (Saskatchewan & Alberta), the Northwest Territories, and Nunavut. The Central Flyway, in cooperation with the U.S. Fish and Wildlife Service and the Canadian Wildlife Service (CWS), manages five populations of Canada geese (*Branta canadensis*). The Short Grass Prairie and Tall Grass Prairie populations breed in the Arctic and are comprised of small races of Canada geese (e.g. *B. c. parvipes* and *hutchinsii*). The Western Prairie (WP) population breeds north of the Trans-Canada Highway in Manitoba and Sasketchewan and is composed mainly of large (*B. c. interior*) Canada geese. The other two populations of Canada geese are the Hi-Line (HL), and the Great Plains (GP), which for the purposes of this summary will be collectively

Table III-8. Winter survey estimates of giant Canada geese in the Mississippi Flyway.[a]

Year	AL	AR	IL	IN	IA	KY	LA	MI	MN	MS	MO	OH	TN	WI	Total
1971	0	100	0	4,500	1,000	0	600	5,900	14,600	7,600	3,600	14,700	800	2,400	52,600
1972	0	200	800	3,000	500	0	600	10,100	20,500	3,500	3,000	9,700	800	1,500	51,900
1973	0	0	1,600	1,900	1,400	0	600	8,900	22,400	7,600	2,800	8,200	1,300	900	55,400
1974	0	0	800	3,600	200	0	600	3,500	26,000	3,600	3,600	9,800	2,000	1,800	51,700
1975	200	0	500	600	2,100	0	600	6,100	23,400	6,800	3,900	10,600	2,600	1,200	54,800
1976	200	0	1,600	1,300	500	0	600	3,800	20,800	4,800	5,000	8,200	5,700	1,700	46,800
1977	400	0	900	1,900	1,200	0	2,500	4,200	22,900	5,100	4,400	9,800	4,100	1,200	58,600
1978	200	0	3,300	2,500	500	0	2,500	4,400	24,400	10,500	3,200	13,100	5,100	1,200	70,900
1979	400	0	800	2,400	3,700	0	3,500	9,500	30,900	7,800	1,500	12,900	5,400	1,900	80,700
1980	300	0	200	3,700	5,800	100	3,500	11,900	38,000	6,600	2,000	16,900	5,700	2,100	96,800
1981	400	0	7,300	4,100	9,400	200	3,500	10,100	27,700	6,600	5,000	15,200	6,900	2,100	98,500
1982	800	800	7,700	7,300	11,900	300	1,000	17,400	59,500	8,000	2,600	16,200	5,800	4,300	143,600
1983	600	700	3,400	10,500	3,700	1,300	2,000	13,800	21,800	7,600	3,100	17,900	6,900	1,100	94,400
1984	800	100	7,600	12,200	11,300	300	100	16,100	38,500	7,700	2,500	25,100	7,000	10,600	139,900
1985	1,200	400	27,800	15,100	3,000	500	1,000	21,000	30,700	13,600	2,300	32,300	10,600	6,900	166,400
1986	900	1,000	31,900	5,800	26,000	500	1,000	29,100	34,300	11,100	3,200	35,900	9,500	2,400	192,600
1987	1,200	2,200	28,300	9,700	23,600	800	1,000	30,400	36,300	5,800	2,800	35,300	8,900	22,300	208,600
1988	1,600	2,000	32,600	8,200	17,300	3,100	1,000	25,200	42,800	6,100	2,800	45,600	10,500	36,800	235,600
1989	600	2,900	43,689	5,689	32,739	1,300	1,000	33,796	55,560	16,500	1,300	32,911	10,600	33,377	271,961
1990	1,138	1,450	64,726	5,781	38,940	4,226	1,000	39,118	64,788	16,064	1,534	49,164	6,040	32,205	326,174
1991	1,797	2,200	10,944	7,102	24,652	1,348	1,000	38,561	31,814	15,255	1,460	53,143	6,430	30,168	225,874
1992	1,553	2,303	14,328	9,118	36,952	1,629	900	48,701	50,364	13,345	1,700	59,871	7,975	20,783	269,522
1993	1,776	2,310	34,608	5,158	55,887	1,190	1,000	64,441	47,594	20,810	2,627	55,840	4,647	75,042	372,930
1994	1,377	1,920	56,000	18,774	36,792	2,738	0	53,256	43,551	24,750	1,616	64,086	5,915	57,874	368,649
1995	1,435	2,007	51,067	11,536	47,315	1,694	0	49,160	45,338	22,415	1,600	71,565	6,779	NA	311,911
1996	1,322	1,010	41,540	4,870	69,817	1,496	NA	57,717	23,841	10,580	1,525	53,655	5,226	NA	272,599
1997	1,471	2,172	52,500	6,910	66,634	2,487	0	60,231	50,149	12,781	1,136	81,549	5,070	49,307	392,397
1998	4,558	2,709	54,995	6,948	71,447	5,232	0	93,979	122,614	20,414	671	42,065	8,505	143,016	577,153
AVE:															
71-79	156	33	1,144	2,411	1,233	0	1,344	6,267	22,878	6,367	3,444	10,778	3,089	1,533	56,563
80-89	840	1,010	19,049	8,229	14,474	840	1,510	20,880	38,516	8,960	2,760	27,331	8,240	12,198	164,836
90-99	1,825	2,009	42,301	8,466	49,826	2,449	488	56,129	53,339	17,379	1,541	58,993	6,287	58,342	128,560
96-00	2,450	1,964	49,678	6,243	69,299	3,072	0	70,642	65,535	14,592	1,111	59,090	6,267	96,162	248,430

[a] The 1971-97 estimates are based on mid-December goose surveys (Ken Gamble, USFWS). The 1998 estimate = January mid-winter survey Canada goose estimate x percentage of giants harvested in the State (John Wood, WI Coop. Wildlife Research Unit).

Table III-9. Mississippi Flyway giant Canada goose spring population estimates, 1993-2000.[a]

Year	AL	AR	IL	IN	IA	KY	LA	MI	MN	MS	MO	OH	TN	WI	Total
1993	16,000	3,000	106,200	67,500	38,000	18,000	3,000	152,340	138,000	9,000	30,300	58,000	38,000	60,700	738,040
1994	17,000	3,000	114,200	69,600	28,025	20,675	3,000	196,515	201,600	9,000	35,050	71,000	40,200	54,600	863,465
1995	18,000	3,300	107,000	101,800	32,100	15,000	3,300	174,131	207,200	9,000	32,200	69,300	44,300	29,350	845,981
1996	4,390	4,390	154,236	86,582	40,655	29,071	4,390	185,538	190,200	11,970	38,868	74,527	59,120	71,946	955,883
1997	4,030	4,785	72,720	92,940	42,300	19,670	4,030	212,612	169,000	10,980	41,020	72,000	54,120	77,210	877,417
1998	9,000	10,000	105,650	78,857	44,860	22,445	1,500	305,219	214,600	20,000	44,826	77,942	65,868	72,536	1,073,303
1999	12,000	20,000	111,800	88,966	44,400	46,395	2,000	269,268	210,200	20,000	56,750	84,208	53,077	78,956	1,098,020
2000	12,000	25,000	102,900	121,340	54,519	38,508	2,000	324,710	294,900	20,000	77,128	90,256	69,778	102,644	1,335,683

[a] Mississippi Flyway Council Technical Section Giant Canada Goose Committee.

Table III-10. Population objectives and spring 2000 population estimates of giant Canada geese in Mississippi Flyway States.

	AL	AR	IL	IN	IA	KY	LA	MI	MN	MS	MO	OH	TN	WI	Total
Population Objective	20,000	4,000	110,000	80,000	100,000	60,000	4,000	200,000	178,000	20,000	40,000	60,000	45,000	68,000	989,000
Population Estimate	12,000	25,000	102,900	121,340	54,519	38,508	2,000	324,710	294,900	20,000	77,128	90,256	69,778	102,644	1,335,683
% Difference	-40%	525%	-6%	52%	-45%	-36%	-50%	62%	66%	0%	93%	50%	55%	51%	35%

[a] Mississippi Flyway Council Technical Section Giant Canada Goose Committee.

referred to as resident Canada geese. These populations are comprised of the large races of geese (*B. c. moffitti*, *interior*, and *maxima*). As discussed in section **I.B. Scope**, the Western Prairie and Great Plains populations are often combined for Flyway management purposes. In addition, some western States in the Flyway deal with management issues related to expanding Rocky Mountain Population (RMP), which are largely residents associated with the Pacific Flyway. These populations of geese are distinguished from one another by their geographic distribution in the summer and winter as well as their racial makeup. Hi-Line birds predominantly occupy the western portions of the Flyway while WP and GP birds are residents of the east tier of States and Saskatchewan, with a portion of the breeding range extending into Manitoba.

The Flyway has adopted management plans for each of these populations Each of these has a similar Goal: Maximum recreational opportunity consistent with the welfare of the population, international treaties, habitat constraints and the interests of all Central Flyway provinces and States." The plans contain population objectives, and estimates of population size are obtained annually, most often by winter counts. In addition, in March 2000 the Central Flyway Council adopted the management plan, Large Canada Geese in the Central Flyway: Management of Depredation, Nuisance, and Human Health and Safety Issues. The Goal of the Central Flyway is to manage resident Canada geese to achieve maximum benefits from these birds while minimizing conflicts between geese and humans. All populations of Canada geese in the Central Flyway are above objective levels.

Most States and Alberta and Saskatchewan conducted programs to increase the number and expand the range of breeding Canada geese within their jurisdictions, including the release of captive-reared goslings, the release of adults, and the implementation of special hunting regulations. Some restoration programs trace their origin to the early 1950s and others to the 1970s. Programs in northern areas were being terminated while those in more southern areas were just beginning. More than 120,000 geese were handled for restoration purposes during 1960-99 in the Flyway. The 1997-99 average winter count of total Canada geese in the Central Flyway was 1.5 million birds, up from about 206,000 in the 1960s. Of the 1.5 million, about 620,000 were from the three populations of large Canada geese. This is about 60 percent above objective.

(a) History and Current Status

Even before Hanson (1965) announced the rediscovery of giant Canada geese, members of the Central Flyway had begun restoration projects. Captive breeding flocks were housed at four National Wildlife Refuges in North Dakota and South Dakota between 1938 and 1941 (Lee et al. 1984) and the first breeding flocks were established in Nebraska in 1936 (Gabig 1986). These early efforts experienced mixed success in terms of re-establishing flocks of Canada geese, but much success in learning about the techniques for successful reintroduction. Over the next 40 years, captive flocks of breeding adults were established in most States, Alberta, and Saskatchewan. Goslings from these flocks were allowed either to free fly from their hatching location or, more frequently, transported to a new location with suitable breeding habitat. The habit of the bird, particularly females, to return to the area where they fledged after reaching sexual maturity allowed nucleus breeding flocks to become established.

By 1960, attempts to establish breeding flocks were ongoing in several States, including Colorado, Kansas and Wyoming. During 1960-62, 259 wild geese were trapped at Bowdoin NWR in Montana and transplanted to Saskatchewan. The pace quickened in the 1970s, when over 18,000 geese were released in the Flyway, including over 12,000 in the U.S. (**Table III-11**). In the two decades that followed, over 85,000 birds were handled for restoration programs (**Table III-11**). Kansas and Oklahoma started major programs in this period while Wyoming and Alberta terminated theirs.

Table III-11. Number of Canada geese released either as goslings from captive flocks or as the result of trap and transport programs in the Central Flyway.

Period	AB	SK	MT	ND	SD	WY	NE	KS	CO	OK	NM	Total States	Total
1967-98	0		0	0	12,278	0	0	0	0	0	0	12,278	12,278
1960-69	156	1,737	371	0	0	121	0	0	1,800	0	0	2,292	4,185
1970-79	2,299	4,118	0	5,546	0	1,021	3,803	0	2,000	0	176	12,549	18,966
1980-89	1,265	7,075	0	4,457	0	1,049	4,224	10,701	730	13,057	432	34,650	42,990
1990-99	0	9,702	0	3,563	0	0	4,447	17,836	2,220	5,556	0	33,622	43,324
Total	3,720	22,632	371	13,566	12,278	2,191	12,474	28,537	6,750	18,613	0	95,391	121,743

There was a change in the focus of activity over these three decades. In the 1970s, 87 percent of the releases in the U.S. were goslings and 75 percent of these were from captive flocks held by States. During the 1980s, 54 percent of the releases were goslings but during the 1990s this decreased to 43 percent. In addition, only 23 percent of the goslings were from captive flocks during 1980-1999. The reason for this shift in the source of birds is that they became available both from other locations within a State and from other States and/or Provinces. In the decade 1990-99, more than 21,000 geese were trapped and translocated within a jurisdiction and another 18,500 were moved from one jurisdiction to another. The availability of Canada geese was directly related to population size (supply) and problems being caused by geese (i.e., the desire to reduce the number of geese in some places). Many adults were available. Essentially all geese translocated in the 1990s were available because they were causing problems. As of 2000, all States and Provinces had terminated their programs although Saskatchewan, Oklahoma, Kansas, Nebraska, South Dakota and North Dakota were still moving birds from places where they were causing problems to less populated locations.

(b) Population Size and Distribution

Breeding Bird Surveys: Population indices used are from several sources. Many are from the annual May Breeding Duck Survey (May Survey) (Wilkins and Cooch 1999) conducted across a broad range of northern North America. While some Canada goose data were recorded on this survey, which was designed to estimate duck population size, as early as 1955, data available from 1970 to 1999 were used in this report for HL, RM and WP populations and that portion of the GP population that occurs in Canada (Nieman et al. 2000). The May Survey data also were used to estimate goose populations in North Dakota, South Dakota and Montana. For States where the May Survey is not conducted or data sets were not available, population information was obtained from the State wildlife agencies where the May Survey is not conducted or data sets were not available. These latter estimates were based on State-directed surveys and, in some cases, the best professional judgment of waterfowl biologists. Projections for 2010 were made using linear and exponential regression equations unless States did their own projections.

All populations of Canada geese in the Central Flyway are increasing, including the RMP, which is largely associated with the Pacific Flyway. The spring index for total large Canada geese for the three populations in the Central Flyway in 1999 was over 900,000 birds, 95 percent higher than in 1990 and 687 percent larger than in 1980 (Table 2). There is evidence that the explosive growth in population of the 1970s and 80s has slowed (**Table III-12**). The sum of the point projections for 2010 indicates a 28 percent growth from the 1999 estimate to about 2.4 million birds (**Table III-12**).

Table III-12. Indices of the number of Canada geese in the spring in the Central Flyway, potential population size in 2010 and population objectives.

	1970	1980	1990	1999	2010[1]	Objective[2]
Great Plains Population						
Canada	1,900	4,900	20,800	43,000	359,700	
North Dakota	0	3,700	26,600	104,500	516,600	60,000-100,000
South Dakota	900	3,400	46,200	111,800	100,000	50,000[3]
Nebraska	4,000	8,000	12,000	32,000	36,800	30,000-50,000
Kansas	200	200	8,000	30,000	37,500	37,500
Oklahoma	30	30	11,100	43,900	75,000	20,000-40,000
Texas		500	600	750	900	750
Total	7,030	20,730	125,300	365,950	1,126,500	
% Change		195%	504%	192%	208%	
Western Prairie Population						
Canada	22,000	35,700	145,500	247,500	618,500	
% Change		62%	308%	70%	150%	
Hi-Line Population						
Canada	17,800	21,800	111,500	212,100	456,300	
Montana	40,500	27,500	69,500	62,200	141,600	80,000
Wyoming	500	2,400	5,900	9,800	14,000	13,300
Colorado	3,600	7,900	10,000	14,500	18,000	12,500
New Mexico	50	75	200	1,700	3,300	5,300
Total	62,450	59,675	197,100	300,300	633,200	
% Change		-4%	230%	52%	111%	
Sub-Total - Central Flyway Large Canada Geese						
	91,480	116,105	467,900	913,750	2,378,200	
% Change		27%	303%	95%	160%	
Rocky Mountain Population						
Canada	20,700	15,300	41,500	125,700	168,900	
Montana	8,400	8,900	28,000	41,400	64,700	45,000
Wyoming	2,600	2,900	3,300	4,700	3,000	8,300
Total	31,700	27,100	72,800	171,800	236,600	
% Change		-15%	169%	136%	38%	

1. Most estimates are based on a regression fitted exponential equation [$Y = e^{(b * year)}$]. By its nature, this equation accounts for historical growth and there is no certainty that such growth can be sustained.

2. The population objectives in this table are based on the best knowledge and information available. In addition, they represent State or provincial-wide objectives. As such, jurisdictions may modify population objectives and/or address the size of sub-populations as needed.

3. This estimate was provided by SD Game, Fish and Parks and represents a management objective they intend to attain.

Table III-13. Trends of the number of Canada geese in the Central Flyway as reported by the Breeding Bird Survey.[1]

	1966-1998						1980-98		
Region	**Trend**	**P**	**N**	**95% Conf. Int.**		**R.A.**	**Trend**	**P**	**N**
Alberta	9.8	***	57	1.9	17.8	7.78	7.2		58
Colorado	8.8	**	17	0.5	17.2	2.63	12.5	****	18
Kansas	39.6		9	*****	218.1	0.68	34.5		8
Montana	25.7	****	27	8.4	43.1	4.35	30.6	***	26
Nebraska	15.2	**	7	2.5	27.9	2.25	9.1		6
New Mexico	-7.6	**	5	-9.9	-5.3	0.40	-9.1	***	5
North Dakota	50.6	****	31	16.0	85.2	5.62	36.6	***	31
Oklahoma	17.5	***	6	10.8	24.3	0.34	17.5	**	7
Saskatchewan	8.1		32	-4.5	20.7	10.04	12.8	***	31
South Dakota	27.1	*	11	-7.6	61.8	0.71	15.3		11
Wyoming	-4.8		25	-18.8	9.2	8.67	-3.5		25

1 No Canada geese were reported in Texas, Trend is estimated percent change per year, R.A: Relative abundance - birds seen per route, *P<0.2 that the trend is zero: ** P<0.1: *** P<0.05: **** P<0.01

The Breeding Bird Survey (Peterjohn 1994) supports the conclusion that Canada goose populations are growing in most parts of the Central Flyway (**Table III-13**). Significant (P<0.1) positive annual trends range from 12 percent to 36 percent for the period 1980-98. Only the New Mexico data show a significant (P<0.05) negative trend.

Winter Surveys: Winter surveys have been conducted for Canada geese in the Central Flyway since the 1930s. Since the winter of 1981-82, estimates of individual populations have been made. Procedures for assigning geese to a population are contained in the Management Plans for each population (Central Flyway Council references) and include leg band recoveries and neck collar observations. Winter surveys are used to establish population objectives that in turn identify points at which hunting regulations may be changed.

All populations of Canada geese in the Flyway are above objective levels (**Table III-14**) and the total Canada geese counted in winter is continuing to increase. The three populations of large resident geese (with the WP and GP populations counted as one in the winter) are growing at a similar rate (P>0.9, equal slopes). The three-year running averages have been increasing since estimates were first computed for each population. Projections of population size indicate that the total number of Canada geese in the flyway will be 1.96 million by 2010, 31 percent larger than in 1999. This estimate is comparable to the 28 percent growth rate computed from breeding population data.

Table III-14. Population objectives, current status, and projected indices for 2010 for Canada goose populations in the Central Flyway based on winter surveys.

Population	Objective	Average 1998-2000 Index	Amount (Percent) Above Objective	Projected Population Index - 2010
Tall Grass Prairie	250,000	333,986	83,986 (34%)	329,000
Short Grass Prairie	150,000	255,767	105,767 (71%)	852,000
Western Prairie & Great Plains	300,000	581,531	281,531 (94%)	644,000
Hi-Line	80,000	216,040	136,040 (170%)	247,000

(4) Pacific Flyway

The only resident subspecies of Canada geese in the Pacific Flyway is the western Canada goose *(Branta canadensis moffitti)* which occurs throughout the States of Washington, Oregon, California, Idaho, Nevada, Arizona, Utah, Colorado, Montana, and Wyoming. Western Canada geese also occur in the Pacific Flyway portions of British Columbia and Alberta. Since 1983, the Pacific Flyway Study Committee has recognized and managed two populations of western Canada geese: the Pacific Population (PP) and the Rocky Mountain Population (RMP) (Krohn and Bizeau 1980). A large portion of the PP is relatively nonmigratory, with many segments wintering on or in close proximity to breeding areas, although more northern segments make annual migrations. In contrast, the RMP is primarily migratory with geese undertaking spring and fall migrations between breeding and wintering areas.

(a) Breeding Distribution

Pacific Population (PP) western Canada geese breed in central and southern British Columbia, southwest Alberta, northern and southwest Idaho, western Montana, northwest Nevada, northern California, and throughout Washington and Oregon (Krohn 1977). PP western Canada geese have been very successful in expanding their breeding range and are commonly found throughout most suitable habitats. Whether through transplant programs or natural pioneering, PP western Canada geese have expanded their historic distribution significantly over the past two decades. This expansion has been facilitated by the popularity of PP western Canada geese with wildlife managers and the public. Numerous management actions, such as placement of artificial nesting structures and trap-and-translocation programs, have been implemented to increase distribution and numbers of western Canada geese. Numerous agricultural practices and residential/recreational developments have also significantly increased habitats sought by Canada geese. While several indices exist, no overall population estimate (historic or current) is available for PP western Canada geese throughout its range.

Rocky Mountain Population (RMP) western Canada geese nest from central Nevada to western Colorado, and from at least as far north as central Alberta, and south to east-central Arizona and northwest New Mexico. The population affinity of geese nesting in southern California is unknown. Major nesting regions for the RMP are southern Alberta, southeast Idaho, Montana and northern Utah (see **Table III-17** for complete list of breeding reference areas). Krohn and Bizeau (1980) estimated the RMP population at 14,000 geese in the early 1970s. The current estimate of the breeding population is 130,000 geese (10-

year average) throughout the RMP range. Similar wildlife management practices conducted for PP western Canada geese to increase distribution and numbers also occurred for RMP birds. However, for both the PP and RMP populations, efforts to enhance populations have decreased concurrently with improved population status and increased depredation problems.

While numerous translocations have occurred throughout the western States for both PP and RMP western Canada goose populations, no complete records for all efforts are available. Translocations were conducted to assist in expanding the range of birds for the purpose of sport harvest and to assist with depredation and nuisance issues, primarily occurring on agricultural lands and urban settings. Private individuals also conducted release of captive reared birds into new areas. These efforts and natural pioneering of birds over several decades have resulted in western Canada geese occupying nearly all suitable habitats in western States.

(b) Migration and Winter Distribution

Although the majority of PP western Canada geese are generally nonmigratory, segments of the population do make annual migrations between breeding and wintering areas. Molt migrations of nonbreeding PP western Canada geese in U.S. States occur annually to the Northwest Territories, north of the Saskatchewan-Manitoba border (Ball et al. 1981), to areas in Alberta and Saskatchewan, and to large bodies of permanent water near breeding grounds in southern portions of the range (Ball et al. 1981; Rienecker 198x).

The population status and range of PP western Canada geese is not well defined in British Columbia and Alberta. Limited band recovery data from large Canada geese banded during the summer in northwestern Alberta indicate that the recoveries from this area occur in central and southern British Columbia, Washington, Oregon, and northern California during winter months (Bartonek 1991).

The RMP population winters from central and southern California to central Arizona and as far north as southern Alberta. Historically, the most northern wintering area for significant numbers of RMP western Canada geese was American Falls Reservoir in southeastern Idaho, however, growing segments of the population are wintering farther north and throughout the range of the RMP. Major segments wintered in central and southern California and western Arizona. Since 1971, the number of RMP Canada geese wintering in this region has grown from three birds to 23,475 (2000 winter survey). In the early 1990s, a significant number of birds that had traditionally wintered in southern California, northeast Arizona, and southern Nevada, appear to have shifted into western New Mexico. Prior to the late 1980s, relatively few RMP geese wintered in New Mexico.

(c) Population Trends

In recent years Pacific Flyway management agencies have focused more on establishing breeding population surveys to track the status of PP western Canada geese. However, a variety of survey methodologies are used to track the status of geese in individual States. The following indices in **Table III-15** illustrate general population trends for PP western Canada geese in some western States. Winter surveys are not precise for western Canada geese because of mixing of different subspecies of Canada geese on wintering grounds.

Table III-15. Pacific Population of western Canada goose breeding pair index.[1]

	Unit I			Unit II		Unit III		Unit IV			GRAND	Oregon
YEAR	CA	NV	TOTAL	S. ID	TOTAL	MT	TOTAL	N. ID	WA	TOTAL	TOTAL	Br. Pop.
1970	1,589	390	1,979						1,925	1,925	3,904	
1971	1,481	497	1,978			160	160		1,955	1,955	4,093	
1972	1,949	603	2,552						2,214	2,214	4,766	
1973	1,757	513	2,270						2,339	2,339	4,609	
1974	1,165	577	1,742			389	389		2,179	2,179	4,310	
1975	1,247	387	1,634			381	381		2,500	2,500	4,515	
1976	930	422	1,352			414	414		2,518	2,518	4,284	
1977	1,135	402	1,537	*806*	*806*	568	568		2,589	2,589	5,500	
1978	1,357	453	1,810	*943*	*943*	455	455		2,508	2,508	5,716	
1979	1,262	267	1,529	985	985	550	550	94	2,148	2,242	5,306	
1980	1,710	415	2,125	1,489	1,489	564	564	107	2,098	2,205	6,383	
1981	1,780	547	2,327	1,337	1,337	521	521	120	2,732	2,852	7,037	
1982	1,148	679	1,827	373	373	485	485	161	2,490	2,651	5,336	
1983	1,101	659	1,760	997	997	624	624	113	2,964	3,077	6,458	
1984	1,002	782	1,784	1,180	1,180	687	687	142	2,790	2,932	6,583	
1985	910	900	1,810	1,036	1,036	621	621	151	3,037	3,188	6,655	
1986	1,453	851	2,304	1,310	1,310	719	719	138	3,318	3,768	8,101	
1987	960	981	1,941	1,380	1,380	723	723	145	3,717	4,341	8,385	
1988	870	945	1,815	1,498	1,498	814	814	237	4,004	4,525	8,652	
1989	848	854	1,702	1,527	1,527	851	851	286	3,930	4,570	8,650	
1990	1,127	845	1,972	1,901	1,901	892	892	317	3,989	4,659	9,424	
1991	918	687	1,605	2,127	2,127	869	869	325	4,365	5,061	9,662	
1992	735	528	1,263	1,712	1,712	992	992	294	4,317	4,848	8,815	
1993	748	473	1,221	1,946	1,946	919	919	332	4,649	5,278	9,364	
1994	834	538	1,372	2,006	2,006	950	950	380	4,338	5,036	9,364	57,907
1995	473	626	1,099	1,688	1,688	959	959	374	4,334	4,708	8,454	44,464
1996	1,532	518	2,159	1,380	1,380	939	939	402	4,279	4,681	9,159	53,294
1997	634	669	1,303	1,686	1,686	1,056	1,056	366	3,930	4,296	8,341	56,881
1998	1,059	703	1,762	1,671	1,671	1,173	1,173	359	3,766	4,125	8,731	55,486
1999	831	870	1,701	1,722	1,722			290	3,776	4,066	7,489	
AVG.	1,166	607	1,778	1,396	1,396	684	684	236	3,148	3,416	6,851	53,137

Note:
1. Shaded area indicates no survey and that number is calculated, either average or trend.

The midwinter waterfowl survey currently provides the best long-term index for the overall RMP population. The RMP winter index increased from an average of 30,000 geese during the early 1970s, to an average of over 115,000 during the 1990s (**Table III-16**). Numbers of wintering geese increased in most reference areas, with central Wyoming and western Nevada and New Mexico showing the greatest increases. Indices from southern California and Nevada appear to be declining. States are placing more emphasis on completing breeding population estimates (**Table III-17**). Assessment of resident population status from winter counts are somewhat confounded by the mixing of other Canada goose subspecies in wintering flocks.

Table III-16. Mid-winter waterfowl survey indices of the Rocky Mountain Population of Canada geese by reference area.

Year	Mont.	Idaho	Wyoming			Colo.	Utah			Nevada				Arizona				California			NW	Total	3-Yr-Avg
	Cent.	SE	Cent.	West.	Total	West.	North.	South.	Total	NE	South.	NW	Total	West.	East	North	Total	Cent.	South.	Total	New Mex.		Index
1967	499	6,388		50	**50**	71	13	987	**1,000**	112	959	5,537	**6,608**	1,531	2,071		**3,602**	3,795	27,610	**31,405**	0	**49,623**	
1968	469	2,149	75	173	**248**	92	1,008	243	**1,251**	2	1,200	2,108	**3,310**	1,587	2,783		**4,370**	5,928	14,290	**20,218**	0	**32,107**	
1969	268	3,508	197	454	**651**	1,207	2,444	443	**2,887**	62	438	5,313	**5,813**	1,973	1,079		**3,052**	5,377	15,095	**20,472**	N.S.	**37,858**	**39,863**
1970	232	5,348	85	89	**174**	1,014	1,161	445	**1,606**	33	839	4,303	**5,175**	1,957	1,178		**3,135**	2,916	6,160	**9,076**	N.S.	**25,760**	**31,908**
1971	84	3,218	72	75	**147**	1,179	1,722	673	**2,395**	5	550	3,021	**3,576**	2,080	1,422		**3,502**	4,160	7,115	**11,275**	3	**25,379**	**29,666**
1972	70	11,615	197	225	**422**	1,205	2,209	517	**2,726**	2	659	3,422	**4,083**	2,505	1,736		**4,241**	3,590	8,694	**12,284**	45	**36,691**	**29,277**
1973	335	5,063	15	377	**392**	1,673	887	208	**1,095**	3	1,005	2,695	**3,703**	2,046	2,699		**4,745**	4,145	15,995	**20,140**	28	**37,174**	**33,081**
1974	330	10,005	90	276	**366**	1,558	2,894	904	**3,798**	70	1,320	3,661	**5,051**	3,242	2,115		**5,357**	4,095	12,255	**16,350**	158	**42,973**	**38,946**
1975	159	12,738	30	547	**577**	2,174	1,730	324	**2,054**	35	1,500	3,195	**4,730**	764	1,770		**2,534**	7,440	14,324	**21,764**	179	**46,909**	**42,352**
1976	0	19,675	32	215	**247**	1,503	1,321	722	**2,043**	540	1,225	4,090	**5,855**	1,995	1,550		**3,545**	5,735	12,965	**18,700**	177	**51,745**	**47,209**
1977	75	18,723	125	662	**787**	1,391	5,092	1,585	**6,677**	225	1,210	5,282	**6,717**	1,900	1,611		**3,511**	5,965	10,450	**16,415**	525	**54,821**	**51,158**
1978	60	26,269	300	409	**709**	2,405	6,863	2,220	**9,083**	1,090	1,400	5,540	**8,030**	2,685	1,654		**4,339**	2,620	5,480	**8,100**	411	**59,406**	**55,324**
1979	1	31,885	164	585	**749**	2,979	2,222	1,530	**3,752**	200	1,715	3,535	**5,450**	3,217	1,745		**4,962**	3,595	7,515	**11,110**	3,694	**64,582**	**59,603**
1980	740	27,976	176	638	**814**	2,362	2,205	3,417	**5,622**	1,000	1,940	8,135	**11,075**	12,050	1,942		**13,992**	1,115	11,510	**12,625**	661	**75,867**	**66,618**
1981	1,922	52,204	187	692	**879**	3,892	5,904	722	**6,626**	2,715	1,280	7,148	**11,143**	7,700	1,470		**9,170**	3,300	3,365	**6,665**	700	**93,201**	**77,883**
1982	66	21,564	1,681	689	**2,370**	4,476	2,314	2,494	**4,808**	1,466	1,352	6,743	**9,561**	8,625	2,210		**10,835**	4,420	5,250	**9,670**	1,370	**64,720**	**77,929**
1983	3,300	15,256	900	464	**1,364**	4,803	2,405	2,624	**5,029**	1,205	1,825	7,244	**10,274**	11,450	1,923		**13,373**	6,740	8,840	**15,580**	2,406	**71,385**	**76,435**
1984	25	7,765	470	558	**1,028**	2,912	2,480	2,362	**4,842**	2,115	2,380	12,420	**16,915**	14,850	1,981		**16,831**	1,225	4,010	**5,235**	7,054	**62,607**	**66,237**
1985	355	28,812	1,926	548	**2,474**	4,678	1,090	3,092	**4,182**	1,420	2,790	11,010	**15,220**	15,950	1,669		**17,619**	5,725	10,855	**16,580**	2,451	**92,371**	**75,454**
1986	0	6,130	295	602	**897**	6,667	1,671	3,701	**5,372**	1,952	1,706	13,283	**16,941**	21,200	1,842		**23,042**	1,499	7,811	**9,310**	3,388	**71,747**	**75,575**
1987	1,029	16,946	758	482	**1,240**	4,658	2,915	3,748	**6,663**	2,925	1,205	11,265	**15,395**	16,930	1,286		**18,216**	2,496	4,848	**7,344**	3,857	**75,348**	**79,822**
1988	819	19,229	732	486	**1,218**	5,996	2,263	2,488	**4,751**	1,236	1,280	8,263	**10,779**	22,600	1,330		**23,930**	1,645	3,050	**4,695**	4,325	**75,742**	**74,279**
1989	1,218	10,138	2,538	476	**3,014**	8,864	2,092	1,346	**3,438**	1,068	1,102	9,895	**12,065**	20,850	1,744		**22,594**	5,891	6,635	**12,526**	18,486	**92,343**	**81,144**
1990	3,864	22,474	1,977	673	**2,650**	15,877	3,480	3,295	**6,775**	2,925	1,405	13,952	**18,282**	25,600	1,374		**26,974**	3,323	2,215	**5,538**	32,646	**135,080**	**101,055**
1991	2,773	14,522	1,352	393	**1,745**	3,533	1,339	1,622	**2,961**	806	1,972	13,589	**16,367**	30,100	1,797		**31,897**	6,837	6,067	**12,904**	11,673	**98,375**	**108,599**
1992	14,704	46,689	2,668	293	**2,961**	8,111	3,837	3,216	**7,053**	914	1,358	12,044	**14,316**	17,650	1,083		**18,733**	1,398	1,742	**3,140**	18,352	**134,059**	**122,505**
1993	5,235	9,210	2,862	137	**2,999**	6,782	2,983	4,257	**7,240**	806	1,340	7,600	**9,746**	22,596	1,296		**23,892**	6,528	3,025	**9,553**	17,224	**91,881**	**108,105**
1994	5,559	11,199	2,279	394	**2,674**	10,046	5,491	3,232	**8,723**	401	446	11,524	**12,371**	21,300	1,307		**22,607**	3,617	484	**4,101**	13,645	**90,925**	**105,622**
1995	14,242	19,298	4,022	394	**4,416**	8,353	4,382	2,484	**6,866**	42	700	14,566	**15,308**	19,527	1,551		**21,078**	1,587	684	**2,271**	28,343	**120,175**	**100,994**
1996	3,096	47,070	3,353	328	**3,681**	8,297	17,121	1,871	**18,992**	2,250	580	12,195	**15,025**	14,043	1,283		**15,326**	3,972	1,537	**5,509**	12,714	**129,710**	**113,603**
1997	2,990	24,116	3,510	344	**3,854**	7,687	16,284	1,948	**18,232**	1,987	570	15,130	**17,687**	17,000	1,598		**18,598**	4,669	669	**5,338**	15,320	**113,822**	**121,236**
1998	24,122	22,878	4,758	225	**4,983**	7,721	11,683	2,395	**14,078**	1,350	625	14,267	**16,242**	12,816	1,348		**14,164**	218	1,018	**1,236**	11,234	**116,658**	**120,063**
1999	7,188	33,784	5,298	262	**5,560**	4,774	10,050	1,356	**11,406**	2,365	512	25,795	**28,672**	18,259	2,331	450	**21,040**	1,599	393	**1,992**	18,333	**132,749**	**121,076**
2000	26,112	14,859	8,726	547	**9,273**	8,397	7,441	1,631	**9,072**	890	840	14,805	**16,535**	*6,281*	1,833	315	**8,429**	4,352	1,715	**6,067**	23,475	**122,219**	**123,875**
Avg.	**3,586**	**18,491**	1,571	405	**1,930**	**4,628**	4,088	1,885	**5,973**	1,006	1,213	8,899	**11,118**	11,319	1,694	383	**13,036**	3,868	7,167	**11,035**	**7,902**	**77,236**	**76,766**

Table III-17. Breeding population index and objective by reference area for the Rocky Mountain Population of Canada geese.

Reference Area	Breeding Population Index	Objective Breeding Population Index
1. Southern Alberta [a]	81,700	**60,000**
2. Central Montana	27,600	**30,000**
3. Southeastern Idaho	5,040[b]	**5,550**
4. Western Wyoming	9,720[b]	**12,000**
5. Central Wyoming	6,520[b]	**6,050**
6. Western Colorado	380[b]	**460**
7. Northern Utah	1,520[b]	**1,550**
8. Southern Utah	240[b]	**250**
9. Northeastern Nevada	620[b]	**700**
11. Southem Nevada	200[b]	**240**
15. Eastern Arizona	40	**100**
16. Northwestern New Mexico	200	**200**
Totals	133,780	**117,100**
Restrictive level when 3 yr. average falls below --		**87,825**
Liberalization level when 3 yr. average is above --		**146,375**

Notes: The breeding population index is based upon the 10-year mean for the period between 1990 and 1999
a . Alberta numbers are provisional and will be adjusted as new data becomes available.
b. The breeding pair index is derived by doubling the State reported breeding pair index.

2. Natural Resources

Natural resource damage in the form of increased erosion, shoreline destabilization, destruction of newly seeded wetland restoration and mitigation sites, and damage to natural vegetation in natural marshes and impoundments that resulted from concentrated resident Canada goose feeding was noted by a number of States during public scoping. In a few examples, Pennsylvania indicated that water quality degradation by resident Canada geese occurred in about 30 percent of all State parks. Missouri implicated large Canada goose concentrations in localized areas and their associated fecal deposits in algal blooms and subsequent oxygen depletion in lakes that sometimes resulted in fish kills.

a. Water Quality and Wetlands

The most commonly listed concern reported by State agencies during scoping was degradation of water quality by either fecal contamination or erosion of sediments from areas denuded by goose grazing or trampling.

Excessive numbers of resident Canada geese have affected water quality around beaches and in wetlands by nonpoint source pollution. There are four forms of nonpoint source pollution: sedimentation, nutrients, toxic substances, and pathogens. Excessive numbers of Canada geese can remove shoreline vegetation resulting in erosion of the shoreline and soil sediments being carried by rainwater into lakes, ponds, and reservoirs. Excessive numbers of Canada geese have been reported to be sources of nutrients and pathogens in water. Sewage treatment plants in Virginia are required to test effluent water quality before release from finishing ponds into the environment. Sewage treatment plants find that coliform bacteria counts increase dramatically when large numbers of Canada geese are present and decline dramatically when the geese are removed (A. Pratt, Upper Occoquan Sewage Authority, unpub. data as cited in USDA 1999b). Coliform bacteria causes acidic pH levels in the water and lowers dissolved oxygen which kills aquatic organisms (Cagle 1998). Also, fecal contamination increases nitrogen levels in the pond resulting in algal blooms. Oxygen levels are depleted when the algae dies resulting in the death of aquatic invertebrates and vertebrates (USDA 1999b).

Nutrient loading has been found to increase in wetlands in proportion to increases in the numbers of roosting geese (Mitchell et al. 1999, Manny et al. 1994). In studying the relationship between bird density and phosphorus (P) and nitrogen (N) levels in Bosque del Apache National Wildlife Refuge in New Mexico, Mitchell et al. (1999) found an increase in the concentration of both P and N correlated with an increase in bird density. Scherer et al. (undated) stated that waterfowl metabolize food very rapidly and most of the phosphorus contributed by bird feces probably originates from sources within a lake being studied. In addition, assimilation and defecation converted the phosphorus into a more soluble form, and therefore was considered a form of internal loading. Waterfowl have contributed substantial amounts of P and N into lakes through feces creating excessive aquatic macrophyte growth and algae blooms (Scherer et al. undated) and accelerated eutrophication through nutrient loading (Harris et al. 1981). In Pennsylvania, the Pennsylvania Department of Conservation and Natural Resources cited excessive numbers of resident geese and the their deposition of fecal matter as a factor in nutrient loading leading to eutrophication and aquatic weed growth at State park lakes (Pennsylvania Department of Conservation and Natural Resources 2000).

Canada geese may be attracted to waste water treatment plants because of the water and available grasses. Canada geese can threaten the health of the environment by damaging manmade structures holding waste water (USDA 1999b). Severe grazing of levees results in the removal and loss of turf which hold soil on the levees. Heavy rains on bare soil levees results in erosion which would not have occurred if the levee had remained vegetated. In Virginia, the Green County Waste Water Treatment Plant was instructed by the Virginia Department of Environmental Quality to take corrective action in July 1998 because excessive grazing by 200 Canada geese had left the levees vulnerable to washout during heavy rain (A. Koontz, Rapidan Service Authority, personal communication as cited in USDA 1999b).

b. Vegetation and Soils

Geese that denude vegetation indirectly cause soil erosion when subsequent rains wash away soils from bare areas. Erosion can compromise revegetation efforts when topsoil is lost. When vegetation that protects waterways is removed, sedimentation impacts the quality of the waterbody. Geese may damage landscaping, yards, beaches, shorelines, parks, golf courses, landscaping, athletic fields, ponds, lakes, gardens, playgrounds, school grounds, and cemeteries (USDA 2000, USDA 19999a, USDA 1999b).

The costs of reestablishing over-grazed lawns and cleaning goose droppings from sidewalks have been estimated at more than $60 per bird (Allan et at. 1995). The State of Minnesota noted during public scoping that an increasing number of their staff is spending time and resources responding to resident Canada goose issues. This is done at the expense of traditional natural resource management activities

such as habitat restoration and protection. In Pennsylvania, the Pennsylvania Department of Conservation and Natural Resources indicated that turf areas damaged by grazing geese caused shoreline erosion which increased the need for re-planting, dredging, and shoreline stabilization (Pennsylvania Department of Conservation and Natural Resources 2000).

c. Wildlife Habitat

Information concerning resident Canada geese impacts on other wildlife habitat is minimal. Haramis and Kearns (2000) found that resident Canada geese were having a profound effect on the survival and productivity of wild rice in the tidal Patuxent River (Maryland) marshes, a historically important sora rail wintering area. Damage to rice began as soon as it germinated in early spring and continued until the plants were too high to be reached by geese. Germinating rice plants were completely uprooted by geese, while more advanced plants were grazed repeatedly. Haramis and Kearns (2000) found that grazing of the growing tip of the plant set the rice back significantly while repeated grazing virtually eliminated all plants accessible to geese.

At Blackwater National Wildlife Refuge, in Dorchester County, Maryland, resident Canada geese are causing significant damage to agricultural crops planted to provide critical forage for wintering and migrating waterfowl (Blackwater National Wildlife Refuge 2000). For example, in 1999, geese destroyed almost half of the refuge's annual corn crop and 126 acres of Ladino clover. Additionally, resident geese are significantly affecting natural vegetation in moist-soil impoundments.

3. Waterfowl Health

In large concentrations, resident Canada geese, feral geese, and hybrids create a reservoir for disease and pose a health threat to migrating waterfowl. Tens of thousands of migratory waterfowl have been killed in single die-offs, with as many as 1,000 birds succumbing in 1 day (Friend and Franson 1987). For this reason, the American Association of Wildlife Veterinarians (AAWV) put forth the following resolution:

> "...wild and semi-domestic ducks, geese and swans are susceptible to and carriers of disease and parasites of free-ranging wild ducks, geese, and other birds;..."
>
> "...the AAWV encourages local authorities and State and federal agencies to cooperate to limit the population of waterfowl on urban water areas to prevent disease outbreaks in semi-domestic as well as free-ranging ducks, geese and swans and discourages the practice of relocating nuisance or excess urban ducks, geese and swans to other parks or wildlife areas as a means of local population control".

The State of Maryland reported its concerns with the potential wildlife disease threat posed by concentrations of resident Canada geese (from public scoping). Local concentrations of resident Canada geese may congregate around impoundments that are drawn down. The drawn-down pools can be contaminated by fecal material and, especially when temperatures are high, these stagnant pools are a potential source of avian diseases. A 1998 survey conducted by the USGS National Wildlife Health Research Center found 16 percent of 37 resident Canada geese sampled at Blackwater National Wildlife Refuge (NWR) tested positive for duck virus enteritis (DVE). Maryland points out that these birds serve as a reservoir for this highly contagious disease and pose a serious threat to other birds utilizing this refuge (from public scoping).

Both Minnesota and Maryland point to the impact of these geese on natural wild rice beds (public scoping). Maryland, Pennsylvania, and Tennessee also noted that resident goose populations are feeding

to a significant degree on crops and habitat maintained as food sources and cover for migrant geese and other waterfowl (public scoping).

4. Other Wildlife, Including Federally Protected Species

A common concern among members of the public and wildlife professionals, including Service and Wildlife Services personnel, is the impact of damage management assistance methods and activities on non-target species, particularly threatened and endangered species. Section 7 of the Endangered Species Act (ESA), as amended (16 U.S.C. 1531-1543; 87 Stat. 884), provides that,

> "The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of this Act" (and) shall "ensure that any action authorized, funded or carried out ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of (critical) habitat ..."

Consequently, we are engaged in informal Section 7 consultation under the ESA for this management assessment. No determination has yet been made whether formal consultation will be necessary.

Due to the large geographical context of resident Canada goose management, a variety of special status species may occur in areas frequented by resident Canada geese. However, while the geographic distribution of many of these special status species may overlap with those of migratory Canada geese, there is generally less habitat overlap between these species and resident Canada geese given their occurrence in more urban and suburban areas, in addition to rural areas. In general, these urban and suburban areas are usually less utilized by sensitive species. Also the behavior, flight pattern, size, or other characteristics distinguish these species from any special status species. A regional listing of endangered, threatened, proposed, and candidate species that share the brood geographic range and some habitats of resident Canada goose populations is presented in **Appendix 11**.

Management activities associated with resident Canada goose population control have been reviewed in a variety of contexts. First, Wildlife Services has conducted three statewide Section 7 Consultations, in Wisconsin (U. S. Fish and Wildlife Service 1999), Washington (U.S. Fish and Wildlife Service 2000b) and Virginia (U.S. Fish and Wildlife Service 1999b) on the management of resident Canada geese. Each of these consultations resulted in informal consultation and letters of concurrence from the Service that the proposed projects and management actions would have no effect on listed species. Within the State of Wisconsin, the letter from the Service also indicated that the management actions have the potential to affect certain species within certain counties. The letter described that if Wildlife Services would like to conduct management efforts on resident Canada geese within these counties, then further consultation would be required.

Secondly, the Service has consulted through Section 7 of the ESA on annual migratory bird hunting regulations. Although 50 species may be affected by hunting activities, they are not adversely affected (U.S. Fish and Wildlife Service 2001). The Biological Opinion issued exemplifies methods to minimize disturbance of hunting activities on whooping cranes.

Endangered whooping cranes (*Grus americana*) occur in wintering areas that resident Canada geese occasionally use; primarily in the Central and Pacific Flyways (**Figure III-2**). Peak of the spring migration of cranes through important stopover areas along the Platte River and other portions of Nebraska occurs during April (**Figure III-3**). Most cranes begin their spring migration in April and early May (Lewis et al. 1994). No whooping cranes have been recorded as being shot incidental to recent efforts intended to increase harvest of resident Canada geese in the Central Flyway.

Protection of whooping cranes is ensured through implementation of the Contingency Plan for Federal-State Cooperative Protection of Whooping Cranes (Federal-State Contingency Plan Committee 2000). The contingency plan provides a mechanism for designating appropriate response options and reporting requirements whenever whooping cranes are confirmed as sick, injured, or dead, or when they are healthy but in a situation where they face hazards, such as shooting/hunting activities or contaminants and disease. Furthermore, plan objectives include reducing the likelihood of illegal shooting of whooping cranes by non-sportsmen or vandals, and increasing the opportunity to recover and rehabilitate wild whooping cranes found injured or sick. Finally, review of affects on threatened and endangered species is currently being conducted on management activities associated with light goose population control (U.S. Department of the Interior 2001). Activities such as increased hunting opportunities, liberal daily bag limits, use of electronic calls and unplugged shotguns, and allowing shooting hours to continue until one-half hour after sunset are being evaluated in relation to affects on species of special status. These activities are also being evaluated to control resident Canada goose populations.

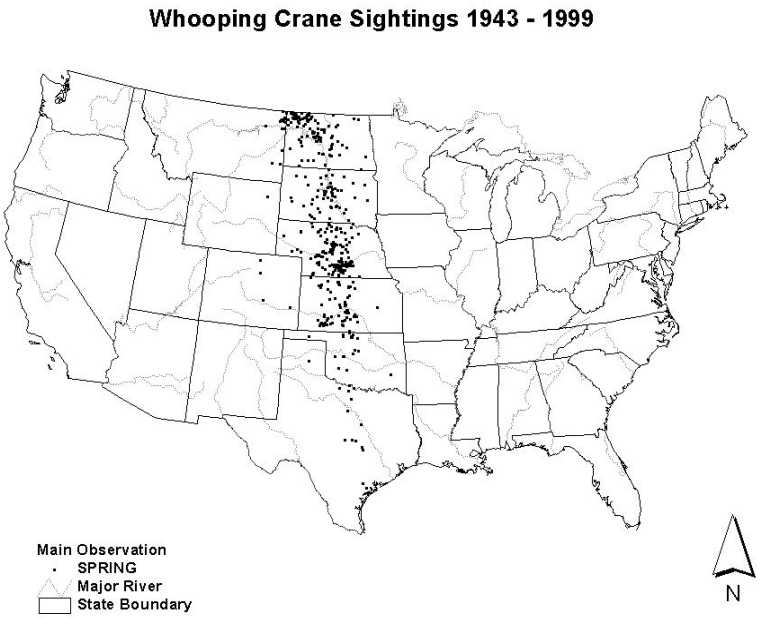

Figure III-2. Location of whooping crane sightings in the Central Flyway, 1943-99 (U.S. Fish and Wildlife Service, unpublished data).

The Service has also consulted on the Special Canada Goose Permit program (U.S. Fish and Wildlife Service 1998). The Service concluded that the proposed action was "not likely to adversely affect" the Aleutian Canada goose and resulted in informal consultation.

Finally, review of affects on threatened and endangered species is currently being conducted on management activities associated with light goose population control (U. S. Department of the Interior 2001). Activities such as increased hunting opportunities, liberal daily bag limits, use of electronic calls and unplugged shotguns, and allowing shooting hours to continue until one-half hour after sunset are being evaluated in relation to affects on species of special status. These activities are also being evaluated to control resident Canada goose populations.

Some people are concerned that non-lethal and lethal damage management methods directed at resident Canada geese will impact other subspecies of Canada geese. By definition (see section **I.B. Scope**),

resident Canada geese are those subspecies of Canada geese that nest and/or reside within the conterminous United States in the months of June, July, and August. Use of this definition for other permitted actions (see section **III.B.1.c. Migratory Bird Permit Program**) has significantly minimized any possible management action interactions with other Canada goose populations. Further, there are no special status species of Canada geese. Aleutian Canada geese, formerly threatened, were delisted in 2001 (Federal Register 2001) and there is little, if any, habitat overlap with resident Canada geese.

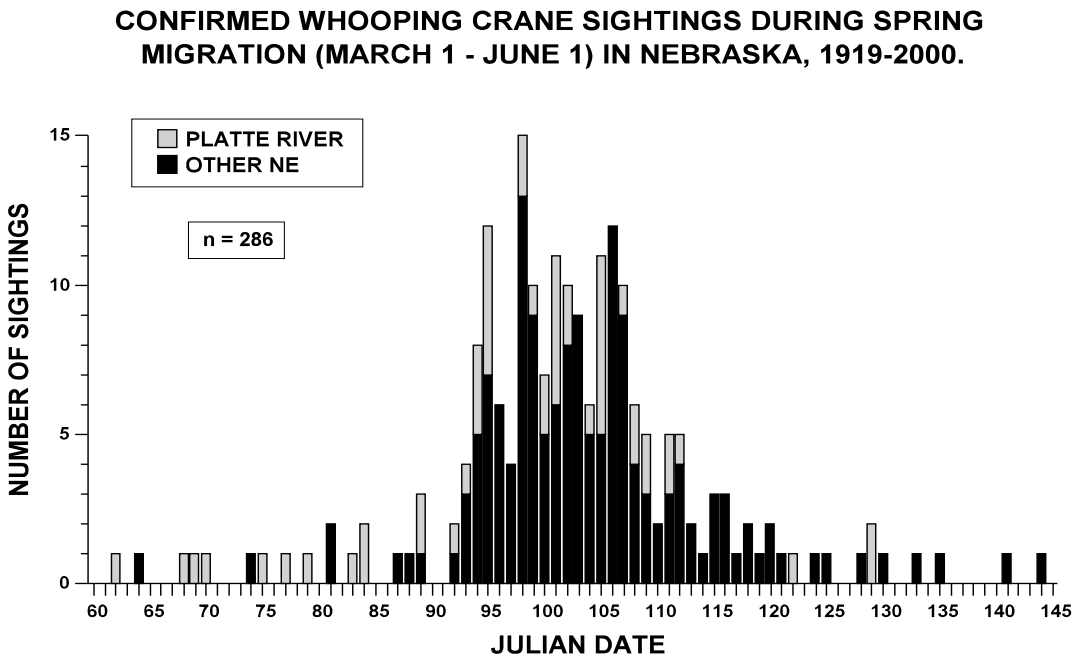

Figure III-3. Temporal distribution of whooping crane sightings in Nebraska, 1919-2000 (U.S. Fish and Wildlife Service, unpublished data).

As described in section **II.A. Description of Goose Management Techniques**, it is possible to manage certain suburban and urban habitats to make the area less attractive to resident geese (e.g., draining a pond, wetland or lake, altering varieties of grass). In these situations, the effects on migrant geese would be similar to the effects on resident geese, in that the birds would merely forage and/or loaf in other nearby locations more attractive to the birds.

All activities associated with resident Canada goose population control will be conducted in compliance with specific Service authorization through the ESA.

B. SOCIOECONOMIC ENVIRONMENT

1. Migratory Bird Program Management and Administration

a. Management History

The Service currently recognizes 836 species of migratory birds, of which 778 are not hunted and classified as non-game and 58 are hunted and classified as game species according to Federal regulations. While the most numerous migratory bird is probably the red-winged blackbird, with numbers in the hundreds of millions, some species have dangerously low numbers and have been listed as threatened or endangered. However, numbers alone cannot be used as a sole indicator of the well being of a species.

The evolution of the migratory bird program in the Service is tied to its ancestral roots: fish and birds--enforcement, refuges, regulatory oversight to protect fish and wildlife resources, and endangered species protection. Formed by the Agricultural Appropriation Act of 1885, the new agency set up specifically to study birds was later officially designated as the Bureau of Biological Survey and expanded to undertake many new functions in the field of wildlife research and conservation.

In 1939, the bureau was transferred to the Department of Interior, and in 1940, the Bureau of Biological Survey was combined with the Bureau of Fisheries, and became the Fish and Wildlife Service in the Department of Interior. In 1956, a reorganization resulted in the U.S. Fish and Wildlife Service, with a Bureau of Sport Fisheries and Wildlife and a Bureau of Commercial Fisheries. In 1970, the Bureau of Commercial Fisheries was transferred out of the Service and the "Bureau" designation was dissolved.

In 1972, the Service established the Office of Migratory Bird Management. This reorganization aligned over 100 personnel from the Division of Wildlife Research and the Branch of Management and Enforcement, with major migratory bird responsibilities into a cohesive unit. To support this realignment, Regional Migratory Bird Coordinators were established in 1974 and Non-game Coordinators in 1992. The Office was an umbrella organization with primary responsibilities related to providing:

- Guidance on international, national, and regional policy matters related to migratory bird management, including the promulgation of hunting regulations.
- Technical capabilities related to the conduct of operational surveys to monitor status and trends of migratory bird populations and their habitats.
- Analytical capabilities to integrate analyses and interpret data on migratory birds and their habitats.

In total, the Service's Migratory bird program was based on the Nation's legal authorities and clear recognition of several basic migratory bird trust responsibilities, including population protection, habitat protection, international coordination, and regulations.

Since 1948, the Service has used the Pacific, Central, Mississippi, and Atlantic Flyways as the basis for establishing regionally different frameworks for the hunting of most, but not all game birds. The four "administrative flyways," with their boundaries generally following along State boundaries, are geo-political variations of that envisioned by Frederick Lincoln in his 1935 report "Waterfowl Flyways of North America." In each Flyway, there is a Flyway Council comprised of representatives from the

wildlife agencies in the U.S. States and Canadian Provinces associated with that Flyway. The Councils were established to coordinate research and management activities in the respective Flyways. The importance of the Councils' contributions was summed up at the 1969 meeting of the National Waterfowl Council in a statement by John Gottschalk, then Director of the Fish and Wildlife Service:

> "The Flyway Councils established about twenty years ago were formulated for the expressed purpose of better waterfowl management. Next to the Migratory Bird Treaties, their creation is the most significant step that has ever been taken in waterfowl management. They have been an excellent forum for communication, for seeing and understanding the situation and problems throughout the flyways, and tackling problems in a cooperative, scientific way to husband the resource and the sport. The concepts and understanding developed by and through the Councils are vital to proper waterfowl management"

b. Sport Hunting Program

Prior to 1918, the hunting of migratory birds was regulated by individual States or not at all. As could be expected, State regulations varied widely and regional conflicts between States inevitably developed (U.S. Department of the Interior 1988). After the 1916 treaty with Canada and the passage of implementing legislation in 1918, Federal authority over migratory birds was established and exercised. Resulting early regulations were simple, brief, relatively uniform among States, and quite liberal. However, changes in habitat conditions, populations, and a growing general interest in the welfare of migratory birds gradually began to foster a more conservative management approach (U.S. Department of the Interior 1988). Likewise, increased State involvement and investment in migratory bird management programs, along with increased management capabilities, resulted in increased knowledge about migratory bird populations. All of these considerations slowly began to translate into more complex and less uniform regulations (for a more detailed discussion of the evolution of migratory bird hunting regulations, the reader is referred to U.S. Department of the Interior (1988)).

The Migratory Bird Treaty Act specifies that all migratory bird hunting seasons are closed unless opened by the Secretary, and that the Secretary must give "due regard" to considerations such as distribution and abundance of migratory bird populations when opening seasons. Further, the 1916 Treaty established a March 11 to August 31 closed period, during which no hunting seasons may be held, and an overall season limit of 3 ½ months, which has been officially interpreted as 107 days. Thus, migratory bird hunting regulations must be established annually and each year the regulatory process must start anew. Population and habitat assessment and consideration of these factors helps assure that hunting regulations are appropriate with the long-term conservation of the migratory bird resource (U.S. Department of the Interior 1988).

Annual migratory bird hunting regulations are categorized as either framework regulations or special regulations. Framework regulations include outside dates for opening and closing seasons, and maximum season length and daily bag limit. These are the core of all annual regulations. Special regulations are adaptations or deviations from these framework regulations developed in response to either species, area, or State-specific needs or desires (U.S. Department of the Interior 1988). Most special regulations began as experiments and are aimed at either providing additional opportunity to harvest underutilized or overabundant species (such as snow geese or resident Canada geese) or providing additional protection for species of concern.

In 1988, the Service adopted a "controlled use of special regulations" alternative in the SEIS *Issuance of*

Annual Regulations Permitting the Sport Hunting of Migratory Birds. Under this alternative, the development of new special regulations and harvest strategies and expansion of existing approaches were subject to stricter experimentation and evaluation. However, the Service further states that,

> ". . . new harvest strategies may continue to be possible or necessary as migratory bird populations respond to modifications in their habitats. The use of new or old refinements in regulations should be based on as much biological data as possible, and should be adjusted as populations change. . . . There can be no guarantee that combinations of regulations are applicable in all areas, yet many of these regulatory tools have served well to date and likely will in the future (U.S. Department of the Interior 1988)."

Today, annual migratory bird hunting regulations have grown quite lengthy and complex. For the 2001-02 hunting season alone, over 20 pages in the **Federal Register** were devoted exclusively to Canada goose seasons (Federal Register 2001a, Federal Register 2001b). This is a significant change from the two pages of text issued in 1918.

(1) Regular Hunting Seasons

For administrative and management purposes, current hunting seasons for Canada geese are designated as either "regular seasons" or "special seasons." Special seasons are discussed in section **B.1.(b)(2) Special Hunting Seasons**.

Regular hunting seasons for Canada geese in the lower 48 States are those seasons that generally begin on or after the Saturday nearest October 1. Unlike special seasons, they usually are not specifically aimed at one Canada goose population, but are more general in nature. Seasons are established by the respective States within the general Canada goose frameworks. For example, in Iowa, the 2001-02 frameworks for Canada geese stated that the season could extend for 70 days and the daily bag limit was two Canada geese. Based on these outside frameworks, the State then selected its season. In general, unlike frameworks for ducks or other geese, frameworks for Canada geese vary among States. These differences are based on the increased information base for Canada geese regarding population sizes, distribution, harvest pressure, and the high philopatry of this species. Many States may actually have several frameworks within the State for different goose populations.

Frameworks, especially those for quota zone areas where total harvest is limited by population concerns, are established annually based on population status and breeding-ground information. For example, in the Lac Qui Parle Zone in western Minnesota, the 2000-01 season was limited to 30 days or a harvest of 16,000 birds, whichever occurred first.

For the 2001-02 season, frameworks for Canada geese varied from 30 days with a 1-bird daily bag limit (Delaware and parts of Maryland and Virginia) to 107 days with a 5-bird daily bag limit in Colorado, Montana, New Mexico, Wyoming, and parts of Texas (Federal Register 2001b).

(2) Special Hunting Seasons

In 1986, the Service gave notice of pending criteria for special Canada goose seasons in the **Federal Register** (Federal Register 1986) to provide additional harvest opportunities on resident Canada geese while minimizing impacts to migrant geese. Criteria for special early seasons were finalized in 1988 (Federal Register 1988) and later were expanded to include special late seasons in 1991 (Federal Register

1991). The criteria were necessary to minimize the harvest of other Canada goose populations and required States to conduct annual evaluations. Initially, all seasons were considered experimental, pending a thorough review of the data gathered by each participating State. Early seasons were generally held during September 1-10, while late seasons could occur only after the regular season, but no later than February 15.

While the original intent of these special seasons was to provide additional harvest opportunities on resident Canada geese, increasing numbers of these birds resulted in increased efforts by the States and Service to slow population growth and decrease the overall numbers of resident Canada geese. In 1992, the criteria were modified to allow seasons after September 10, but required two years of prior data gathering (Federal Register 1992). The criteria were further modified in 1993 to provide for early seasons longer than 10 consecutive days (Federal Register 1993). In 1995, based on the lack of identified impacts, the Service approved September 1-15 early-season frameworks on an operational basis to reduce administrative burdens (Federal Register 1995). Seasons extending beyond September 15 continue to be experimental. To allow sufficient time for evaluation of cumulative impacts, the Service stated that no additional modifications to the criteria would be considered for at least 5 years (see **Appendix 9**).

However, in 1996, the Service granted the Atlantic Flyway a temporary exemption to the special early Canada goose season criteria. Specifically, the Service allowed States in the Atlantic Flyway to extend the framework closing date from September 15 to September 25, except in certain areas where migrant geese are known to arrive early (Federal Register 1996). Seasons extending beyond September 25 continue to be classified as experimental. The Service granted this temporary exemption for the Atlantic Flyway because of the suspension of the regular season on Atlantic Population Canada geese and the Flyway's need for greater flexibility in dealing with increasing numbers of resident Canada geese. The exemption is proposed to remain in effect until the regular season on migrant Canada geese is reinstated. The Service encouraged all States selecting framework dates after September 15 to continue data-gathering and monitoring efforts in order to further evaluate any proportional changes in the harvest of migrant geese.

The overall guidance for all special hunting seasons is provided in SEIS 88, where the preferred alternative included the controlled use of special seasons. In general, the Service's approach has been to support special seasons, and as experience and information are gained, to allow expansion and simplification consistent with established criteria.

Special seasons for Canada geese are presently offered in all four Flyways, with 35 States participating (**Table III-18**). They are most popular among States when regular Canada goose seasons are restricted to protect "migrant" populations of Canada geese. Currently, restrictive harvest regimes are in place for Atlantic Population, Southern James Bay, Dusky, Cackling and Aleutian Canada goose populations.

(3) Harvest

(a) Atlantic Flyway

Resident geese have become an important component of the sport harvest of Canada geese in the Atlantic Flyway. Harvest of resident geese increased sharply as the population grew and regulations were modified to direct more hunting pressure at these birds.

Table III-18. Special Resident Canada Goose Seasons for the 2000-2001 Hunting Season (MBMO 2000).

	Season Dates	Limits Bag	Limits Possession
ATLANTIC FLYWAY			
Connecticut			
North Zone	Sept. 1 & Sept. 5-Sept. 25	5	10
South Zone	Sept. 18-Sept. 25	5	10
Special Late Season Area	Jan. 15-Feb. 15	5	10
Delaware	Sept. 1-Sept. 15	5	10
Georgia			
Special Late Season Area	Nov. 22-Jan. 28	3	6
Maine	Sept. 5-Sept. 25	3	6
Maryland			
Eastern Unit	Sept. 1-Sept. 15	5	10
Western Unit	Sept. 1-Sept. 25	5	10
Special Late Season Area	Jan. 15-Feb. 15	3	6
Massachusetts			
Central Zone	Sept. 5-Sept. 25	5	10
Coastal Zone	Sept. 5-Sept. 25	5	10
Special Late Season Area	Jan. 15-Feb. 10	5	10
Western Zone	Sept. 5-Sept. 25	3	6
New Hampshire	Sept. 5-Sept. 25	3	6
New Jersey	Sept. 1-Sept. 30	5	10
Special Late Season Area	Jan. 15-Feb. 15	5	10
New York			
Lake Champlain Zone	Sept. 5-Sept. 15	2	4
Northeastern Zone	Sept. 1-Sept. 25	5	10
Western Zone	Sept. 1-Sept. 25	5	10
Montezuma Zone	Sept. 1-Sept. 20	5	10
Southeastern Zone	Sept. 1-Sept. 25	5	10
Long Island Zone	Sept. 5-Sept. 30	5	10
Special Late Season Area	Jan. 15-Feb. 15	5	10
North Carolina			
Northeast Hunt Unit	Sept. 1-Sept. 20	3	6
Rest of State	Sept. 5-Sept. 30	3	6
Pennsylvania			
Southeast Hunt Area	Sept. 1-Sept. 25	5	10
Rest of State	Sept. 1-Sept. 25	3	6
Special Late Season Area	Jan. 15-Feb. 15	5	10
Rhode Island	Sept. 11-Sept. 25	5	10
Special Late Season Area	Jan. 15-Feb. 15	5	10
South Carolina			
Early-Season Hunt Unit	Sept. 16-Sept. 30	5	10
Special Late Season Area	Nov. 22-Jan. 20& Feb. 3-Feb. 12	5	10

Table III-18. Continued, page 2 of 3.

	Season Dates	Limits Bag	Limits Possession
Vermont (cont.)			
Lake Champlain Zone	Sept. 5-Sept. 15	2	4
Interior Vermont Zone:			
Bennington, Rutland, & Windham Counties	Sept. 5-Sept. 15	5	10
Rest of Zone	Sept. 5-Sept. 15	2	4
Virginia	Sept. 1-Sept. 25	5	10
Special Late Season Area	Jan. 15-Feb. 15	4	8
West Virginia	Sept. 1-Sept. 16	3	6
MISSISSIPPI FLYWAY			
Alabama	Sept. 2-Sept. 15	5	10
Illinois			
Northeast Zone	Sept. 2-Sept. 15	5	10
North Zone	Sept. 2-Sept. 15	2	4
Central Zone	Sept. 2-Sept. 15	2	4
South Zone	Sept. 2-Sept. 15	2	4
Indiana	Sept. 1-Sept. 15	5	10
Iowa			
North Zone	Sept. 9-Sept. 10	2	4
Michigan			
Upper Peninsula	Sept. 1-Sept. 10	5	10
Lower Peninsula:			
Huron, Saginaw, & Tuscola Counties	Sept. 1-Sept. 10	2	4
Remainder	Sept. 1-Sept. 15	5	10
Southern Michigan GMU:			
Special Late Hunt Area	Jan. 6-Feb. 4	5	10
Central Michigan GMU:			
Special Late Hunt Area	Jan. 6-Feb. 4	5	10
Minnesota			
Twin Cities Metro Zone	Sept. 2-Sept. 22	5	10
Southeast Goose Zone	Sept. 2-Sept. 22	2	4
Special Late Hunt Area	Dec. 15-Dec. 24	2	4
Five Goose Zone	Sept. 2-Sept. 22	5	10
Northwest Goose Zone	Sept. 2-Sept. 15	2	4
Special Late Hunt Area	Dec. 9-Dec. 18	5	10
West Zone:			
Special Late Hunt Area	Dec. 9-Dec. 18	5	10
Rest of State:			
Special Late Hunt Area	Dec. 9-Dec. 18	5	10
Mississippi	Sept. 1-Sept. 15	5	10
Ohio	Sept. 1-Sept. 15	5	10
Special Late Hunt Area	Jan. 13-Feb. 1	2	4
Tennessee			
Middle Tennessee Zone	Sept. 1-Sept. 10	3	6
East Tennessee Zone	Sept. 1-Sept. 15	5	10

Table III-18. Continued, page 3 of 3.

	Season Dates	Limits Bag	Possession
Wisconsin			
Early-Season Subzone A	Sept. 1 & Sept. 5-Sept. 15	5	10
Early-Season Subzone B	Sept 1& Sept. 5-Sept. 15	3	6
CENTRAL FLYWAY			
Kansas			
Sept. Canada Goose Units	Sept. 2-Sept. 13	3	6
North Dakota	Sept. 2-Sept. 22	5	10
Oklahoma	Sept. 9-Sept. 17	3	6
South Dakota			
North Unit	Sept. 2-Sept. 29	5	10
South Unit	Sept. 16-Sept. 29	5	10
PACIFIC FLYWAY			
California			
Humboldt County	Sept. 2-Sept. 10	2	2
Idaho			
Nez Perce County	Sept. 2-Sept. 9	4	8
Oregon			
Northwest Zone	Sept. 9-Sept. 20	5	10
Southwest Zone	Sept. 9-Sept. 15	5	10
East Zone	Sept. 9-Sept. 15	5	10
Washington			
Westerm Mgmt. Areas 1 & 3	Sept. 9-Sept. 14	5	10
Rest of State	Sept. 9-Sept. 14	3	6
Wyoming	Sept. 1-Sept. 7	3	6 per season

Before 1986, harvest regulations did not differentiate between resident and migrant populations. Since then, criteria have been developed to allow special hunting seasons in the U.S. to increase harvest of resident Canada geese at times and places where migrant goose populations would not be affected. Special late seasons began in 1986 in Connecticut and September seasons began in North Carolina in 1989. Suspension of regular Canada goose hunting seasons in 1995 prompted many Atlantic Flyway States to hold both early and late seasons. During 1999-2000, September seasons were held in 15 of 17 States and late seasons were held in 8 States, in addition to regular seasons in 5 States where only resident geese occur in significant numbers (**Table III-19**).

During the mid-1980s, resident geese comprised 27-42 percent of the regular season harvest in mid-Atlantic States (New York, New Jersey, and Pennsylvania), but only 5-6 percent in the Chesapeake region (Maryland and Delaware), with migrant (mostly AP) geese being the remainder (Sheaffer and Malecki 1998). Applying these proportions to total goose harvest estimates suggests that about 50,000-75,000 resident geese were harvested annually during regular seasons in those States during the mid-1980s, or

Table III-19. Special September, regular, and late resident Canada goose seasons offered in the Atlantic Flyway[a] for the take of resident Canada geese.

Year	ME	VT	NH	MA	CT	RI	NY	PA	WV	NJ	DE	MD	VA	NC	SC	GA	FL
1986					L				R								
1987				L	L				R								
1988				L	L				R								
1989				L	L				R					S		L	
1990				S,L	L		S		R					S		L	
1991				S,L	L		S		R					S	L	L	
1992				S,L	L		S	S,L	R					S	L	R	
1993				S,L	L		S,L	S,L	S,R	S		S	S	S	L	R	
1994				S,L	L		S	S,L	S,R	S,L		S	S	S	R	R	
1995				S,L	L	S	S,L	S,L	S,R	S,L	S	S	S	S	R	R	
1996	S		S	S,L	S,L	S,L	S,L	S,L	S,R	S,L	S	S,L	S,L	S	S,R	R	
1997	S		S	S,L	S,L	S,L	S,L	S,L	S,R	S,L	S	S,L	S,L	S	S,R	R	R
1998	S	S	S	S,L	S,L	S,L	S,L	S,L	S,R	S,L	S	S,L	S,L	S	S,R	R	R
1999	S	S	S	S,L	S,L	S,L	S,L	S,L	S,R	S,L	S	S,L	S,L	S	S,R	R	R
2000	S	S	S	S,L	S,L	S,L	S,L	S,L	S,R	S,L	S	S,L	S,L	S	S,R	R	R

[a] S - September season offered in all or part of State.
R - Regular (November-January) season for resident geese in all or part of State.
L - Late season (January 15-February 15) offered in all or part of State.

about 15-20 percent of the total Canada goose harvest in the Flyway at that time.

Use of special seasons substantially increased harvests of resident geese during the 1990s. During 1997-99, the average annual Atlantic Flyway goose harvest in September was approximately 190,000 geese (**Table III-20**). Late season harvests (mid January to mid February), plus regular season harvests in States where harvest of migrant geese was negligible, averaged about 75,000 resident birds (**Table III-21**). Assuming migrants accounted for about 10 percent of the geese harvested (September special season criteria allows no more than 10 percent migrant geese while special late season harvest allows no more than 20 percent migrant geese, see **Appendix 9**), approximately 240,000 resident geese/year were harvested during these seasons in the Flyway, or roughly 4 times the number taken during the 1980s.

The impact of sport harvests on survival and population growth rates of resident geese has not recently been studied. During the 1980s, direct recovery rates for resident geese banded in the Atlantic Flyway generally ranged from 5-10 percent annually, varying among locations and age classes (Sheaffer et al. 1987; Chasko and Merola 1989; Johnson and Castelli 1998; G. Balkcom, Georgia Department of Natural Resources, personal communication). Since waterfowl hunters may only report about 32 percent of bands they encounter (Nichols et al. 1991), actual harvest rates may have been 15-30 percent during those years. The total special season harvests of resident geese in 1997-1999 (240,000 birds) would be near 20 percent of the predicted fall flight (1.2 million birds) from a spring population of one million birds, assuming 0.2 young/adult in the fall. Harvest rates are not uniform, however. Some State biologists believe that harvest rates as high as 25 percent may be occurring in some rural areas, while geese in many urban-suburban areas experience no harvest at all in some years.

Table III-20. Estimated harvest of resident Canada geese during September hunting seasons in Atlantic Flyway States.[a]

Year	ME	VT	NH	MA	CT	RI	NY	PA	WV	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1989	-	-	-	-	-	-	-	-	-	-	-	-	-	3,022	-	-	-	3,022
1990	-	-	-	0	-	-	0	-	-	-	-	-	-	4,208	-	-	-	4,208
1991	-	-	-	0	-	-	297	-	-	(125?)	-	-	-	1,445	-	-	-	1,867
1992	-	-	-	0	-	-	3,393	11,676	-	-	-	-	-	1,433	-	-	-	16,502
1993	-	-	-	132	-	-	8,908	12,432	0	3,288	-	3,700	3,677	3,298	-	-	-	35,435
1994	-	-	-	217	-	-	12,301	17,919	1,140	6,452	-	8,458	3,832	7,750	-	-	-	58,069
1995	-	-	-	6,879	-	110	22,864	40,865	1,350	7,632	1,774	8,661	11,090	7,929	-	-	-	109,154
1996	1,149	-	1,012	8,698	4,698	702	23,868	50,989	1,530	9,301	1,180	5,823	17,541	10,365	0	-	-	136,856
1997	1,946	-	1,725	7,740	3,652	223	46,177	64,532	2,310	17,069	1,269	15,446	13,247	13,743	0	-	-	189,079
1998	2,966	2,670	730	6,831	3,525	639	50,297	63,201	2,938	12,964	892	20,698	12,234	15,383	0	-	-	195,968
1999	4,800	1,700	1,900	6,200	4,600	1,300	40,600	59,500	3,200	17,300	1,600	15,700	12,800	13,700	0	-	-	184,900

[a] USFWS harvest estimates (P. Padding, unpubl. data).

Table III-21. Estimated harvest of resident Canada geese during regular and late hunting seasons in Atlantic Flyway States.[a]

Year	ME	VT	NH	MA	CT	RI	NY	PA	WV	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1990	-	-	-	2,860	2,294	-	-	-	896	-	-	-	-	1,907	990	1,503	-	10,450
1991	-	-	-	3,970	1,525	-	-	(4590?)	910	-	-	-	-	578	941	516	-	13,030
1992	-	-	-	2,119	1,857	-	-	2,466	2,160	-	-	-	-	0	1,619	1,409	-	11,630
1993	-	-	-	4,329	2,247	-	274	3,016	3,647	-	-	-	-	0	4,399	3,352	-	21,264
1994	-	-	-	4,177	3,205	-	-	4,487	4,723	(3813?)	-	-	-	0	5,082	4,590	-	30,077
1995	-	-	-	3,416	2,775	-	179	1,097	1,370	1,947	-	-	-	145	3,994	6,363	-	21,286
1996	-	-	-	5,182	3,781	317	707	19,276	2,438	3,582	-	3,445	13,830	0	11,039	8,449	-	72,046
1997	-	-	-	4,672	981	353	1,886	20,025	3,710	6,383	-	2,901	9,348	3,335	6,518	10,383	246	70,741
1998	-	-	-	5,956	1,828	678	6,353	12,820	3,316	6,618	-	10,326	14,013	8,501	6,270	9,022	0	85,701
1999	-	-	-	2,260	3,031	464	801	11,285	1,399	8,477	-	3,874	15,164	6,186	7,212	12,903	506	73,562

[a] USFWS harvest estimates (P. Padding, unpubl. data). This table includes regular and late season harvests (Oct. 1 - Feb. 15) for WV, NC, SC, GA, and FL, where harvests of migrant geese are negligible. Estimates for other States are for late seasons only (Jan. 15 - Feb. 15).

Current harvest rates (≤20 percent) through sport hunting are far below what is needed to maintain a stable population (≈30 percent). A 50 percent increase in annual sport harvests would be desirable, but additional harvest may be difficult to achieve since special seasons (and hunter effort) are close to the maximum possible under existing regulatory criteria. Restoration of longer regular seasons throughout the Atlantic Flyway will result in some additional harvest of resident geese, but those seasons may be restricted for several more years to ensure continued recovery of AP geese.

(b) Mississippi Flyway

Managing harvests of the various Mississippi Flyway Canada goose populations has become increasingly complex in recent years, largely because of growing giant Canada goose populations, and unstable populations of migrant interior Canada geese (MVP, EPP, and SJBP). Regulations and frameworks have been utilized to control harvest of migrants, and to ensure these interior populations are maintained at objective levels. Although regulations are largely effective in this regard, the options of State wildlife agencies to provide additional harvest opportunities on giants have been limited.

Giant Canada geese have become a significant part of the Mississippi Flyway Canada goose harvest. During 1980-86, giants comprised only about 15 percent (~44,000 geese) of the total Flyway Canada goose harvest (Rusch et al. 1998). This increased to 40 percent (186,000) in 1986-90, 57 percent (348,000) in 1991-95, and to nearly 75 percent (596,000) in 1996-98 (**Table III-22**).

Special early and late seasons have been increasingly used to harvest resident (giant) Canada geese (**Table III-23**). The estimated combined special season harvest of giant Canada geese in the Flyway has increased from nearly 23,000 to nearly 261,000 during 1987-99 (**Table III-24**, **Figure III-4**).

During 1987-99, the Mississippi Flyway September season harvest estimate increased from 18,000 to nearly 246,000 (1237 percent, **Table III-24, Figure III-4**). Ten States currently utilize September seasons. Michigan is evaluating the effectiveness of its

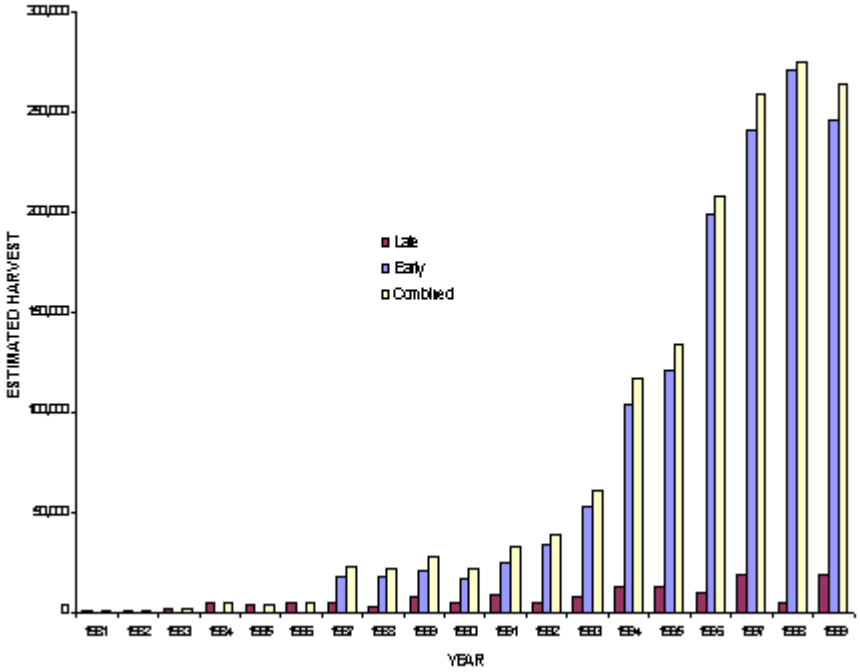

Figure III-4. Special season Canada goose harvest in Mississippi Flyway States, 1981-99.

Table III-22. Estimates of Canada goose harvests in the Mississippi Flyway.[a]

	AL					AR					IL					IN					IA				
	Special	Regular Season				Special	Regular Season				Special	Regular Season				Special	Regular Season				Special	Regular Season			
YEAR	Season	Harvest	% giants[b]	# giants		Season	Harvest	% giants	# giants		Season	Harvest	% giants	# giants		Season	Harvest	% giants	# giants		Season	Harvest	% giants	# giants	
1962		1,700					0					11,500					2,000					6,600			
1963		2,400					0					14,000					800					7,200			
1964		4,300					0					27,500					2,500					4,300			
1965		5,300					0					16,400					1,100					6,600			
1966	5,400	5,400				0	0			28,000		28,000			3,100		3,100			7,200		7,200			
1967	3,200	3,200				100	100			35,400		35,400			2,800		2,800			12,400		12,400			
1968	2,200	2,200				0	0			21,200		21,200			3,100		3,100			10,600		10,600			
1969	4,800	4,800				0	0			29,400		29,400			4,100		4,100			15,500		15,500			
1970	400	400	0.00			0	0			37,700		37,700	0.03	1,131	1,600		1,600	0.11	176	12,600		12,600	0.18	2,268
1971	900	900	0.00			0	0			34,400		34,400	0.03	1,032	3,200		3,200	0.11	352	10,400		10,400	0.18	1,872
1972	1,600	1,600	0.00			0	0			33,800		33,800	0.03	1,014	3,000		3,000	0.11	330	5,000		5,000	0.18	900
1973	900	900	0.00			0	0			28,500		28,500	0.03	855	2,100		2,100	0.11	231	11,600		11,600	0.18	2,088
1974	1,000	1,000	0.00			0	0			47,100		47,100	0.03	1,413	4,100		4,100	0.11	451	7,700		7,700	0.18	1,386
1975	2,500	2,500	0.01		25	2,000	2,000	0.06		120	44,900	44,900	0.03	1,347	6,800		6,800	0.25	1,700	13,500		13,500	0.12	1,620
1976	5,000	5,000	0.01		50	8,700	8,700	0.06		522	53,700	53,700	0.03	1,611	3,400		3,400	0.25	850	9,300		9,300	0.12	1,116
1977	700	700	0.01		7	2,100	2,100	0.06		126	76,600	76,600	0.03	2,298	3,700		3,700	0.25	925	7,800		7,800	0.12	936
1978	3,400	3,400	0.01		34	4,100	4,100	0.06		246	118,700	118,700	0.03	3,561	2,300		2,300	0.25	575	11,900		11,900	0.12	1,428
1979	2,600	2,600	0.01		26	0	0	0.06			69,000	69,000	0.03	2,070	3,600		3,600	0.25	900	10,000		10,000	0.12	1,200
1980	1,800	1,800	0.05		90	0	0	0.05			57,700	57,700	0.01	577	9,300		9,300	0.07	651	11,700		11,700	0.15	1,755
1981	1,300	1,300	0.05		65	0	0	0.05			51,500	51,500	0.01	515	8,100		8,100	0.07	567	10,200		10,200	0.15	1,530
1982	1,100	1,100	0.05		55	0	0	0.05			27,200	27,200	0.01	272	5,900		5,900	0.07	413	10,200		10,200	0.15	1,530
1983	1,600	1,600	0.05		80	0	0	0.05			38,900	38,900	0.01	389	8,100		8,100	0.07	567	11,500		11,500	0.15	1,725
1984	300	300	0.05		15	400	400	0.05		20	31,200	31,200	0.01	312	5,700		5,700	0.07	399	13,300		13,300	0.15	1,995
1985	2,700	2,700	0.10		270	300	300	0.07		21	38,900	38,900	0.21	8,169	14,100		14,100	0.69	9,729	10,400		10,400	0.48	4,992
1986	4,000	4,000	0.10		400	0	0	0.07			49,400	49,400	0.21	10,374	12,000		12,000	0.69	8,280	17,200		17,200	0.48	8,256
1987	2,300	2,300	0.10		230	200	200	0.07		14	44,900	3,259	41,641	0.21	8,745	10,400		10,400	0.69	7,176	15,100		15,100	0.48	7,248
1988	2,700	2,700	0.10		270	100	100	0.07		7	89,800	1,725	88,075	0.21	18,496	16,700		16,700	0.69	11,523	12,300		12,300	0.48	5,904
1989	5,400	5,400	0.10		540	1,500	1,500	0.07		105	97,400	1,637	95,763	0.21	20,110	28,400		28,400	0.69	19,596	20,200		20,200	0.48	9,696
1990	100	100	0.43		43	1,900	1,900	0.56		1,064	88,500	703	87,797	0.33	28,973	14,700		14,700	0.72	10,584	26,600		26,600	0.66	17,556
1991	1,800	1,800	0.43		774	2,900	2,900	0.56		1,624	91,300	228	91,072	0.33	30,054	17,400		17,400	0.72	12,528	29,300		29,300	0.66	19,338
1992	1,200	1,200	0.43		516	3,500	3,500	0.56		1,960	77,300		77,300	0.33	25,509	21,500	2,566	18,934	0.72	13,632	28,700		28,700	0.66	18,942
1993	3,700	3,700	0.43		1,591	3,700	3,700	0.56		2,072	101,300		101,300	0.33	33,429	31,000	3,965	27,035	0.72	19,465	17,300		17,300	0.66	11,418
1994	1,400	1,400	0.43		602	9,500	9,500	0.56		5,320	79,500		79,500	0.33	26,235	31,000	10,291	20,709	0.72	14,910	26,100		26,100	0.66	17,226
1995	2,800	2,800	0.89		2,492	19,800	19,800	0.40		7,920	110,800	3,555	107,245	0.43	46,115	47,200		47,200	0.81	38,232	41,400		41,400	0.85	35,190
1996	8,200	8,200	0.89		7,298	21,500	21,500	0.40		8,600	108,300	2,282	106,018	0.43	45,588	34,400	18,473	15,927	0.81	12,901	59,500	16,485	43,015	0.85	36,563
1997	3,700	3,700	0.89		3,293	19,900	19,900	0.44		8,756	87,800	6,117	81,683	0.42	34,307	52,200	29,846	22,354	0.85	19,001	52,200	13,127	39,073	0.88	34,384
1998	11,300	1,859	9,441	0.89	8,402	19,100	19,100	0.44		8,404	72,200	14,996	57,204	0.42	24,026	44,300	25,433	18,867	0.85	16,037	33,200	9,436	23,764	0.88	20,912
1999[c]	7,000	3,390	3,610			23,100	23,100				108,900	10,923	97,977			38,500	19,159	19,341			30,000	5,766	24,234		
Averages:																									
62-69		3,663					13					22,925					2,438					8,800			
70-79	1,900	1,900			28	1,690	1,690			254	54,440		54,440		1,633	3,380		3,380		649	9,980		9,980		1,481
80-89	2,320	2,320			202	250	250			33	52,690	2,207	52,028		6,796	11,870		11,870		5,890	13,210		13,210		4,463
90-99	4,120	3,595			2,779	12,490	12,490			5,080	92,590	5,543	88,710		32,693	33,220	15,676	22,247		17,477	34,430	11,204	29,949		23,503
96-99	7,550	2,625	6,238		6,331	20,900	20,900			8,587	94,300	8,580	85,721		34,640	42,350	23,228	19,122		15,980	43,725	11,204	32,522		30,620

[a] Source: Ken Gamble and Jeff Peterson, USFWS.
[b] Harvest proportions provided by John Wood, WI Coop. Wildlife Research Unit.
[c] Preliminary

Table III-22, continued.

	KY				LA				MI				MN				MO			
	Special	Regular Season			Special	Regular Season			Special	Regular Season			Special	Regular Season			Special	Regular Season		
YEAR	Season	Harvest	% giants	# giants	Season	Harvest	% giants	# giants	Season	Harvest	% giants	# giants	Season	Harvest	% giants	# giants	Season	Harvest	% giants	# giants
1962		1,100			0	0			9700	9,700			5200	5,200			22700	22,700		
1963		2,200			300	300			14,200	14,200			7,300	7,300			34,300	34,300		
1964		1,900			300	300			11,900	11,900			7,300	7,300			33,600	33,600		
1965		1,100			0	0			10,400	10,400			12,100	12,100			32,500	32,500		
1966		3,700			800	800			9,500	9,500			20,000	20,000			40,300	40,300		
1967		4,700			0	0			11,500	11,500			18,900	18,900			71,900	71,900		
1968		4,900			700	700			19,400	19,400			10,100	10,100			47,200	47,200		
1969		6,800			1,500	1,500			13,300	13,300			25,500	25,500			39,800	39,800		
1970		11,200	0.08	896	1,600	1,600			25,100	25,100	0.07	1,757	22,000	22,000	0.36	7,920	33,500	33,500	0.06	2,010
1971		9,600	0.08	768	0	0			19,600	19,600	0.07	1,372	14,000	14,000	0.36	5,040	37,900	37,900	0.06	2,274
1972		4,400	0.08	352	0	0			16,400	16,400	0.07	1,148	17,600	17,600	0.36	6,336	41,000	41,000	0.06	2,460
1973		15,200	0.08	1,216	0	0			21,000	21,000	0.07	1,470	19,100	19,100	0.36	6,876	40,300	40,300	0.06	2,418
1974		12,600	0.08	1,008	0	0			26,500	26,500	0.07	1,855	31,500	31,500	0.36	11,340	64,400	64,400	0.06	3,864
1975		12,700	0.05	635	0	0			20,500	20,500	0.14	2,870	56,600	56,600	0.26	14,716	81,800	81,800	0.08	6,544
1976		15,000	0.05	750	0	0			27,500	27,500	0.14	3,850	56,100	56,100	0.26	14,586	59,900	59,900	0.08	4,792
1977		18,800	0.05	940	1,500	1,500			31,800	31,800	0.14	4,452	36,100	36,100	0.26	9,386	65,000	65,000	0.08	5,200
1978		23,400	0.05	1,170	0	0			23,300	23,300	0.14	3,262	53,600	53,600	0.26	13,936	68,300	68,300	0.08	5,464
1979		9,800	0.05	490	0	0			33,200	33,200	0.14	4,648	59,400	59,400	0.26	15,444	57,400	57,400	0.08	4,592
1980		17,800	0.01	178	1,700	1,700			32,000	32,000	0.02	640	61,800	61,800	0.04	2,472	44,700	44,700	0.03	1,341
1981		19,200	0.01	192	0	0			30,400	1,072	29,328	0.02	587	82,700	82,700	0.04	3,308	45,000	45,000	0.03	1,350
1982		6,600	0.01	66	1,000	1,000			52,200	382	51,818	0.02	1,036	76,600	76,600	0.04	3,064	42,100	42,100	0.03	1,263
1983		25,800	0.01	258	0	0			53,600	2,087	51,513	0.02	1,030	50,100	50,100	0.04	2,004	34,500	34,500	0.03	1,035
1984		11,600	0.01	116	0	0			56,700	5,331	51,369	0.02	1,027	79,700	79,700	0.04	3,188	41,500	41,500	0.03	1,245
1985		16,100	0.14	2,254	700	700			64,600	3,910	60,690	0.38	23,062	67,800	67,800	0.60	40,680	36,900	36,900	0.32	11,808
1986		17,900	0.14	2,506	0	0			61,100	5,145	55,955	0.38	21,263	67,200	67,200	0.60	40,320	30,000	30,000	0.32	9,600
1987		17,200	0.14	2,408	500	500			61,800	16,091	45,709	0.38	17,369	66,000	3,392	62,608	0.60	37,565	26,500	26,500	0.32	8,480
1988		20,400	0.14	2,856	300	300			70,900	15,894	55,006	0.38	20,902	86,200	3,603	82,597	0.60	49,558	32,100	32,100	0.32	10,272
1989		41,700	0.14	5,838	0	0			100,200	18,810	81,390	0.38	30,928	75,000	7,868	67,132	0.60	40,279	33,300	33,300	0.32	10,656
1990		11,500	0.15	1,725	2,400	2,400	0.50	1,200	71,500	16,995	54,505	0.53	28,888	88,800	3,487	85,313	0.72	61,425	33,900	33,900	0.44	14,916
1991		16,900	0.15	2,535	600	600	0.50	300	73,700	22,627	51,073	0.53	27,069	99,000	9,651	89,349	0.72	64,331	29,900	29,900	0.44	13,156
1992		9,000	0.15	1,350	1,400	1,400	0.50	700	90,000	25,549	64,451	0.53	34,159	104,400	4,962	99,438	0.72	71,595	27,100	175	26,925	0.44	11,847
1993		33,000	0.15	4,950	500	500	0.50	250	105,800	35,178	70,622	0.53	37,430	108,600	14,715	93,885	0.72	67,597	43,100	199	42,901	0.44	18,876
1994		15,300	0.15	2,295	2,900	2,900	0.50	1,450	150,600	61,843	88,757	0.53	47,041	145,800	18,664	127,136	0.72	91,538	39,400	730	38,670	0.44	17,015
1995		33,600	0.42	14,112	2,500	2,500	0.50	1,250	148,300	65,405	82,895	0.69	57,198	125,300	22,960	102,340	0.83	84,942	46,700		46,700	0.63	29,421
1996		30,700	0.42	12,894	3,600	3,600	0.50	1,800	140,200	70,225	69,975	0.69	48,283	161,900	46,142	115,758	0.83	96,079	53,200		53,200	0.63	33,516
1997		25,100	0.52	13,052	6,300	6,300	0.00	0	183,800	110,594	73,206	0.73	53,440	158,600	51,028	107,572	0.85	91,436	38,700		38,700	0.65	25,155
1998		52,400	0.52	27,248	5,000	5,000	0.00	0	134,700	76,731	57,969	0.73	42,317	159,300	70,014	89,286	0.85	75,893	24,700		24,700	0.65	16,055
1999		24,600			0	0			103,300	52,761	50,539			231,000	109,086	121,914			32,600		32,600		
Averages:																							
62-69		3,300				450					12,488					13,300					40,288		
70-79		13,270		823		310					24,490		2,668			36,600		10,558			54,950		3,962
80-89		19,430		1,667		420				7,636	51,478		11,785		4,954	69,824		22,244			36,660		5,705
90-99		25,210		8,907		2,520		772		53,791	66,399		41,758		35,071	103,199		78,315		368	36,820		19,995
96-99		33,200		17,731		3,725				77,578	62,922		48,014		69,068	108,633		87,803			37,300		24,909

Table III-22, continued.

	MS				OH				TN				WI				MF TOTAL GIANTS		
	Special	Regular Season			Special	Regular Season			Special	Regular Season			Special	Regular Season			Special	Regular	
YEAR	Season	Harvest	% giants	# giants	Season	Harvest	% giants	# giants	Season	Harvest	% giants	# giants	Season	Reg	% giants	# giants	Season	Season	Total
1962		400			1100	1,100			1800	1,800			19100	19,100					
1963		800			0	0			2,000	2,000			19,500	19,500					
1964		100			2,200	2,200			3,100	3,100			42,900	42,900					
1965		0			4,100	4,100			1,700	1,700			50,000	50,000					
1966		0			3,500	3,500			2,800	2,800			27,900	27,900					
1967		900			5,200	5,200			4,400	4,400			21,300	21,300					
1968		0			6,200	6,200			7,200	7,200			25,300	25,300					
1969		0			4,700	4,700			1,600	1,600			42,800	42,800					
1970		0			9,100	9,100	0.38	3,458	9,500	9,500	0.06	570	28,600	28,600	0.03	858		21,031	21,031
1971		1,900	0.67	1,273	6,100	6,100	0.38	2,318	3,800	3,800	0.06	228	52,500	52,500	0.03	1,575		18,104	18,104
1972		0			5,200	5,200	0.38	1,976	1,900	1,900	0.06	114	35,800	35,800	0.03	1,074		15,704	15,704
1973		0			13,500	13,500	0.38	5,130	7,200	7,200	0.06	432	60,800	60,800	0.03	1,824		22,540	22,540
1974		800	0.67	536	9,200	9,200	0.38	3,496	7,100	7,100	0.06	426	77,000	77,000	0.03	2,310		28,085	28,085
1975		2,000	0.47	940	11,200	11,200	0.30	3,360	9,500	9,500	0.05	475	66,400	66,400	0.02	1,328		35,680	35,680
1976		18,000	0.47	8,460	8,500	8,500	0.30	2,550	29,800	29,800	0.05	1,490	45,700	45,700	0.02	914		41,541	41,541
1977		2,800	0.47	1,316	12,600	12,600	0.30	3,780	8,200	8,200	0.05	410	89,900	89,900	0.02	1,798		31,574	31,574
1978		3,900	0.47	1,833	10,700	10,700	0.30	3,210	16,500	16,500	0.05	825	85,700	85,700	0.02	1,714		37,258	37,258
1979		0			12,900	12,900	0.30	3,870	5,200	5,200	0.05	260	62,200	62,200	0.02	1,244		34,744	34,744
1980		1,300	0.10	130	11,500	11,500	0.10	1,150	7,400	7,400	0.02	148	57,600	57,600	0.01	576		9,708	9,708
1981		2,300	0.10	230	12,600	12,600	0.10	1,260	5,800	5,800	0.02	116	39,800	39,800	0.01	398	1,072	10,118	11,190
1982		2,000	0.10	200	12,600	12,600	0.10	1,260	6,800	6,800	0.02	136	45,800	45,800	0.01	458	382	9,753	10,135
1983		2,200	0.10	220	8,200	8,200	0.10	820	20,800	20,800	0.02	416	33,500	33,500	0.01	335	2,087	8,879	10,966
1984		500	0.10	50	16,700	16,700	0.10	1,670	12,200	12,200	0.02	244	40,600	40,600	0.01	406	5,331	10,687	16,018
1985		1,400	0.65	910	19,800	19,800	0.60	11,880	17,800	17,800	0.33	5,874	44,600	44,600	0.06	2,676	3,910	122,325	126,235
1986		0			17,200	17,200	0.60	10,320	11,400	11,400	0.33	3,762	49,600	49,600	0.06	2,976	5,145	118,057	123,202
1987		0			18,800	18,800	0.60	11,280	16,400	16,400	0.33	5,412	39,600	39,600	0.06	2,376	22,742	108,303	131,045
1988		1,000	0.65	650	27,800	27,800	0.60	16,680	17,700	17,700	0.33	5,841	68,200	68,200	0.06	4,092	21,222	147,051	168,273
1989		2,100	0.65	1,365	34,500	34,500	0.60	20,700	55,100	55,100	0.33	18,183	85,300	85,300	0.06	5,118	28,315	183,115	211,430
1990		900	0.32	288	20,800	20,800	0.82	17,056	23,500	23,500	0.66	15,510	125,300	125,300	0.09	11,277	21,185	210,505	231,690
1991		500	0.32	160	36,000	178	35,822	0.82	29,374	21,900	21,900	0.66	14,454	122,400	189	122,211	0.09	10,999	32,873	226,696	259,569
1992		200	0.32	64	43,900	5,537	38,363	0.82	31,458	12,200	12,200	0.66	8,052	63,900		63,900	0.09	5,751	38,789	225,536	264,325
1993		1,400	0.32	448	51,300	4,526	46,774	0.82	38,355	23,300	23,300	0.66	15,378	74,900	1,717	73,183	0.09	6,586	60,300	257,846	318,146
1994		1,600	0.32	512	47,000	22,483	24,517	0.82	20,104	17,400	1,936	15,464	0.66	10,206	76,900	1,178	75,722	0.09	6,815	117,125	261,270	378,395
1995		1,300	0.33	429	56,600	27,691	28,909	0.87	25,151	33,000	7,751	25,249	0.78	19,694	102,500	6,584	95,916	0.24	23,020	133,946	385,166	519,112
1996		3,800	0.33	1,254	74,100	31,127	42,973	0.87	37,387	35,000	13,661	21,339	0.78	16,644	80,400	10,229	70,171	0.24	16,841	208,624	375,647	584,271
1997		8,100	0.31	2,511	86,200	33,496	52,704	0.83	43,744	31,900	9,268	22,632	0.76	17,200	78,900	6,289	72,611	0.25	18,153	259,765	364,433	624,198
1998	12,806	11,594	0.31	3,594	81,600	38,047	43,553	0.83	36,149	31,700	7,858	23,842	0.76	18,120	45,000	18,057	26,943	0.25	6,736	275,237	303,894	579,131
1999	7,785	2,615			74,000	26,537	47,463			18,100	5,405	12,695			95,000	17,150	77,850			257,962		
Averages:																						
62-69		275				3,375					3,075				31,100						0	0
70-79		2,940				9,900					9,870				60,460						28,626	28,626
80-89		1,280				17,970					17,140				50,460					10,023	72,800	81,820
90-99	10,296	3,201				21,069	38,188				7,647	20,212				7,674	80,381			140,581	290,110	417,649
96-99	10,296	6,527		2,453		32,302	46,673		39,093		9,048	20,127		17,322		12,931	61,894		13,910	250,397	347,991	595,867

Table III-23. Special Canada goose seasons (daily bag limits) in Mississippi Flyway States, 1977-98.[a]

	MN		WI		MI		OH		IA	IL	IN	MO	TN	MS	AL
YEAR	Early	Late	Early	Late	Early	Late	Early	Late	Early	Early	Early	Early	Early	Early	Early
1977						12/1-9 (2)									
1978						12/1-9 (2)									
1979						12/1-9 (2)									
1980						12/1 - 1/17 (2-3)									
1981						12/1 - 1/17 (2-3)									
1982						12/21 - 1/15 (3)									
1983				12/1-31 (2)		12/21 - 1/15 (3)									
1984				12/1-31 (2) 11/25-12/9 (2)		12/22 - 2/16 (3)									
1985				12/1-31 (2) 11/16-12/15 (2)		1/1 - 2/16 (2)									
1986				12/1-31 (2) 11/16-12/15 (2)		1/1 - 2/15 (2)									
1987	9/1-10 (4)	12/18-27 (2)		12/1-31 (2) 11/7-12/6 (2)	9/1-10 (3)	1/9 - 2/7 (2)				9/1-10 (5)					
1988	9/1-10 (4)	12/16-25 (2)		10/19-12/11 (1) 12/1-31 (2)	9/1-10 (3)	1/7 - 2/5 (2)				9/1-10 (5)					
1989	9/1-10 (4)	12/15-24 (2)		12/1-31 (3) 11/5-12/10 (1)	9/1-10 (3)	1/6 - 2/4 (2)				9/1-10 (5)					
1990	9/1-10 (4)	12/15-24 (2)	9/4 -10 (5)	12/1-31 (3) 11/5-12/9 (1)	9/1-10 (3)	1/5 - 2/3 (2)				9/1-10 (5)					
1991	9/1-10 (4)	12/14-23 (2)	9/3 -10 (5)	12/1-31 (3) 11/4-12/15 (1)	9/1-10 (3)	1/4 - 2/2 (2)	9/1-10 (3)			9/1-10 (5)	9/1-10 (5)				
1992	9/1-10 (4)		9/1 -10 (5)	12/1-31 (2)	9/1-10 (5)	1/9 - 2/7 (2)	9/1-10 (3)				9/1-10 (5)	10/3-12 (3)			
1993	9/4-13 (4)	12/11-20 (2)	9/1 -10 (5)		9/1-10 (5)	1/8 - 2/6 (2)	9/1-10 (3)				9/1-10 (5)	10/2-11 (3)			
1994	9/3-12 (4)	12/10-19 (2)	9/6 -10 (5)		9/1-10 (5)	1/7 - 2/5 (2)	9/3 -15 (3)				9/1-15 (5)	10/1-10 (3)			
1995	9/2-11 (5)	12/9-18 (2)	9/1 -13 (5) 9/5 -13 (5)		9/1-10 (5) 9/1-15 (5)	1/6 - 2/4 (2)	9/2-15 (4) 9/2-15 (2)			9/1-14 (5)	9/1-15 (5)		9/10-19 (2)		
1996	9/7-15 (5) 9/7-15 (2) 9/7-15 (4)	12/14-23 (2)	9/3 -15 (5) 9/3 -15 (3)		9/1-10 (5) 9/1-15 (5)	1/4 - 2/2 (2)	9/1-15 (4) 9/1-15 (2)		9/14-15 (2)	9/7-15 (5) 9/7-15 (2)	9/1-15 (5)		9/9-13 (2) 9/5-13 (5)		
1997	9/6-15 (5) 9/6-15 (2)	12/13-22 (2)	9/2 -15 (5) 9/2 -15 (3)		9/1-10 (5) 9/1-15 (5)	1/3 - 2/1 (5) (2)	9/1-15 (4) 9/1-15 (2)		9/13-14 (2)	9/1-14 (5) 9/6-14 (2)	9/1-15 (5)		9/7-11 (2) 9/3-15 (5)	9/10-19 (2)	9/10-19 (2)
1998	9/5-15 (5) 9/5-15 (2)	12/12-21 (2)	9/1 -15 (5) 9/1 -15 (3)		9/1-10 (5) 9/1-15 (5)	1/9 - 2/7 (5) (2)	9/1-15 (4) 9/1-15 (2)		9/12-13 (2)	9/1-15 (5) 9/1-15 (2)	9/1-15 (5)		9/6-10 (2) 9/2-15 (5)	9/10-19 (2)	9/10-19 (2)
1999							9/1-15 (4) 9/1-15 (2)				9/1-15 (5)		9/5-9 (2) 9/1-15 (5)		
2000							9/1-15 (5) 9/1-15 (2)	1/15-2/5 (2)			9/1-15 (5)		9/10-19 (2) 9/10-19 (2)		

[a] Source: Ken Gamble and Jeff Peterson, USFWS.

Table III-24. Special season Canada goose harvest estimates in Mississippi Flyway States, 1977-99.[a]

	MN		WI		MI		IA	IL	IN	OH		MO	TN	MS	AL	MF TOTAL	
YEAR	Early	Late	Early	Late	Early	Late	Early	Early	Early	Early	Late	Early	Early	Early	Early	Early	Late
1977						NA											NA
1978						NA											NA
1979						NA											NA
1980						NA											NA
1981						1,072											1,072
1982						382											382
1983				NA[b]		2,087											2,087
1984				NA[b]		5,331											5,331
1985				NA[b]		3,910											3,910
1986				NA[b]		5,145											5,145
1987	377	3,015		NA[b]	14,731	1,360		3,259								18,367	4,375
1988	2,179	1,424		NA[b]	13,916	1,978		1,725								17,820	3,402
1989	7,257	611		NA[b]	11,610	7,200		1,637								20,504	7,811
1990	2,341	1,146	NA	NA[b]	13,095	3,900		703								16,139	5,046
1991	9,043	608	189	NA[b]	14,696	7,931		228	NA	178						24,334	8,539
1992	4,962		NA	NA[b]	21,009	4,540			2,566	5,537		175				34,249	4,540
1993	14,715	NA[b]	1,717		27,734	7,444			3,965	4,526		199				52,856	7,444
1994	18,664	NA[b]	1,178		48,713	13,130			10,291	22,483		730	1,936			103,995	13,130
1995	22,960	NA[b]	6,584		52,536	12,869		3,555		27,691			7,751			121,077	12,869
1996	46,142	NA[b]	10,229		60,851	9,374	16,485	2,282	18,473	31,127			13,661			199,250	9,374
1997	51,028	NA[b]	6,289		91,810	18,784	13,127	6,117	29,846	33,496			9,268	NA	NA	240,981	18,784
1998	70,014	NA[b]	18,057		72,365	4,366	9,436	14,996	25,433	38,047			7,858	12,806	1,859	270,871	4,366
1999[c]	99,694	9,392	17,150		49,876	2,885	5,766	10,923	19,159	26,537	2,637		5,405	7,785	3,390	245,685	14,914

[a] Source: Ken Gamble and Jeff Peterson, USFWS.
[b] Special season overlaps regular season, no estimate available.
[c] Preliminary.

September season to target molt migrant giants returning from the region of Hudson and James Bays (G. Soulliere, Michigan Department of Natural Resources, personal communication).

By January 2000, four States in the Mississippi Flyway were using late seasons (**Table III-23**). It is believed that late seasons are effective at harvesting urban giants which venture into rural areas to feed during late winter, although this has not been evaluated. Late season harvests have been more difficult to estimate, because they overlap with regular seasons in some States (**Table III-24**). Although variable among years, the total late season giant harvest in the Mississippi Flyway appears to be increasing.

Despite high harvest throughout the Flyway, wildlife agency population goals have been far surpassed in many States, and numbers of human/goose conflicts continue to increase. Urban "refuges", where sport harvest is not feasible, have caused unequal distribution of geese which has eroded the public's tolerance of goose damage and conflicts. Given current frameworks and regulations, and increasing urbanization, it does not appear that sport harvest can adequately control resident giant Canada goose populations in the Mississippi Flyway.

(c) Central Flyway

In the 1990s, as populations remained above objectives and continued to increase, the Central Flyway Council started a slow progression of liberalizing regulations. These first liberalizations occurred in the west tier of States (New Mexico, Colorado, Wyoming, Montana, and west Texas) where SGP and HL birds are harvested. Between 1990 and 1999, the east tier of States (Texas, Oklahoma, Kansas, Nebraska, South Dakota, and North Dakota) changed from a season length of 72 days with a daily bag limit of 1 goose to a 95 day season and a daily bag limit of 3 geese. In addition, South Dakota initiated the first September special season in the Flyway in 1996 with the objective to decrease the local Canada goose population in the northeast and east-central portions of the State. September special seasons were initiated in Kansas and North Dakota in 1999 and in Oklahoma in 2000 (**Table III-25**).

Between 1962 and 1998, Canada goose harvest increased more or less with the increase in population size despite a concurrent decline in the number of adult waterfowl hunters. The percentage of the Flyway's total goose harvest that was Canada geese increased from about 40 percent prior to the mid-1980s to greater than 60 percent in the late-1990s. There were some minor changes in the distribution of the Canada goose harvest in the Flyway, most notably a decline in Texas (from 21 percent of the Flyway's total in the 1970's to 12 percent in the 1990's) and in North Dakota (19 percent to 14 percent). This harvest was distributed across all the other States except New Mexico and Kansas, which have maintained a relatively stable percentage of the Flyway's harvest. At the same time, the total harvest of Canada geese and the proportion that are large geese have increased (**Tables III-26 & III-27**) in nearly every jurisdiction over the last two decades. Only in Colorado and Montana has this proportion been stable rather than increasing. The magnitude of the change in Central Flyway States over the period 1995-98 has been influenced by several factors, including more liberal regular season hunting regulations.

Table III-25. September Canada Goose Season Dates, Hunter Activity and Harvest in North and South Dakota From State Harvest Surveys.

Year	North Dakota				South Dakota			
	Days	Hunters	Hunter Days	Harvest	Days	Hunters	Hunter Days	Harvest
1996[1]					15	6586	20145	12866
1997[2]					10	6506	17360	11281
1998[3]					11	6682	19377	15768
1999[4]	15	1025	2794	1893	15	6308	19869	17850
2000[5]	21	NA	NA	NA	N: 28 S: 14	NA	NA	NA

Notes:

1 In SD 10 counties open in two hunt units with separate 1 and 2-bird bag limits.

2 In SD 13 counties open with a 2- bird bag limit.

3 In SD 13 counties open with a 4- bird bag limit.

4 In SD 14 counties open with a 5- bird bag limit. In ND 2 counties open with a 3-bird bag limit. In SD 20 counties open in north and south hunt units with a 5-bird bag limit. In ND a statewide season with a 5-bird bag limit.

5 In KS and OK state harvest surveys not conducted for September Canada goose seasons. In KS in 1999, limited hunt area around Kansas City, Topeka and Lawrence September 1-13 with a 3-bird bag limit. In 2000, Wichita area was added. In OK in 2000, a statewide season held from September 9-17 with a 3-bird bag limit.

Table III-26. Total and large race Canada goose (regular season) harvest in the Central Flyway.

Period	* * Central Flyway States * *			* Alberta & Saskatchewan *			* * * * * Total * * * * *		
	Total	Large	% Large	Total	Large	% Large	Total	Large	% Large
1980-84	215340	112040	52%	200395	130305	65%	415735	242345	58%
1985-89	242,982	146,596	60%	204,455	135,029	66%	447,437	281,626	63%
1990-94	297,030	190874	64%	191,392	130,618	68%	488,422	321,492	66%
1995-98	587365	409346	70%	228478	167573	73%	816096	576938	71%

Table III-27. Canada goose regular season harvests for Central Flyway States and Provinces.

	* * * * * Alberta * * * * *			* * * * * Colorado * * * * *			* * * * * Kansas * * * * *		
Period	**Total**	**Large**	**% Large**	**Total**	**Large**	**% Large**	**Total**	**Large**	**% Large**
1980-84	102238	73,166	72%	39546	29366	74%	12810	6166	48%
1985-89	107,706	77,190	72%	49,746	34,381	69%	13,080	8,759	67%
1990-94	105,092	78,237	74%	55,345	40,769	74%	13,284	9,914	75%
1995-98	119,155	94,844	80%	135,895	101,423	75%	37,907	30,146	80%

	* * * * * Montana * * * * *			* * * * * Nebraska * * * * *			* * * * * New Mexico * * * * *		
Period	**Total**	**Large**	**% Large**	**Total**	**Large**	**% Large**	**Total**	**Large**	**% Large**
1980-84	5905	5419	92%	18655	11733	63%	2569	1315	51%
1985-89	7,881	7,302	93%	31,278	24,071	77%	3,507	2,046	58%
1990-94	15,427	14,127	92%	40,763	33,520	82%	2,817	1,771	63%
1995-98	32,858	30,249	92%	81,846	70,521	86%	1,637	1,043	64%

	* * * * North Dakota * * * *			* * * * * Oklahoma * * * * *			* * * * Saskatchewan * * * *		
Period	**Total**	**Large**	**% Large**	**Total**	**Large**	**% Large**	**Total**	**Large**	**% Large**
1980-84	32343	8238	25%	7763	2700	35%	98157	57139	53%
1985-89	25,993	7,896	30%	10,642	4,619	43%	96,749	57,839	60%
1990-94	37,944	15,319	40%	13,916	6,476	47%	86,300	52,381	61%
1995-98	83,927	36,279	43%	17,587	9,643	55%	109,323	72,729	67%

	* * * * South Dakota * * * *			* * * * * Texas * * * * *			* * * * Wyoming * * * *		
Period	**Total**	**Large**	**% Large**	**Total**	**Large**	**% Large**	**Total**	**Large**	**% Large**
1980-84	46959	28013	60%	42129	1915	5%	6661	5207	78%
1985-89	49,799	30,273	61%	40,928	3,365	8%	10,126	8,987	89%
1990-94	57,038	41,219	72%	45,097	4,348	10%	15,400	13,981	91%
1995-98	105,061	87,815	84%	62,324	3,875	6%	28,578	24,964	87%

Note: Percent large for west tier states for 1982 was subjectively estimated based on values for nearby years. Percent large for States was estimated from Hand-Tally information collected at the annual Wing Bee (pers. comm. Michael A. Johnson, ND). Percent large for Alberta and Saskatchewan is from CWS reports.

(d) Pacific Flyway

As discussed in section **III.A.1.b.(4) Pacific Flyway,** Pacific Flyway resident geese are divided into the Pacific Population (PP) and the Rocky Mountain Population (RMP) of the western Canada goose. Since 1982, the Pacific Flyway has recognized and separately managed the two populations.

Harvest of the Pacific Population, of which a large portion is relatively nonmigratory (migrate short distances or none), has increased substantially over the last 20 years (**Table III-28**). The average harvest has increased from approximately 65,000 in the late 1970s to over 160,000 in the mid 1990s. Most of this increase has resulted from additional harvest in Idaho and Washington.

Table III-28. Harvest of the Pacific Population (PP) of Canada geese from 1970-98[1,2].

	Unit I			Unit II		Unit III		Unit IV				GRAND	Three Yr.
YEAR	CA	NV	TOTAL	ID	TOTAL	MT	TOTAL	ID	WA	B.C.	TOTAL	TOTAL	Average
1970	59,551	1,834	61,385			1,494	1,494		14,280		14,280	77,159	
1971	50,453	2,973	53,426			1,468	1,468		12,940		12,940	67,834	
1972	51,797	1,680	53,477			4,563	4,563		13,000		13,000	71,040	72011
1973	56,266	3,612	59,878			2,762	2,762		9,600		9,600	72,240	70371
1974	52,325	4,790	57,115			3,061	3,061		9,300		9,300	69,476	70919
1975	37,647	2,602	40,249			3,452	3,452		12,440	8,913	21,353	65,054	68923
1976	38,152	5,714	43,866			2,387	2,387		12,900	6,848	19,748	66,001	66844
1977	36,700	3,723	40,423			3,583	3,583		12,900	8,758	21,658	65,664	65573
1978	34,260	5,215	39,475			5,019	5,019		17,300	10,800	28,100	72,594	68086
1979	21,698	4,052	25,750			3,205	3,205		19,500	12,931	32,431	61,386	66548
1980	18,974	3,773	22,747			3,783	3,783		16,680	16,656	33,336	59,866	64615
1981	21,506	6,918	28,424			3,090	3,090		17,090	15,843	32,933	64,447	61900
1982	16,323	5,720	22,043			3,148	3,148		16,730	14,479	31,209	56,400	60238
1983	21,600	7,239	28,839			4,856	4,856		18,730	14,877	33,607	67,302	62716
1984	41,632	10,143	51,775			3,262	3,262		22,000	15,841	37,841	92,878	72193
1985	54,778	7,486	62,264			3,866	3,866		26,650	18,510	45,160	111,290	90490
1986	24,670	5,632	30,302			3,307	3,307		17,330	14,853	32,183	65,792	89987
1987	34,332	7,122	41,454			2,811	2,811		16,150	14,830	30,980	75,245	84109
1988	25,568	6,922	32,490			3,245	3,245		21,240	15,266	36,506	72,241	71093
1989	29,254	5,099	34,353			4,310	4,310		22,690	16,418	39,108	77,771	75086
1990	34,782	9,095	43,877	21,788	21,788	7,564	7,564	11,618	23,100	14,835	49,553	122,782	90931
1991	29,254	5,535	34,789	35,000	35,000	4,795	4,795	5,500	23,510	18,211	47,221	121,805	107453
1992	52,631	8,742	61,373	36,500	36,500	4,022	4,022	4,400	34,173	16,130	54,703	156,598	133728
1993	45,921	5,352	51,273	34,000	34,000	3,249	3,249	9,000	26,267	12,943	48,210	136,732	138378
1994	48,798	7,321	56,119	57,400	57,400	7,171	7,171	15,600	34,636	16,568	66,804	187,494	160275
1995	30,903	4,723	35,626	50,300	50,300	5,877	5,877	14,400	30,011	10,732	55,143	146,946	157057
1996	24,761	7,637	32,398	*59,891*	*59,891*	6,140	6,140	*14,967*	*37,799*	15,477	68,243	166,672	167037
1997	36,702	4,638	41,340	*43,211*	*43,211*	6,402	6,402	*11,129*	*44,769*		55,898	146,851	153490
1998		7,145	7,145						*35,447*		35,447	42,592	118705
AVG.	36,830	5,601	41,161	42,261	42,261	3,996	3,996	10,827	21,350	14,124	32,790	91,728	

Notes:
1. Italicized data indicates HIP data.
2. Shaded data indicates no data or survey, calculated as average of previous and following year or trend data.

Harvest of the Rocky Mountain Population, which is primarily migratory in nature, has also increased although not to the same extent as the Pacific Population. The average harvest has grown from approximately 90,000 in the late 1970s to approximately 140,000 in the mid 1990s (**Table III-29**). The largest increases occurred in Nevada, Montana, Wyoming, and Colorado.

Table III-29. Harvest of Rocky Mountain Population of Canada geese (RMP) by reference area as measured by State surveys.

	Alberta	Mont.	Idaho	Wyoming			Colo.	Utah			Nevada				Arizona	Calif.	NW New		THREE YR.
Year	South [1]	Cent.	SE	Cent.	West.	Total	NW	North.	South.	Total	NW	NE	South.	Total		S & C	Mexico	Total	AVERAGE
1975	19,633	4,860	13,300	1,094	969	2,063	683	19,604	1,457	21,061	*2,604*	181	846	1,027	1,488	14,875		39,817	
1976	20263	4,371	16,300	1,317	713	2,030	450	17,865	1,517	19,382	*5,714*	129	536	665	1,940	17,162		88,277	
1977	17,065	5,365	19,200	1,408	1,067	2,475	386	14,856	1,052	15,908	*3,723*	140	279	419	1,508	10,295		76,344	68,146
1978	25,337	4,867	25,500	1,557	2,183	3,740	713	30,433	4,032	34,465	*5,215*	178	605	783	3,732	14,994		119,346	94,656
1979	21,629	7,648	25,100	1,385	2,202	3,587	1,481	22,703	4,025	26,728	*4,052*	172	1,014	1,186	6,597	8,007		106,015	100,568
1980	30,212	6,969	25,900	1,598	1,584	3,182	1,070	20,848	3,804	24,652	*3,733*	93	649	742	1,583	9,208		107,251	110,871
1981	25,975	4,663	23,700	2,633	1,323	3,956	1,564	16,227	4,699	20,926	*6,918*	417	1,562	1,979	5,189	9,401		104,271	105,846
1982	33,278	4,577	33,800	2,176	3,086	5,262	2,464	28,331	5,341	33,672	*5,720*	383	455	838	3,714	6,305		129,630	113,717
1983	33,116	4,962	25,000	3,289	3,258	6,547	2,403	24,061	7,599	31,660	*7,239*	472	1,190	1,662	3,354	13,629		129,572	121,158
1984	25,625	6,948	17100	3,875	3,127	7,002	1,930	26,018	11,180	37,198	*10,143*	456	1,059	1,515	4,300	11,749		123,510	127,571
1985	29,734	5,222	34,200	1,995	2572	4,567	3,103	36,300	12,951	49,251	*7,486*	659	1,725	2,384	4,994	14,650		155,591	136,224
1986	25,762	6,719	24,000	3,723	2702	6425	2,900	15,151	6,796	21,947	*5,632*	704	633	1,337	6,621	7,537		108,880	129,327
1987	35,337	9,343	12,000	1,692	2,586	4,278	2,676	15,108	7,938	23,046	*7,122*	598	1,064	1,662	4,778	7,232		107,474	123,982
1988	30,186	7,149	18,600	2,540	2,242	4,782	3,115	9,706	5,559	15,265	*6,922*	507	1,261	1,768	4,054	9,667		101,508	105,954
1989	33,978	7,574	25,600	2,441	2,842	5,283	5,874	12,011	3,193	15,204	*5,999*	578	555	1,133	2,273	12,022		114,940	107,974
1990	38,701	12,330	31,400	1,972	2,167	4,139	8,214	13,314	6,318	19,632	*9,095*	669	888	1,557	2,219	10,761		138,048	118,165
1991	32,296	12,676	28,500	3,129	2,308	5,437	4,148	14,792	3,967	18,759	*4,965*	227	381	608	1,936	8,715		118,040	123,676
1992	26,452	8,009	20,100	1,892	1,672	3,564	5,937	12,046	4,316	16,362	*8,742*	787	611	1,398	3,631	13,188		107,383	121,157
1993	28,134	11,039	31,100	2,465	1,613	4,078	5,558	*20,618*	*5,188*	*25,806*	*5,352*	499	742	1,241	2,723	8,055		123,086	116,170
1994	30,130	*11,884*	29,400	2,723	2,308	5,031	2,445	29,190	6,060	35,250	*7,321*	399	853	1,252	3,009	7,586		133,308	121,259
1995	35,486	*12,463*	33,400	3,965	2,482	6,447	4,829	20,488	2,483	22,971	*4,723*	158	325	483	3,184	6,543		130,529	128,974
1996	42,952	*13042*	*40,127*	4,437	4,642	9,079	6575	33,226	7,090	40,316	*7,637*	874	517	1,391	3,247	6,290		170,656	144,831
1997	42,255	*13,621*	*16,345*	3,773	2,523	6,296	6550	14,168	3,815	17,983	*4,638*	666	745	1,411	2,796	7,758		119,653	140,279
1998	33,419	*14,199*	*14771*	*5,023*	*3,137*		*6,577*	21,047	5,561	26,608	*7,145*	867	623	1,490	2,761	*6,824*	3,199	125,154	138,487
1999		*14,778*	*8,142*	6,273	3,750	10,023	*6,846*				*6,410*	610	555	1,165	5,164	*6,479*	2,460	61,468	102,091
Avg.:	**29,873**	**8,611**	**23,703**	**2,735**	**2,362**	**4,970**	**3,540**	**20,338**	**5,248**	**25,586**	***6,170***	**457**	**787**	**1,244**	**3,472**	**9,957**		**113,590**	**117,438**

Notes:

1. Lightly shaded italicized areas indicate no data or survey. Number was calculated from previous and following year or previous 10-year trend, or from Federal surveys
2. Italicized areas with no shading indicates numbers derived from HIP surveys.
3. Southern Alberta: Estimate was revised in 1994. Assumes that about 41 percent of all large Canada goose harvest in Provincial Zones 4, 6, and 8 and RMP geese.
4. NW Nevada harvest is combination of PP and RMP geese and is assigned to PP harvest.
5. 1996 Idaho harvest is from Federal survey.

c. Migratory Bird Permit Program

Until recently, to resolve conflicts between people and resident Canada geese, wildlife managers relocated geese from areas where problems existed to areas that had few or no geese. Today, few, if any, such areas remain. With the current shortage of places to move offending geese, managers have sought and used alternative methods to resolve conflicts between birds and people.

There are several effective management and control techniques used to discourage resident Canada geese from settling in an area. Generally, control activities can be divided into three broad categories: (1) Resource management, (2) Physical exclusion, and (3) Wildlife management (APHIS/WS 1994). Resource management would include such activities as habitat management to make areas less attractive to resident Canada geese and modification of human behavior such as the elimination of artificial feeding of geese in park situations. Physical exclusion techniques might include the use of fencing or netting to prohibit or restrict Canada goose access to specific areas. Wildlife management would include the use of lure crops or other alternative foods, the use of frightening devices such as propane exploders, firecrackers, or dogs, the use of chemical repellents, reproductive inhibitors, and finally, take or relocation methods. All of these techniques have been used for control and management of resident Canada geese with varied success (see **section II.A. Description of Goose Management Techniques** for further detail).

Complex Federal and State responsibilities are associated with resident Canada goose damage-management activities. All control activities, except techniques intended to either scare or exclude geese from a specific area, such as habitat management, or repellents, require a Federal permit, issued by the Service. Additionally, permits to alleviate migratory bird depredations are issued by the Service in coordination with Wildlife Services. The current procedure is designed so that depredation-permit requests made to the Service for resident Canada goose damage management are reviewed by Wildlife Services, which in turn makes a recommendation to the Service for either approval or denial.

Until recently, permits for controlling problems associated with injurious resident Canada geese were issued by the Service as special-purpose permits or depredation permits as described in 50 CFR, Parts 21.27 and 21.41, respectively. The introductory text of Part 21.27 reads,

> "Permits may be issued for special purpose activities related to migratory birds, their parts, nests, or eggs, which are otherwise outside the scope of the standard form permits of this part. A special purpose permit for migratory bird related activities not otherwise provided for in this part may be issued to an applicant who submits a written application containing the general information and certification required by part 13 and makes a sufficient showing of benefit to the migratory bird resource, important research reasons, reasons of human concern for individual birds, or other compelling justification."

As indicated above, Part 21.27 provides for the permitted taking of migratory birds with "compelling justification." The Service has used this provision in the past to authorize and permit resident Canada goose damage control\management activities, including lethal control. Currently, the Service primarily uses the provisions contained under depredation permits for resident Canada goose control efforts. Part 21.41 outlines the requirements for obtaining a depredation permit which states,

> "Each such application must contain the general information and certification required by Sec. 13.12(a) of this subchapter plus the following additional information:

(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."

As indicated above, Part 21.41 allows the permitted taking of migratory birds which are injuring "crops or other interests." The Service has historically taken "other interests" to mean the risk of aircraft/bird collisions; physical injury inflicted by geese to people; damage to lawns, gardens, and plants; deposition of fecal material in areas intensively used by people; and damage to commercial entities such as golf courses and aquaculture facilities.

All private individuals, organizations, and Federal and State agencies seeking permits to control migratory birds must file an application with the Service. Additionally, a recommendation from Wildlife Services is required before the Service issues depredation permits. Permits are issued by the Service based on the information provided by the applicant. In nearly all instances, a State-issued permit is also needed before one can legally take migratory birds under a Federal permit.

Service-issued permits to take and/or control migratory birds are designed to relieve depredation problems and injurious situations and are not to be construed as opening, reopening, or extending any hunting season. Normally, control actions are either carried out by agents of the State fish and wildlife agency or Wildlife Services staff. Permits are not issued for sport hunting. All sport-hunting regulations are issued through the annual regulations-development process.

In 1999, we established a new special Canada goose permit. Designed specifically for the management and control of resident Canada geese, the new permits are only available to individual State conservation or wildlife management agencies. Under the permits, States and their designated agents can initiate resident goose damage management and control injurious goose problems within the conditions and restrictions of the permit program. The permits, while restricted to the period between March 11 and August 31, increase the use and availability of control measures, help decrease the number of injurious resident Canada geese in localized areas, have little impact on hunting or other recreation dependent on the availability of resident Canada geese, allow injury/damage problems to be dealt with on the State and local level, and result in more responsive and timely control activities. State applications for the special permits require detailed information regarding the size of the resident Canada goose breeding population in the State and the number of resident Canada geese, including eggs and nests, to be taken. In addition, the State must show that such damage-control actions will either provide for human health and safety or protect personal property, or compelling justification that the permit is needed to allow resolution of other conflicts between people and resident Canada geese. Some of the more pertinent restrictions in the new permits are:

1. State wildlife agencies (States) may take injurious resident Canada geese as a management tool but should utilize non-lethal management tools to the extent they consider appropriate in an effort to minimize lethal take.
2. Control activities should not adversely affect other migratory birds or any species designated under the Endangered Species Act as threatened or endangered.
3. States may conduct control activities March 11 through August 31 and should make a concerted effort to limit the take of adult birds to June, July, and August in order to minimize the potential impact on other migrant populations.
4. States must conduct control activities clearly as such (e.g., they cannot be set up to provide a hunting opportunity).

5. States must properly dispose of or utilize Canada geese killed in control programs. States may donate Canada geese killed under these permits to public museums or public scientific and educational institutions for exhibition, scientific, or educational purposes, or charities for human consumption. States may also bury or incinerate geese. States may not allow for Canada geese taken under these permits, nor their plumage, to be sold, offered for sale, bartered, or shipped for purpose of sale or barter.
6. States may use their own discretion for methods of take but utilized methods should be consistent with accepted wildlife-damage management programs.
7. States may designate agents who must operate under the conditions of the State's permit.
8. States must keep records of all activities, including those of designated agents, carried out under the special permits. We will require an annual report detailing activities conducted under a permit.
9. We will annually review States' reports and will periodically assess the overall impact of this program to ensure compatibility with the long-term conservation of this resource.
10. We reserve the authority to immediately suspend or revoke any permit if we find that the State has not adhered to the terms and conditions specified in 50 CFR 13.27 and 13.28 or if we determine that the State's population of resident Canada geese no longer poses a threat to human health or safety, to personal property, or of injury to other interests.

We believe the special permits further result in biologically sound and more cost-effective and efficient resident Canada goose damage management than the existing permit-by-permit system. Overall, the special Canada goose permit provides some additional management flexibility needed to address problems and at the same time simplifies the procedures needed to administer the goose damage management program. In the short term, we believe this permit satisfies the need for an efficient/cost-effective damage management program while allowing us to maintain a high degree of management control. To date, several States (Ohio, Michigan, Minnesota, Missouri, and South Dakota) have applied for, and obtained, the new permits.

(1) Wildlife Services Program

(a) History and Role

Wildlife Services' mission is to "provide leadership in wildlife damage management in the protection of America's agricultural, industrial and natural resources, and to safeguard public health and safety." This is accomplished through:

A) training of wildlife damage management professionals;
B) development and improvement of strategies to reduce economic losses and threats to humans from wildlife;
C) collection, evaluation, and dissemination of management information;
D) cooperative wildlife damage management programs;
E) informing and educating the public on how to reduce wildlife damage and;
F) providing data and a source for limited use management materials and equipment, including pesticides (USDA 1989).

(b) Wildlife Services Integrated Pest Management

Wildlife damage management, defined as the alleviation of damage or other problems caused by or related to the presence of wildlife, is an integral component of wildlife management (Leopold 1933, Wildlife Society 1990, Berryman 1991).

Integrated Wildlife Damage Management Approach: The Wildlife Services program uses an Integrated Wildlife Damage Management (IWDM) approach (sometimes referred to as Integrated Pest Management or IPM) in which a combination of methods may be used or recommended to reduce wildlife damage. IWDM is described in Chapter 1, page 17 of Wildlife Services' Animal Damage Control Program Final Environmental Impact Statement (USDA 1995). These methods include the alteration of cultural practices as well as habitat and behavioral modification to prevent damage. The reduction of wildlife damage may also require that the offending animal(s) be removed or that localized populations of the offending species be reduced through lethal methods.

Wildlife Services conducts resident Canada goose damage management, after consultation with the USFWS and appropriate State wildlife management agencies, using a formalized Decision Model (USDA 1995a) (**Figure III-5**). The Decision Model is used to determine the most appropriate implementation strategy to resolve wildlife damage. This proposal would implement safe and practical methods for the prevention and control of damage caused by wildlife, based on local problem analysis, environmental and social factors, and the informed judgement of trained personnel. In selecting management techniques for specific damage situations, consideration is given to:

- magnitude of threat or damage;
- geographic extent of threat;
- life cycle of the resident Canada goose, time of year, and location;
- other land uses (such as proximity to recreation areas or residences);
- feasibility of implementation of the various allowed techniques;
- occurrence of non-target species (other species, pets, or protected or endangered species);
- local environmental conditions such as terrain, vegetation, and weather;
- potential legal restrictions such as availability of tools or management methods;
- humaneness of the available options; and
- costs of control options.

The Decision Model is adopted from the Wildlife Services decision making process, which is a standardized procedure for evaluating and responding to damage complaints (USDA 1995a). Wildlife Services personnel evaluate the appropriateness of strategies, and methods are evaluated in the context of their availability (legal and administrative) and suitability based on biological, economic, and social considerations. Following this evaluation, the methods deemed to be practical for the situation form the basis of a management strategy. After the management strategy has been implemented, monitoring is conducted and evaluation continues to assess the effectiveness of the strategy. If the strategy is effective, the need for management is ended in that particular case, records are kept, and reported to the appropriate wildlife management agencies.

Wildlife Services strives to reach and maintain a balance between wildlife needs and welfare and human needs and welfare. Humans and Canada geese are both part of the natural environment and both sets of

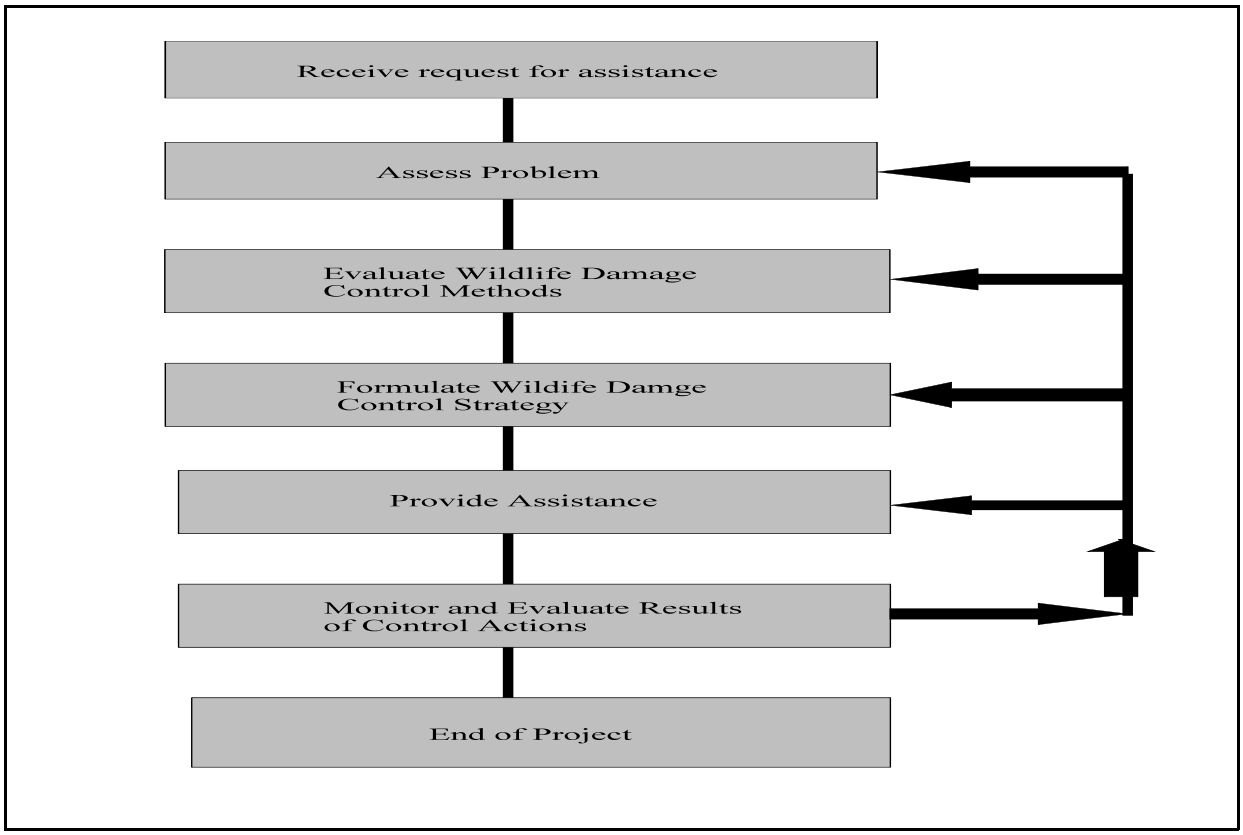

Figure III-5. Wildlife Services Decision Model.

needs and welfare must be considered when selecting methods to be used in a resident Canada goose damage management program. Wildlife Services does not conduct any wildlife damage management to punish offending animals or to treat them inhumanely, but rather as a means of reducing damage when and where requests for assistance are received.

Funding: Wildlife Services is a cooperatively funded, service-oriented program. Before any operational wildlife damage management is conducted, Agreements for Control or APHIS/WS Work Plans must be completed by Wildlife Services and the land owner/administrator. Wildlife Services cooperates with private property owners and managers and with appropriate land and wildlife management agencies, as requested and appropriate, with the goal of effectively and efficiently resolving wildlife damage problems in compliance with federal, State, and local laws, regulations, policies, orders, and procedures including the Endangered Species Act (ESA) and Migratory Bird Treaty Act.

Stakeholder Role in Deciding on a Damage Management Plan: When one person privately owns a parcel of property, the authority selecting the damage management plan would be the property owner. Wildlife Services would provide technical assistance and recommendations for deterring geese, using non-lethal methods, and lethal control, to this person to reduce damage. If no homeowner or civic association

represents the affected resource owners of the local community, then Wildlife Services would provide technical assistance to the self or locally appointed authority(ies). Direct damage management would be provided by Wildlife Services if requested, funded, and the requested direct damage management was consistent with Wildlife Services recommendations, policy and federal and State laws. Additionally, a minimum of 67 percent of the affected resource owners must agree to the direct damage management. The affected resource owners would be those whose property is adjacent to the water body where the Canada geese primarily inhabit or damage resources. Affected resource owners who disagree with the direct damage management may request Wildlife Services not conduct this action on their property and Wildlife Services will honor this request.

The authority selecting the damage management plan for local, State, or federal property would be the official responsible for or authorized to manage the public land to meet interests, goals and legal mandates for the property. Wildlife Services would provide technical assistance and recommendations to this person to reduce damage. Direct damage management would be provided by Wildlife Services if requested, funding was provided, and the requested direct damage management was consistent with Wildlife Services recommendations, policy and federal and state laws.

This process for involving local communities and local stakeholders in the decisions for resident goose damage management assures that local concerns are considered before individual damage management actions are taken.

Wildlife Services Wildlife Damage Management Methods:

Non-chemical methods:

Cultural Practices	Lure crops / Supplemental Feeding
Habitat Modification	Barriers, fencing (conventional)
	Barriers, fencing (permanent electrical)
	Barriers, fencing (temporary electrical)
	Barriers, netting
	Barriers, overhead wires
	Barriers, exclusion (other)
	Manipulation, environmental (food)
	Manipulation, environmental (vegetative cover)
	Manipulation, environmental (water)
	Manipulation, environmental (other)
Behavior Modification	Balloons (all)
	Dog, chase
	Electric harassment devices (all)
	Exploders, gas (all)
	Flags, mylar
	Flags, non-mylar
	Harassment / shooting
	Pyrotechnics (all)
	Scarecrows (all)
	Tape, mylar
	Vehicles (all) (boat, auto, ATV)

Population Management	Hand caught, (bare hands, snare pole, etc.) Harvest, legal Nest removal Nest, Egg destruction / removal (includes egg addling) Nets, cannon / rocket Nets, gun Nets, other Shooting Spotlighting, night vision equipment / shooting Spotlighting, hand caught Trap & euthanize Trap & release Trap, drive / corral Trap, other
Behavior modification (human)	Eliminate wildlife feeding

Chemical Methods

Behavior modification	Repellent, Methyl Anthranilate` Repellent, Anthraquinone
Population management	Alpha chloralose (capture drug)

Between and during fiscal years 1996 and 1999, the Wildlife Services program loaned, sold, or otherwise distributed the following equipment to the public to use to deter geese by non-lethal means: gas exploders, electronic harassment devices, electrical and conventional fencing, pyrotechnics, mylar and non-mylar flags, scarecrows (owl, snake, silhouette), cage traps, balloons, and nets (APHIS/WS Management Information System).

(c) Requests for Assistance

In 1995, the Wildlife Services received 2,884 complaints of injurious goose activity which resulted in the dispersal of 525,000 Canada geese (APHIS/WS, 1995). In addition, during that same period, the Wildlife Services program reviewed 2,224 permit requests dealing with the control of injurious Canada geese (APHIS/WS, 1995). Of those 2,224 requests, Wildlife Services recommended that the Service issue 250 permits. Those recommendations included 68 for take, 5 for capture/relocation, and 195 for egg/nest destruction.

Comparing these figures with previous years' data shows a steady increase since 1991. For example, in 1991 Wildlife Services received 1,698 complaints of injurious goose activity (APHIS/WS, 1991). In 1993, there were 2,802 complaints (APHIS/WS, 1993). In response to those complaints, Wildlife Services dispersed 730,692 and 862,809 geese, respectively, and recommended the Service issue 92 and 192 permits, respectively.

Table III-30 shows the numbers of requests for assistance to alleviate property damage by Canada geese that were received by the Wildlife Services program during 1996-99 in eight States. Most of the requests for assistance to alleviate damages to property are associated with resident Canada geese.

Table III-30. Number of requests for assistance to the Wildlife Services Program from 1996-99 for property damage by resident Canada geese in selected States.

State	1996	1997	1998	1999	Total
Illinois	48	95	--	132	275
New Jersey	246	279	296	312	1133
New York	134	177	135	132	576
Pennsylvania	198	224	153	73	648
South Dakota	--	--	--	1	1
Virginia	85	135	118	166	504
Washington	51	67	159	97	374
Wisconsin	150	189	214	205	758
8 State Total	912	1166	1075	1118	4271
WS Total	1790	2042	1278	1958	7068

Table III-30 indicates that a need for assistance to alleviate damages to property by resident Canada geese exists. It does not include requests received or responded to by local, State or other Federal agencies. Although the resident goose population and related damages may be increasing, the trend in the numbers of requests for assistance may not reflect that increase. When Wildlife Services does not have the ability to respond readily or effectively to requests for assistance, the number of calls for help does not tend to reflect the extent of need for action, but rather, the requests provide an indication that a need exists. Once the program has the support to respond adequately to requests for assistance (such as permits in place, funding, and personnel), and then shows an ability to respond to requests, the numbers of requests often increase.

Table III-31. Number of stakeholders receiving technical assistance for property damage from the Wildlife Services Program for Canada geese from 1996-99.

State	Projects 1996*	Projects 1997*	Project/ Participants 1998**	Projects/ Participants 1999**
Illinois	48	95	75/84	132/263
New Jersey	246	279	296/393	313/417
New York	166	178	154/167	162/167
Pennsylvania	234	285	153/153	75/77
South Dakota	–	–	–	36525
Virginia	85	135	118/128	166/184
Washington	51	67	164/181	97/120
Wisconsin	150	189	212/214	146/146
8 State Total	980	1228	1,172/1,320	1,092/1,375
WS Total	1856	2097	2,001/2,232	1,957/2,320

*1996 & 1997 data tables did not separate project/participants, therefore total number of participants could be higher.

Table III-31 shows the number of stakeholders that received technical assistance for property damage by Canada geese in selected States from 1996 through 1999.

(2) U.S. Fish and Wildlife Service

The number of permits issued by the Service has also increased in recent years as resident Canada goose populations have grown to high levels in some areas.

(a) Northeast U.S.

In Region 5 of the Service, the Northeastern/New England area (comprised of Maine, New Hampshire, Vermont, Rhode Island, Connecticut, Massachusetts, New York, Pennsylvania, Maryland, New Jersey, Delaware, Virginia, and West Virginia), the increase in permit issuance for resident Canada goose conflicts has been dramatic (see **Appendix 10**). Overall, the number of permits issued increased from 187 in 1995 to 999 in 2000, an increase of over 430 percent in only 5 years. These actions conservatively resulted in the reported take of eggs in 11,618 nests, relocation of 1,130 geese, live trap of 2,674 geese for food-shelf programs, and take of another 5,166 depredating geese for appropriate disposal over the 5-year period.

Permits specific to egg addling and nest destruction increased from 116 in 1995 to 593 in 2000, an increase of over 400 percent (see **Figure III-6**). Likewise, the number of nests authorized to be addled has grown from 6,624 in 1995 to 54,384 in 2000, an increase of 721 percent. While these 1,268 permits (thru 1999) authorized control actions on over 74,912 nests, the reported take was only 10,098 nests, or roughly 13 percent of the allowable take (see **Figure III-7**). Using an average of 6.0 eggs per nest, these actions conservatively resulted in the reported take of over 60,000 eggs.

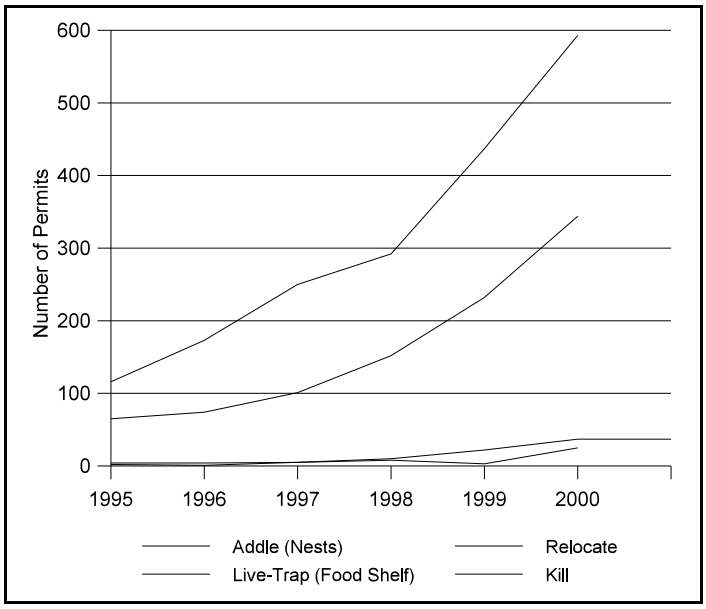

Figure III-6. Number of permits for resident Canada geese issued by Region 5 (Northeast U.S.) from 1995-2000.

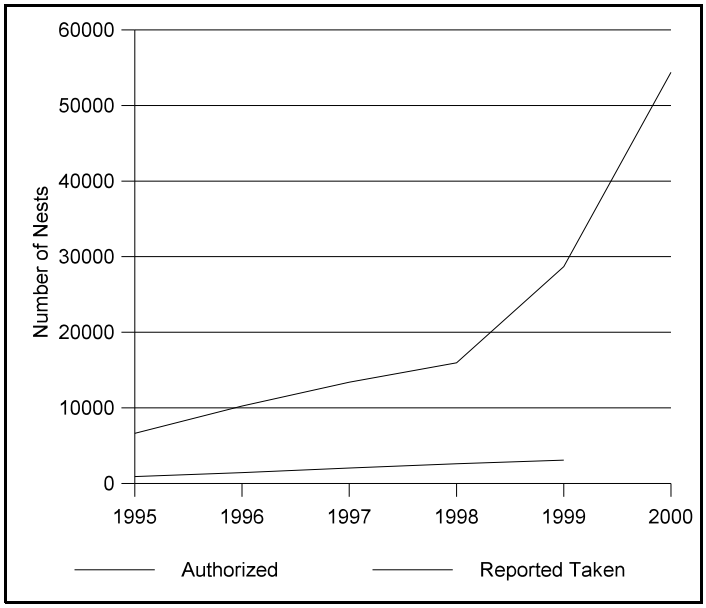

Figure III-7. Number of nests authorized to be addled and the number reported addled in Region 5 (Northeast U.S.) from 1995-2000.

Unlike nest and egg destruction, the number of geese relocated within the Atlantic Flyway Resident Population has decreased dramatically over the period of 1995-2000 as the number of places willing to accept additional Canada geese has dwindled. In 1995, Region 5 issued permits authorizing the relocation of 1,652 geese, which resulted in the reported relocation of 671 birds. By 1999, only 125 geese were authorized to be relocated and only 10 birds were reportedly moved. In 2000, only one State (Maryland) requested to move geese.

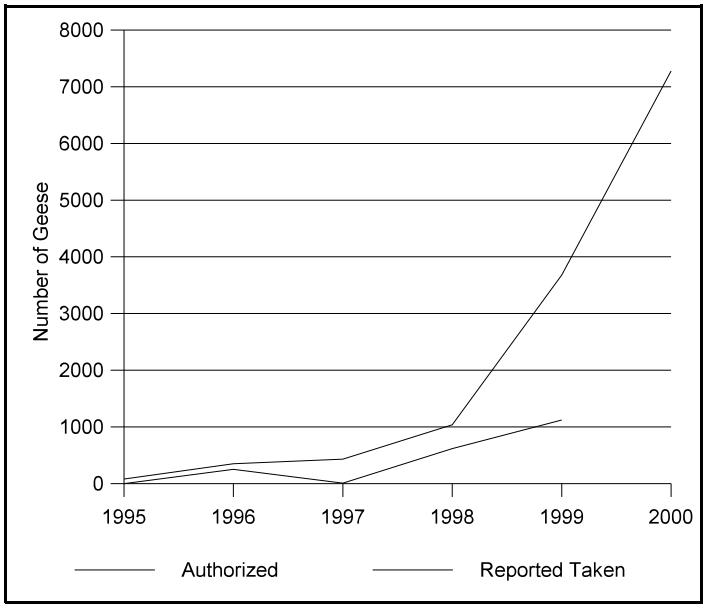

Figure III-8. Number of resident Canada geese authorized to be taken for food shelf programs and the number reported taken in Region 5 (Northeast U.S.) from 1995-2000.

Permits to kill birds or live trap birds for food-shelf purposes has increased since 1995. In 1995, Region 5 issued 2 permits allowing the live capture of up to 80 birds in Pennsylvania and West Virginia. No birds were reportedly taken under these permits. By 2000, 37 permits were issued in 8 States (Connecticut, Delaware, Maine, Maryland, New Jersey, New York, Pennsylvania, and Virginia) allowing the take of 7,278 geese (an almost 9,000 percent increase). However, of the 5,581 geese authorized to be taken for food shelf purposes (thru 1999), only 2,000 geese, or 36 percent, were actually reported taken (see **Figure III-8**). Permits allowing the take of depredating resident Canada geese show similar results. In 1995, Region 5 issued 65 permits authorizing the take of 1,163 geese in 8 States (Connecticut, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, and Virginia). Three hundred and ninety-six birds were reportedly taken under these permits. By 2000, 344 permits were issued in 12 States (all of the above named States plus Delaware, Maine, New Hampshire, and Vermont) allowing the take of 22,236 geese (an 1,800 percent increase). However, of the 16,835 geese authorized to be taken (thru 1999), only 5,035 geese, or 30 percent, were actually reported taken (see **Figure III-9**). Thus, of the 22,416

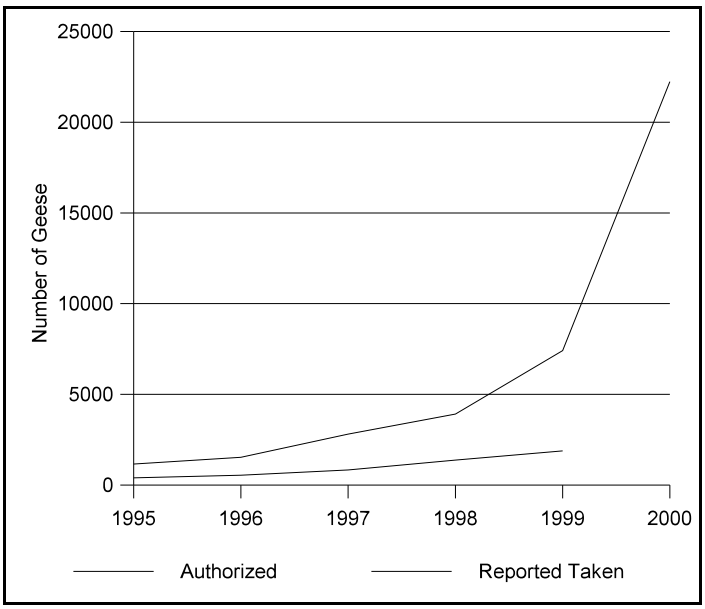

Figure III-9. Number of resident Canada geese authorized to be taken for depredation purposes and the number reported taken in Region 5 (Northeast U.S.) from 1995-2000.

authorized to be taken for either food shelf programs or depredation purposes, only 7,035 geese, or 31 percent of the allowable take, were actually taken.

(b) Midwest/Great Lakes

In the Service's Region 3, the Midwest/Great Lakes area (comprised of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin), the conflicts caused by growing numbers of resident Canada geese has resulted in increasing trends in the annual issuance of permits over the past six years (see **Appendix 10**). Overall, the number of depredation permits for resident Canada geese issued increased from 149 in 1994 to 318 in 2000, a 113 percent increase. Additionally, several States (Michigan, Minnesota, Missouri, and Ohio) have applied for, and received, the new Special Canada Goose Permit and began conducting goose control work under these permits in 2000 (Minnesota began in 1999). For ease of discussion purposes, unless stated otherwise, we have consolidated available data for both permit types.

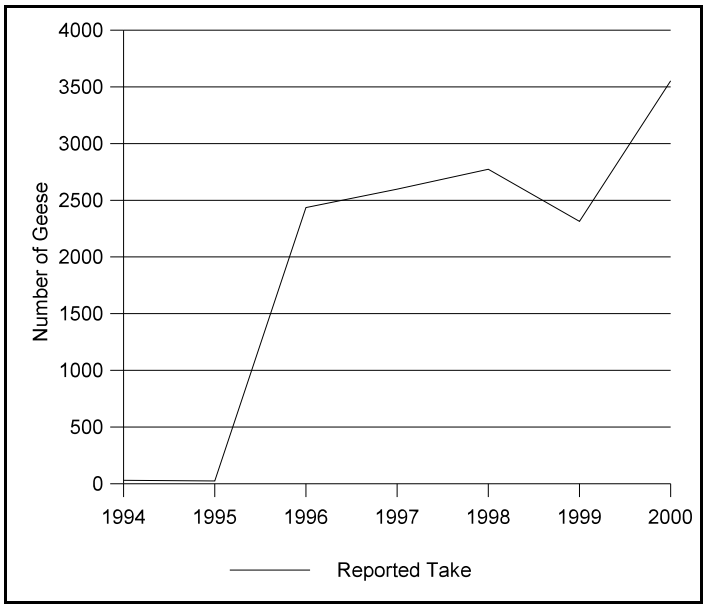

Figure III-10. Number of resident Canada geese reportedly taken for food shelf purposes or depredation in Region 3 (Midwest/Great Lakes) from 1994-2000.

Specific to depredation permits, in 1995, permits for nest and egg destruction authorized the take of up to 1,797 nests. By 2000, this authorized take had grown to 7,059 nests, a 292 percent increase. Further, in 1999, available data indicates that although permits authorized control actions on 4,005 nests, the reported take was only 1,852 nests, or 46 percent of the allowable take.

Alternately, the take of adult geese for either food-shelf purposes or general depredation has remained fairly level over the same period, averaging about 2,500 geese since 1996 (see **Figure III-10**).

It is important to note that in 2000, the States of Michigan, Minnesota, Missouri, and Ohio, operating under a Special Canada Goose Permit, issued 528 authorizations to individuals within their respective States. These authorizations enabled the named individual(s) to conduct control and management activities on resident Canada geese under the auspices of the State wildlife agency. Had these States not held the special permit, we believe some number of these individuals would have applied for depredation permits.

In summary, all of these actions resulted in the reported addling of 39,349 eggs, relocation of 78,672 geese, and take of 13,729 depredating geese for appropriate disposal or food shelf programs over the 6-year period.

(c) Southeast

In the southeastern U.S. (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee), number of complaints and requests for permits has increased dramatically in the last 10 years (see **Appendix 10**). From 1993 to 1998, over 3,500 Canada geese were captured and relocated. It is interesting to note, however, that since 1998, no permits were issued to relocate geese. We believe this is indicative of the fact that there are no further locations willing to receive Canada geese. For egg addling/nest destruction, the number of permits issued has grown from 1 permit with no associated take in 1990 to 42 permits with 811 eggs reportedly taken in 1999. Lastly, permits authorizing the take of adult Canada geese has grown from 1 permit authorizing the take of 11 geese in 1992 to 41 permits in 5 States (Georgia, Florida, Kentucky, North Carolina, and Tennessee) authorizing the take of 920 geese in 2000. Additionally, although the Service authorized the take of 1,088 geese from 1992 to 1999, available data shows that only 317 geese (or 29 percent) were reported taken.

(d) Southwest

Over the last 10 years, Region 2 (Arizona, New Mexico, Oklahoma, and Texas) of the Service has issued very few permits allowing the take of resident Canada geese as most populations in these areas have not reached levels experienced in other areas around the country (see **Appendix 10**). Further, of those permits issued by the Region, almost all have been issued in Oklahoma where the resident population has begun to conflict with various public and private uses.

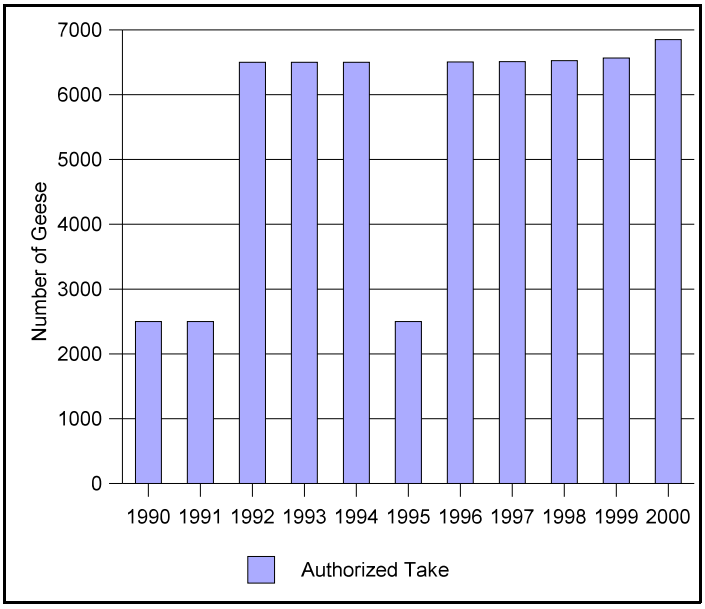

Figure III-11. Number of resident Canada geese authorized to be taken for depredation purposes in Region 6 (Rocky Mountains/Great Plains) for 1990-2000.

(e) Rocky Mountains/Great Plains

Since 1990, Region 6 (Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming) of the Service has annually authorized the take of approximately 6,500 resident Canada goose adults, goslings, and eggs (see **Figure III-11**). Although the vast majority of the authorized take was for trapping and relocation within Colorado and Kansas, take was also authorized at airports in Nebraska, North Dakota, and South Dakota (see **Appendix 10**). However, the actual total take (i.e., kill) of adult geese has been less than 50 birds through 1999 (J. Cornely, personal communication). In 2000, South Dakota became the first State within the Region to obtain a Special Canada Goose Permit.

(f) Pacific Northwest

In Region 1 (Washington, Oregon, Idaho, Nevada and California), the Service has been issuing permits for the control of resident Canada geese since the late 1970s. While most of these permits were issued to

airports (see **Appendix 10**), until the mid 1990s take was primarily limited to the addling of eggs. In most instances, no take resulted from authorized control actions.

In the mid 1990s, the number of permits issued by the Region increased significantly from previous years (see **Figure III-12**). The number of birds taken by permittees has similarly increased over the same time period. Records indicate that from 1976 to 1988 only 21 birds and 19 eggs were taken for depredation reasons. By contrast, from 1989 to 1999, reports filed from permittees show that 1,144 geese and 9,965 eggs were taken, an average of 104 geese and 905 eggs annually (see **Figure III-13**). More specifically, since 1997, the take of resident Canada geese has averaged 328 birds and 2,152 eggs annually, indicative of increasing problems and conflicts with these populations.

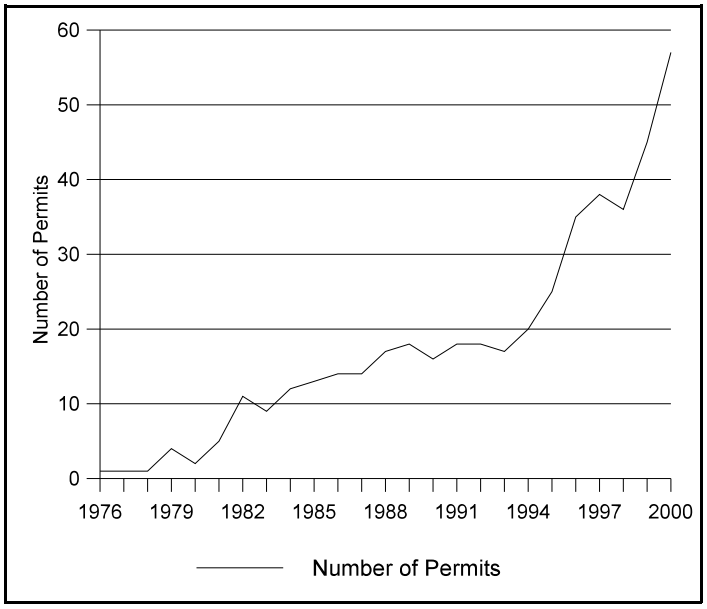

Figure III-12. Number of permits for resident Canada geese issued by Region 1 (Pacific Northwest) in 1976-2000.

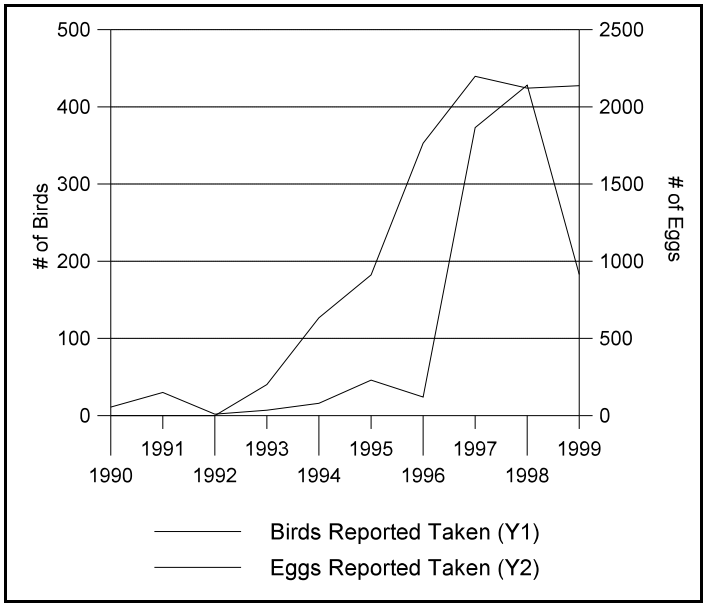

Figure III-13. Number of resident Canada geese and eggs reported taken in Region 1 (Pacific Northwest) in 1990-1999.

(g) Alaska

Although Alaska is not within the geographic scope of this DEIS, we believe it is important to recognize that Region 7 (Alaska) of the Service has issued permits to control urban Canada geese in the Anchorage area since 1985 (see **Appendix 10**). Permits to control Canada geese have resulted in the translocation of 1,788 birds, the destruction of 1,495 eggs, and the take of 1,331 geese. Annual take of adult birds has been limited to airports and has ranged from 7 birds in 1990 to 378 in 1996.

2. Social Values and Considerations

Human dimensions of wildlife management include identifying how people are affected by problems or conflicts with wildlife, attempting to understand people's reactions, and incorporating this information into policy and management decision making processes and programs (Decker and Chase 1997). Wildlife acceptance capacity is the maximum wildlife population level in an area that is acceptable to people (Decker and Purdy 1988). Wildlife acceptance capacity is also known as the "cultural carrying

capacity." These terms are important because they define the sensitivity of a local community to a specific wildlife species or problem. For any given damage situation, there will be varying thresholds and acceptance levels of those directly and indirectly affected by the damage or conflict.

Biological carrying capacity is the land or habitat's limit for supporting healthy populations of wildlife without degradation to the animals' health or its environment over an extended period of time (Decker and Purdy 1988). While the biological carrying capacity for resident Canada geese in some States may be higher than the spring population goal, the public's wildlife acceptance capacity may often be lower. The wildlife acceptance capacity for resident Canada geese in Wisconsin appears to be about 5 - 20 birds for an 18-hole golf course or similar sized park (J. Weiskittel, Wildlife Services personal observation as cited in USDA 2000). The wildlife acceptance capacity for resident Canada geese in Virginia appears to be approximately 25-30 birds for an 18-hole golf course (USDA 1999b). Conover and Chasko (1985) found a similar wildlife acceptance capacity for resident Canada geese at golf courses in Connecticut. Once this wildlife acceptance capacity is met or exceeded, people begin to implement population reduction methods to alleviate property damage, and/or perceived human health or safety threats. The Canada goose wildlife acceptance capacity for other damage situations and resources is undetermined.

a. Sport Hunting

Migratory birds, including resident Canada geese, are a renewable, international, common property resource. While migratory bird hunting is an activity of considerable socioeconomic importance across the country, it is an activity that is often difficult to economically and socially quantify and describe (U.S. Department of the Interior 1988).

In 1999, approximately 1.5 million waterfowl hunters spent 14.3 million days afield and harvested over 18 million ducks and 3.4 million geese, including almost 1.9 million Canada geese (Martin and Padding 2000). Nationwide, the harvest of Canada geese has almost doubled from of the late 1970s and early 1980s and tripled that of the 1960s. For a more detailed discussion of resident Canada goose harvest, see section **III.B.1.b.(3) Harvest**.

The socioeconomic characteristics of migratory bird hunters has been reported in U.S. Department of the Interior et al. (1997). In general, migratory bird hunters are predominantly male (94 percent), from rural areas (46 percent), more educated than the general public (59 percent had more than a high school education), and are from higher income brackets than the general public (44 percent had an annual household income of more than $50,000) (U.S. Department of the Interior et al. 1997). For more discussion, see section **III.B.3.c. Sport Hunting**.

b. Aesthetics

Aesthetics is the philosophy dealing with the nature of beauty, or the appreciation of beauty. Therefore, aesthetics is truly subjective in nature, dependent on what an observer regards as beautiful.

Wildlife generally is regarded as providing economic, recreational, and aesthetic benefits (Decker and Goff 1987), and the mere knowledge that wildlife exists is a positive benefit to many people. However, wildlife may also be responsible for adverse effects on people. The activities of some wildlife result in economic losses to agriculture and damage to property. Human safety is jeopardized by wildlife collisions

with aircraft and automobiles, aggressive goose behavior may result in human injury, and wild animals may harbor diseases transmissible to humans.

Wildlife populations provide a range of social and economic benefits (Decker and Goff 1987). These include direct benefits related to consumptive and non-consumptive use (e.g., wildlife-related recreation, observation, harvest), indirect benefits derived from vicarious wildlife related experiences (e.g., reading, television viewing), and the personal enjoyment of knowing wildlife exists and contributes to the stability of natural ecosystems (e.g., ecological, existence, bequest values) (Bishop 1987). Positive values of wildlife would also include having enough wildlife to view, but also to enjoy the aesthetics of the local environment without excessive animal excrement or loss of vegetation (lawns and flower gardens) due to wildlife feeding on plants.

However, the same wildlife populations that are enjoyed by many can also create conflicts with a number of land uses and human health and safety. The activities of some wildlife, such as white-tailed deer and Canada geese, result in economic losses to agriculture and damage to property (Wisconsin APHIS/WS Annual Tables, 1992-1999). Human safety is jeopardized by wildlife collisions with aircraft and automobiles, and wild animals may harbor diseases transmissible to humans. Predation by, or to, wildlife species that have special status, such as threatened and endangered species, is a public concern. Certain species of wildlife can be regarded as a nuisance in certain settings. Excessive numbers of wildlife can ruin the aesthetic appearance and enjoyment of some recreational activities because of excessive fecal droppings or disruption of vehicle traffic.

Direct benefits are derived from a user's personal relationship to animals and may take the form of direct consumptive use (using up the animal) or non-consumptive use (viewing the animal in nature, a zoo, or for photography) (Decker and Goff 1987). Indirect benefits or indirectly exercised values arise without the user being in direct contact with the animal and come from experiences as looking at photographs and films of wildlife, reading about wildlife, or benefitting from activities or contributions of animals such as their use in research (Decker and Goff 1987). Indirect benefits come in two forms: bequest and pure existence (Decker and Goff 1987). Bequest is providing for future generations and pure existence is merely knowledge that the animals exist (Decker and Goff 1987).

Public reaction is variable and mixed because there are numerous philosophical, aesthetic, and personal attitudes, values, and opinions about the best ways to reduce conflicts/problems between humans and wildlife. Population management methods (egg destruction, capture and relocation, capture and processing for human consumption, and shooting) provide relief from damage to property or threats to human safety for those who would have no relief from such damage or threats if non-lethal methods were ineffective or impractical. Many people directly affected by damage to property and threats to human safety caused by resident Canada geese insist upon their removal from the property or public location when the Wildlife acceptance capacity is reached or exceeded. Some people have the opinion that resident Canada geese should be captured and relocated to a rural area to alleviate damage or threats to human safety. Some people directly affected by the damage from resident Canada geese strongly oppose removal of the birds regardless of the amount of damage. Individuals not directly affected by the harm or damage may be supportive, neutral, or totally opposed to any removal of resident Canada geese from specific locations or sites. Some people opposed to any goose removal want responsible agents to teach tolerance for goose damage and threats to human health or safety, and believe that geese should never be killed. Additionally, some people who oppose removal of geese do so because of human-affection bonds

with individual geese. These human-affection bonds are similar to those of pet owners and result in aesthetic enjoyment.

Some individual members or groups of wildlife species habituate and learn to live in close proximity to humans. Some people in these situations feed such wildlife and/or otherwise develop emotional attitudes toward such animals that result in aesthetic enjoyment. In addition, some people consider individual wild birds as "pets," or exhibit affection toward these animals. Examples would be people who visit a city park to feed waterfowl or pigeons and homeowners who have bird feeders or bird houses. Many people do not develop emotional bonds with individual wild animals, but experience aesthetic enjoyment from observing them.

Property owners that have populations of resident Canada geese higher than their identified wildlife acceptance capacity are generally concerned about the negative aesthetic appearance of bird droppings and property damage to landscaping and turf. Managers of golf courses, swimming beaches and athletic fields are particularly concerned because negative aesthetics can result in lower public use. Costs associated with property damage include labor and disinfectants to clean and sanitize the area, loss of property use, loss of aesthetic value of plants, gardens, aquatic vegetation, and lawns where geese feed and loaf, loss of customers or visitors irritated by having to walk on fecal droppings, and loss of time contacting wildlife management agencies on health and safety issues and damage management advice, and implementation of non-lethal and lethal wildlife management methods.

c. Recreational Use of Impacted Areas

The Pennsylvania Department of Conservation and Natural Resources (DCNR) documented goose problems at 44 of 117 State parks. In 1999, the DCNR spent $767,840 to manage problem resident Canada geese at these parks. This figure represents only direct costs to the parks, such as materials and personnel, and does not estimate revenue loss resulting from decreased visitor use and beach closures. DCNR notes that such losses are not limited to the State but also affect concessionaires and other park-related businesses (Pennsylvania Department of Conservation and Natural Resources 2000). DCNR also states that the most significant problems caused by geese is fecal contamination and cites high fecal coliform counts as the primary cause for beach closure.

In Connecticut, the Town of Trumball has documented the reduction of visitors to a locally maintained park and swimming area from 150 visitors per day to approximately 5-10 per day. The presence of geese has repeatedly closed the swimming area due to elevated fecal coliform levels, and efforts by the Town to control the goose population have generally failed.

d. Animal Rights and Humaneness

The issue of humaneness and animal welfare, as it relates to the killing or capturing of wildlife is an important but very complex concept that can be interpreted in a variety of ways. Schmidt (1989) indicated that vertebrate pest damage management for societal benefits could be compatible with animal welfare concerns, if *" . . . the reduction of pain, suffering, and unnecessary death is incorporated in the decision making process."* Suffering is described as a *" . . . highly unpleasant emotional response usually associated with pain and distress"* (AVMA 1987). However, suffering *" . . . can occur without pain . . . ,"* and *" . . . pain can occur without suffering . . . "* (AVMA 1987). Because suffering carries with it the

implication of a time-frame, a case could be made for *" . . . little or no suffering where death comes immediately . . . "* (CDFG 1991), such as shooting.

Defining pain as a component in the humaneness of wildlife management methods appears to be a greater challenge than that of suffering. Pain obviously occurs in animals. Altered physiology and behavior can be indicators of pain, and identifying the causes that elicit pain responses in humans would *" . . . probably be causes for pain in other animals . . . "* (AVMA 1987). However, pain experienced by individual animals probably ranges from little or no pain to significant pain (CDFG 1991). Pain and suffering, as it relates to damage management methods, has both a professional and lay point of arbitration. Wildlife managers and the public would be better served to recognize the complexity of defining suffering, since *" . . . neither medical or veterinary curricula explicitly address suffering or its relief"* (AVMA 1987, CDFG 1999). Therefore, humaneness, in part, appears to be a person's perception of harm or pain inflicted on an animal, and people may perceive the humaneness of an action differently. The challenge in coping with this issue is how to achieve the least amount of animal suffering within the constraints imposed by current technology and funding.

Some people have expressed concern over the potential separation of goose families through management actions. This could occur through relocation of problem geese or through removal and euthanasia of the same. Geese are well known for forming long term pair bonds. Bellrose (1976) presented annual mortality rates of juvenile Canada geese ranging from 7 to 19% during the hatching to fledging stage. We believe that juvenile geese have a good likelihood of survival without adult geese once the juvenile reaches fledging stage which generally occurs in June. Therefore juvenile geese which escape capture during the molt will most likely survive to adult-hood. Separated adults will form new pair bonds and will readily breed with new mates at the appropriate time of year (CDFG 2000). The effects on social structure of geese would be reflected by reproduction efforts and therefore, trends in the population indices, but would not have a significant adverse impact on goose social structures (CDFG 2000).

3. Economic Considerations

(Unless specifically indicated otherwise, information in this section is from State wildlife agency responses submitted during public scoping. See **Appendix 1**.)

a. Residential, Commercial, and Public Property

The relative abundance of preferred habitat provided by current landscaping techniques (i.e., open, short-grass areas adjacent to small bodies of water) has provided resident Canada goose populations the opportunity to become established in many urban areas of the country. This habitat availability, combined with the lack of natural predators, the absence of waterfowl hunting in many of these areas, and free handouts of food by some people has also served to significantly increase urban and suburban resident goose populations. Habitat examples include public parks, airports, public beaches and swimming facilities, water treatment reservoirs, corporate business areas, golf courses, schools, college campuses, private lawns, amusement parks, cemeteries, hospitals, residential subdivisions, and areas along or between highways.

While most people find a few geese to be an asset, problems can quickly develop when numbers increase. Habitat can be easily overgrazed, resulting in denuded lawns and increased soil erosion. Undesirable accumulations of droppings and feathers can foul reservoirs, adversely affect water quality and aquatic

life, and clog filters, pumps, and intakes. Significant quantities of goose droppings can kill vegetation and serve as an insect attractant. Large numbers of geese can make it difficult to use public recreational facilities such as fishing ponds, sports fields, golf courses, and beaches. Reports of geese attacking people while defending their territories have become more common in recent years (Ohio Division of Wildlife, public scoping).

State wildlife management agency estimates of dollar damages for years preceding the survey ranged from thousands to millions of dollars. The majority of the costs involved clean-up and repairs of managed turf areas (parks, golf courses, athletic fields, congregated residences, etc.) or agricultural damage.

Atlantic Flyway: Although few States in the Atlantic Flyway had a systematic method of logging and recording complaints or damages caused by resident Canada geese, most States provided some information.

The Delaware Division of Fish and Wildlife estimated they receive approximately 20-30 complaints annually (probably 80 to 90 percent of all complaints) for resident Canada geese. They believe that financial losses exceed $100,000 annually.

The Georgia Division of Wildlife reported receiving 1,280 complaints during 1995-99, but estimated that they only receive about 40 percent of the total complaints. They conservatively estimated total damage from resident Canada geese at $456,000 in 1999. A portion of this estimate was based on a recent Georgia survey of golf courses. That survey found that 56 percent of the 319 member courses of the Georgia Golf Association considered geese to be a nuisance. A follow-up telephone poll of selected courses with an average number of geese indicated that the average course spent about $1,500 per year cleaning or repairing greens damaged by geese for an estimated total of $268,500 in damages annually.

The Massachusetts Division of Fisheries and Wildlife reported that 85 of 180 calls regarding Canada geese in 1999 were of a complaint nature. A questionnaire distributed to members of the Massachusetts Golf Course Owners Association found that 84% of the respondents reported either “very serious” or “moderately serious” problems with Canada geese (Massachusetts Golf Course Owners Association 1995).

In Maryland, the Maryland Department of Natural Resources estimated that based on anecdotal information and available documentation, clean-up costs to remove goose dropping from lawns, walkways and beaches and the expenditures to prevent goose damages probably exceed $150,000 annually.

The New York Division of Fish, Wildlife and Marine Resources estimated they receive in excess of 100 complaints annually, about 75 percent of which related to suburban-urban conflicts and damage. They estimate, based on anecdotal information, cleanup costs associated with resident geese probably exceeds $1,000,000 annually.

Although the North Carolina Wildlife Resources Commission does not keep detailed records, they estimated handling approximately 110 complaints each year, 90 percent of which they classified as property and/or nuisance related. Likewise, the Rhode Island Division of Fish and Wildlife reported receiving between 30 and 60 complaints annually, and the Vermont Department of Fish and Wildlife estimated receiving about a dozen complaints annually, most of which regarded damage.

The Pennsylvania Game Commission recorded 219 complaints during 1994-98, an average of 44 annually. Approximately 50 percent of these complaints related to residential and commercial conflicts. Pennsylvania estimated losses to private property at $500,000 annually. Additionally, the Pennsylvania Department of Conservation and Natural Resources (DCNR) documented goose problems at 44 of 117 State parks. In 1999, the DCNR spent $767,840 to manage problem resident Canada geese.

The Virginia Department of Game and Inland Fisheries and Wildlife Services estimated they receive over 800 complaints annually with the majority related to property, health and safety, and nuisance concerns. Annual damage estimates reported by Wildlife Services included $304,000 for health and human safety and $23,000 for personal property.

The West Virginia Division of Natural Resources averaged 114 complaints from 1995-99 with almost all related to property damage, health and safety concerns, and use conflicts. They estimated the total property damage attributed to resident Canada geese in 1999 was $25,000.

In total, the States responding to our survey conservatively logged approximately 1,600 calls annually and estimated that damages exceed $3.3 million annually. Comparing these numbers with those supplied from Wildlife Services, the results are very similar. During 1994-98, Wildlife Services logged an average of 1,437 complaints annually related to Canada geese (excluding agricultural complaints) in Atlantic Flyway States (Atlantic Flyway Council 1999). Complaints about property damage accounted for over 80 percent of the complaints.

Mississippi Flyway: From 1994 to 2000, States in the Mississippi Flyway documented 13,873 complaints and estimated at least $8,753,068 in associated damage from resident Canada geese (see **Table III-32**). States experiencing the most complaints were Indiana, Michigan, Minnesota, Ohio, and Wisconsin, while Illinois, Michigan Minnesota, and Missouri had the most associated damage and costs from resident Canada geese. This was despite the fact that some State wildlife agencies do not receive all the complaints or in some cases, even the majority. For example, the Missouri Department of Conservation estimates that they only receive about 30 percent of the complaints, while the Iowa Department of Natural Resources and the Illinois Department of Conservation receives about 75 percent. Further, some State wildlife agencies do not document complaints from the public, such as Alabama, although they reported receiving numerous complaints. Lastly, many States do not document all associated damage. For example, the Minnesota Department of Natural Resources stated that due to the difficulty in estimating economic losses, many complainants do not provide any estimate.

Central Flyway: In the Central Flyway, obtaining specific information about damage and problems caused by resident Canada geese is somewhat difficult. Wildlife Services operates in all the Central Flyway States but does not deal with Canada goose issues in each. Each State has an agency that also deals with wildlife issues and in some States there is formal agreement between the State agency and Wildlife Services about who will deal with problems caused by Canada geese. In other States, Wildlife Services deals with some problems (e.g. airports) while the State agency deals with other types of problems. Many State agencies consider dealing with these problems “all in a day’s work” and do not have reporting systems established to track their occurrence. In Oklahoma alone, 1,000-2,000 resident Canada geese that cause problems in urban areas are relocated annually (Mike O’Meilia, Oklahoma Department of Wildlife Conservation, personal communication), but the specific breakdown of costs to do this work is not closely tracked.

The Oklahoma Department of Wildlife Conservation (ODWC) first reported urban problems in 1990. **Table III-33** shows that the number of urban incidents addressed by the ODWC has increased from one to nearly 50 in 1999. All ten States in the Central Flyway and Alberta and Saskatchewan have reported incidents of resident, large Canada geese causing problems in urban situations with the number of incidents of urban problems increasing throughout the 1990s (**Table III-33**). Although, these types of problems seldom result in reportable, direct economic damage, Wildlife Services in Oklahoma reported $44,000 in damage in 16 incidents on golf courses in 1992 and a total of $68,000 in damage in urban settings between 1992 and late-1999. The Colorado Division of Wildlife reported receiving 60 to 80 complaints per year.

Table III-32. Number of documented complaints, and estimated dollar value of associated damage and/or harassment costs, associated with resident giant Canada geese, Mississippi Flyway States, 1994-2000.

Year	AL [ab]	AR	IL [b]	IN [g]	IA	KY [b]	LA [b]	MI [d,e]	MN [c]	MO	OH	TN	WI	Total
1994	NA	NA	61 ($26,800)	19	NA	15	9 ($8,200)	12 ($4,500)	165 ($108,900)		453	232 ($2,201)	474 ($11,821)	1,440 ($162,422)
1995	NA	NA	108 ($1,322,535)	12	106	6	12 ($1,500)	21 ($10,700)	149 ($125,200)	71	369	187 ($2,300)	408 ($60,536)	1,449 ($1,522,771)
1996	4	NA	155 ($193,125)	22	128	57 ($72,550)	1 ($1,000)	35 ($4,790)	115 ($110,400)	112	299	124 ($31,103)	285 ($8,952)	1,337 ($421,920)
1997	6	NA	157 ($433,904)	32	134	74 ($41,850)	2 (NA)	935 ($460,000)	129 ($142,400)	84	392	213 ($15,822)	297 ($30,456)	2,455 ($1,124,432)
1998	4	21	112 ($390,755)	21 ($68,650)	129 ($12,000)	45 ($4,730)	5 ($8,000)	249 ($62,700)	295 ($922,850)	96	474	102 ($15,541)	413 ($47,682)	1,966 ($1,532,908)
1999	16	43	187 ($670,882)	550 ($15,780)	101 ($7,500)	93 ($99,579)	7 (NA)	213 ($55,000)	310 ($267,800)	166 ($377,025)	692 ($115,200)	103 ($14,500)	310 ($143,650)	2,791 ($1,766,916)
2000 [f]	NA	NA	189 ($701,975)	506 ($87,135)	NA	NA	2 (NA)	315 ($122,000)	NA	244 ($1,150,250)	771 ($92,950)	94 ($12,950)	314 ($54,439)	2,435 ($2,221,699)

[a] Conflict complaints were not documented or compiled in Alabama until 1996; therefore, these data are a conservative estimate of total goose complaints in that State.
[b] Goose complaints mainly documented and compiled by USDA Wildlife Services and not by the State wildlife agency.
[c] Dollar estimates are for crop damage only except for the 1998 estimate which also incorporated a survey of urban goose complaints in the Twin Cities.
[d] Number of goose complaints estimated at 400 - 500 annually. A reporting system was begun in 1997; however, reporting effort (i.e., form completion) has not been consistent over time.
[e] No data available on estimated value of property damage. Cost estimates based on landowner estimates of harassment costs (estimated on reporting forms).
[f] Estimated through October, 2000.
[g] 1994-97 data represent a minimum number of complaints handled by the State wildlife agency.

Almost all were conflicts with property in urban and suburban situations. Wildlife Services reported over $4,000 in damage between 1993 and 1997 in Colorado.

The Kansas Department of Wildlife and Parks also does not maintain detailed records of complaints, but they estimated an average of 255 situations per year over the past 5 years with an increasing trend. Approximately 80 percent of these complaints involve urban and suburban conflicts.

Table III-33. Frequency and costs of human-Canada goose conflict incidents in the Central Flyway from 1992-99.

	Urban[1]				Agriculture					
	Oklahoma			Central Flyway	Oklahoma			North Dakota		Central Flyway
	State[2]	Wildlife Services[3]			State	Wildlife Services		Wildlife Services		
Year	#[4]	#	Costs $$	#	#	#	Costs $$	#	Costs $$	#
1992	1	24	47,600	71	0	16	2,400			59
1993	6			56	4	32	17,600			84
1994	3	24		76	2	32	13,600			80
1995	8	8	2,000	294	2	24	13,600	12	31,250	176
1996	8	8		301	4	40	43,400	13	16,000	258
1997	21	8	6,000	349	3	64	110,880	4	3,915	278
1998	28	88	2,000	409	10	56	212,800	17	38,175	343
1999	49	56	10,400	170	6	56	5,000	12	4,2250	423
Totals	126	216	68,000	1,710	31	320	419,280	58	13,1590	1701

1. All incidents that do not involve agriculture.
2. Oklahoma Department of Wildlife Conservation
3. U.S. Department of Agriculture, Wildlife Services
4. # = Incident count

Park Districts, Lake Associations, Homeowners Associations, and Townships: During public scoping, a number of public, private, and local governmental groups provided information on costs expended on resident Canada goose damage management and abatement. Some of these costs are detailed in **Table III-34**. This list is not meant to be exhaustive, but merely to provide a nationwide sample of the costs expended on goose-damage abatement techniques.

A 1997 survey conducted in DuPage County, Illinois, found that only 88 percent of the schools, corporations, golf courses, park districts, etc., responding to the survey reported resident goose problems (Armstrong 1998). The most objectionable problems identified by respondents was excrement on lawns and sidewalks (83 percent), overpopulation (48 percent), destruction of vegetation (47 percent), and hostility toward people (35 percent).

b. Agricultural Crops

Canada geese have been reported causing damage to crops and livestock in several ways which are discussed in the following sections.

Table III-34. Costs identified regarding resident Canada goose damage management by selected organizations (from public scoping).

Location	Associated Costs	Notes
Arlington Heights Park District, Arlington, IL	$41,433	Annual Clean-up costs
Department of Parks and Community Services, Bellevue, WA	$25,000	Daily canine patrol in 1999
Brick Township, NJ	$7,025	Use of border collies in 1999
Fairway Mews Community Association, Spring Lake Heights, NJ	$10,000	Annual cost of border collies
City of Renton, WA	$84,598	Associated impacts at beach park
Department of Parks and Recreation, Seattle, WA	$33,000	Annual summer beach clean-up costs
Woodlake Community Association, Midlothian, VA	$10,000	Maintenance and materials

Damage to crops: Direct damage to agricultural resources by resident Canada geese include grain crops, grazing of pastures and alfalfa meadows (deprive livestock of food and causes an increased economic hardship on livestock producers), spring seedlings, and trampling. Resident Canada geese have grazed a variety of crops: barley, corn, soybeans, wheat, rye, oats, and peanuts. Heavy grazing by Canada geese can result in reduced yields and in some instances a total loss of the grain crop. A single heavy grazing event by Canada geese in fall, winter, or spring can reduce the yield of winter wheat by 13-30 percent (Allen et al. 1985, Flegler et al. 1987), and reduce the growth of rye plants by more than 40 percent (Conover 1988). However, Allen et al. (1985) also found that grazing by geese during winter may increase wheat seed yield. Since 1985, changing wheat-growing practices have resulted in much higher yields (approximately 100 bushels per acre) but crops are unable to sustain even light grazing pressure without losing yield. Associated costs with agricultural damage involving resident Canada geese include costs to replant grazed crops (soybeans, corn, peanuts), implement non-lethal wildlife management practices, purchase replacement hay, place long distance calls to government agencies to seek assistance, and decreased yields.

Damage to livestock: Resident Canada geese are also a concern to livestock producers. Goose droppings in and around livestock ponds can affect water quality and are a source of a number of different types of bacteria. Although no direct links have been made, salmonella outbreaks have occurred in cattle on farms in northern Virginia when large numbers of geese were present. State of Virginia veterinarians are concerned about the potential disease interactions between Canada geese and cattle. Salmonella causes shedding of the intestinal lining and severe diarrhea in cattle. If undetected and untreated, salmonella can kill cattle and calves.

The transmission of disease through drinking water is one of the primary concerns regarding livestock water supplies. Bacteria levels of concern for livestock depend on the age of the animal since adults are more tolerant of bacteria than young animals (Anonymous 1998). The bacteria guidelines for livestock water supplies are <1000 fecal coliforms/100 ml for adult animals and < 1 fecal coliform/100 ml for young animals (Anonymous 1998).

Wild and domestic waterfowl are the acknowledged natural reservoirs for a variety of avian influenza viruses (Davidson and Nettles 1997). Avian influenza circulates among these birds without clinical signs and is not an important mortality factor in wild waterfowl (Davidson and Nettles 1997). However, the potential for avian influenza to produce devastating disease in domestic poultry makes its occurrence in waterfowl an important issue (Davidson and Nettles 1997, USDA-APHIS-Veterinary Services 1993). During 1983-84, an outbreak of avian influenza resulted in the slaughter of 1.7 million domestic turkeys and chickens at a loss of $63 million in Virginia (Trice 1999a). An outbreak of avian influenza in January 1999 on a Rockingham County, Virginia, farm resulted in the slaughter of 30,000 turkeys (Trice 1999). The Rockingham County farm was near a pond used by waterfowl. While the flock of 30,000 turkeys was being slaughtered, a flock of Canada geese was observed on a pond near the poultry operation (Eggborn, VDACS, personal communication). The strain of avian influenza which necessitated killing the 30,000 turkeys was a different strain of the virus which killed 6 people in Hong Kong in 1997 (Trice 1999). Also, a flock of 30,000 game birds, including pheasants, chukars, quail, partridge, wild turkeys, Canada geese, mute swans and assorted chickens in Maryland was most likely infected by ducks which returned to the game farm after co-mingling with wild waterfowl (R. Olson, Maryland Department of Agriculture, Animal Health Program, letter to whom it may concern, December 22, 1998). Farmers are warned to keep poultry away from wild or migratory birds or water contaminated by wild or migratory birds (USDA-APHIS-Veterinary Services 1993).

While Canada geese have been implicated in causing Bovine Coccidiosis in calves, the coccidia which infect cattle is a different species of coccidia than the coccidia which infects Canada geese (Doster 1998). Causes of coccidia in cattle are from other infected cattle (Doster 1998).

Associated costs involving livestock health include veterinary costs, implementation of non-lethal wildlife management practices, and altering husbandry and recreational use of horses so that wildlife management practices (harassment, use of dogs, legal hunting) will not negatively affect horses and threaten the safety of riders. Producers are particularly concerned about the potential for high value purebred horses and cattle becoming infected and dying.

During scoping, some State wildlife agencies were able to provide specific information on the agricultural damage done by resident Canada geese. These were briefly discussed in section **I.C.2.b. Property Damage**.

Atlantic Flyway: In the southeast, the Georgia Division of Wildlife reported agricultural damage including geese feeding on winter grains and competition with cattle for grain in open troughs. Georgia estimated an average total agricultural loss of approximately $20,000 annually.

In the mid-Atlantic, the Maryland Department of Natural Resources reported that 23 percent of all complaints related to agricultural damage and estimated that managed turf and agricultural damage exceeds $200,000 per year. The threat of disease transmission to poultry was another concern in Maryland with major poultry companies instructing growers to keep wild ducks and geese away from broiler houses. The Virginia Department of Game and Inland Fisheries and Wildlife Services reported annual damage estimates by Wildlife Services at $241,000, with costs including damaged winter grains and spring crops such as corn, peanuts, vegetables, and pasture. In West Virginia, Wildlife Services estimated agricultural damage at $8,400 in 1999.

Canada geese to be the second highest cause of wildlife damage to cranberry production in Massachusetts (Decker and Langlois 1993). Costs associated with repairing damage caused by geese was $359,661 over a 3-year period, or $119,887 per year.

The New York Division of Fish, Wildlife and Marine Resources estimated managed turf and agricultural damage exceeds $1,000,000 annually.

The Pennsylvania Game Commission recorded 54 agricultural complaints during 1994-98, an average of 11 annually. Summarizing damage amounts from surveys conducted by the Pennsylvania Farm Bureau, total crop damage in Pennsylvania was estimated at approximately $477,764 annually with 6,262 acres reportedly impacted. Crops affected included corn, wheat, rye, hay, and soybeans.

In total, Wildlife Services recorded a total of 1,332 instances of Canada goose damage to agriculture from 1994-98, an average of 271 annually. Most complaints were registered in Maryland, New Jersey, North Carolina, and Pennsylvania (Atlantic Flyway Council 1999). However, it is not possible to directly link all of these complaints strictly with resident geese, as Wildlife Services does not separate them. Given the large number of complaints in Maryland and North Carolina, we believe it is likely these numbers are inflated due to migrant goose problems in the fall in these areas.

Mississippi Flyway: The Indiana Department of Natural Resources estimated 1999 damage to corn, soybeans, pasture, and turf at $5,480 after implementation of a tracking system. The Iowa Department of Natural Resources indicated that at least 80 percent of calls complaining about resident Canada geese involved agricultural damage, primarily depredation of newly germinated crops. Losses to Iowa producers were estimated at $7,500 in 1999 and $12,000 in 1998.

The Minnesota Department of Natural Resources reported that during 1994-98, 63 percent of the 853 resident Canada goose complaints involved crop damage. In 1998, Minnesota farmers estimated an average of $1,200 in crop loss per complaint, resulting in a total damage estimate of $230,400. However, Minnesota reported that many farmers are tolerating crop damage from geese and have not filed complaints. Minnesota also provides technical assistance to farmers experiencing crop losses due to Canada geese and promotes the use of woven wire, electric fencing, food plots, lure crops, and buffer strips to help reduce goose damage. Since 1997, Minnesota has provided up to $500 of abatement materials to growers experiencing damage from flightless Canada geese.

In Wisconsin, farmers who sustain damage to their agricultural crops caused by Canada geese are eligible for assistance in preventing/reducing losses and for financial compensation for the losses through the Wisconsin Wildlife Damage Abatement and Claims Program (WDACP). Wildlife Services conducted 1,108 visits to sites receiving resident Canada goose damage during 1992-99. To determine goose damage to crops for this program, each crop field sustaining damage is examined and a thorough on-site damage appraisal is conducted (ss. 29.889 (7a), Wis. Stats.). WDACP appraised crop damage to wheat, hay, corn, soybeans from resident geese in 1999 primarily occurred in the southern and eastern 31 counties of Wisconsin and exceeded $40,000. However, Wisconsin believes this loss is likely an underestimate of total damage to agricultural crops because damages resulting from Canada geese are only appraised by the WDACP on less than 0.04% of the farms in Wisconsin.

Central Flyway: In the Central Flyway, much of the agricultural damage occurs in the fall and spring in the north and winter in the south, making it difficult to attribute damages to resident rather than migrant

geese. However, some of this damage does occur in summer months. In South Dakota, practically all of the damage to agricultural crops occurs between May and July as geese forage on soybeans and corn. From July 1, 1998 to June 30, 1999, the South Dakota Department of Game, Fish and Parks spent $148,116 on resident Canada goose damage management in 21 South Dakota counties. Included in the total expense for this one year was the involvement of 4,690 man-hours of personnel time, 62,719 miles driven responding to complaints, and expenses of $35,583 for equipment and supplies. As indicated above, the State estimated $396,500 in damages occurred to agricultural crops in this fiscal year.

In Oklahoma, Wildlife Services reported over $400,000 in damage to agricultural crops during the period 1992-99. Over $130,000 in damage was identified in North Dakota between 1995 and 1999. The number of incidents in the Central Flyway States is increasing (**Table III-33**). South Dakota's reported crop depredation complaints have grown from less than 100 received in 1995 to 300 in 1999.

In South Dakota, most complaints about resident Canada geese involved conflicts with agriculture. During 1995-98, the South Dakota Department of Game, Fish and Parks (SDGFP) handled 825 complaints. Complaints from South Dakota producers commonly peak in May, June, and July when Canada goose breeding pairs, along with goslings, and molters, actively forage on newly emerged soybeans, corn, and small grains. Typical complaints involve geese that move from wetlands into adjacent grain fields. Agricultural damage estimates from 300 South Dakota farmers totaled $396,500 for 1999; however, actual losses are estimated to be probably 25-50% higher since all losses are not reported. Not included in this figure was the $183,000 and 4,690 man-hours expended by the SDGFP for damage management activities in 1999.

Pacific Flyway: The Wyoming Game and Fish Department receives about 30-40 complaints about agricultural damage from Canada geese annually. During 1994-99, the Department paid 25 damage claims for Canada goose depredation totaling $7,942. The Utah Division of Wildlife Resources receives about 25 complaints annually regarding agricultural damage by Canada geese. Most is related to summer months when adults and broods move into agricultural crops adjacent to major goose production areas.

c. Sport Hunting

Migratory bird hunting has a significant impact on the U.S. economy. In 1996, migratory bird hunters spent $1.2 billion for guns, ammunition, travel, and recreational services (U.S. Department of the Interior et al. 1997). Including items such as hunting camps, off-road vehicles, and land, this spending swells to $3.0 billion. Southwick Associates (1997) estimated that as this spending flows through the national economy, it generates $8.2 billion of economic output and 95,700 jobs. Hunting for resident Canada geese would account for some portion of this total. In some Flyways, Canada goose harvest rivals that of mallards.

4. Human Safety

a. Airports

Concern over resident Canada geese at airports and the potential for air strikes were the top concerns of State wildlife management agencies in the area of human safety (public scoping). Wildlife strikes cost the civil aviation industry in the United States over $300 million each year from 1990-98 (Cleary et al. 1999). When military aviation is included, the costs in North America exceed $500 million/year

(MacKinnon 1998). Waterfowl (geese and ducks) comprise 35 percent of all bird-aircraft strikes and 12 percent of bird-aircraft strikes where civil aircraft were damaged (Cleary et al. 1997). No other bird group, except gulls, cause as many damaging bird-aircraft strikes as waterfowl (Cleary et al. 1997). For example, three Canada goose-aircraft collisions at airports near New York City resulted in over $15 million dollars in damage in 1995 (National Wildlife Research Center, Research Update, 1998). One of these collisions, the Air France Concorde striking Canada geese, resulted in a lawsuit and an eventual $5.3 million settlement against the Port Authority of New York and New Jersey/John F. Kennedy International Airport (Frank 1994). Also in 1995, a Boeing 707 E-38 AWACS jet taking off from Elmendorf Air Force Base in Alaska ingested at least 13 Canada geese into the number 1 and 2 engines and crashed, killing all 24 crew members and destroying the $184 million aircraft.

Canada geese are one of the more dangerous bird species for aircraft to strike because of their large size (up to 15 pounds) and because they travel in flocks of up to several hundred birds. Dolbeer et al. (2000) determined that geese, primarily Canada geese, were the third most hazardous wildlife species to aircraft, preceded only by deer (runways) and vultures. According to data from the National Wildlife Strike Database, 1991-98, goose strikes caused some damage to aircraft in over 56 percent of reported incidents, and either destroyed or substantially damaged planes in 21.4 percent of reported incidents (Dolbeer et al. 2000). Where costs were estimated, the mean cost per goose strike was $257,144 (Dolbeer et al. 2000). The presence of resident Canada geese on and near airports creates a threat to aviation and human safety. It is estimated that only 20 - 25 percent of all bird strikes are reported (Conover et al. 1995, Dolbeer et al. 1995, Linnell et al. 1996, Linnell et al. 1999), hence the number of strikes involving Canada geese is likely greater than Federal Aviation Administration records show.

b. Road Hazards

Geese aggressively defend their nests, mates, and goslings and may threaten and attack pets, children, and adults (Smith et al. 1999). Wildlife Services records show that goose attacks on people are fairly common occurrences during the nesting season and have resulted in injuries (USDA 2000, 1999a, 1999b). Goose aggression towards people can be a particular problem for children and senior citizens because they may lack the strength and maneuverability to avoid attacks. Injuries reported by State wildlife management agencies during public scoping included small nips and scratches, bruises and cuts, and broken bones suffered during falls. Traffic problems result from resident Canada geese crossing roads and the resultant action of some drivers to avoid them. Wildlife Services records show traffic hazards result from geese straying onto busy streets and highways and can result in accidents as vehicles stop suddenly or swerve to miss them (Wisconsin Wildlife Services, unpublished data as cited in USDA 2000). The Ohio Division of Wildlife reported 107 instances of Canada goose attacks on people in 1999 and 94 cases of geese being a traffic hazard.

Another human safety concern sometimes raised is slippery ground from goose feces. Slipping hazards can be caused by the buildup of fecal matter from geese on docks, walkways, and other foot traffic areas. Injuries resulting from these types of hazards have resulted in litigation (Missouri Wildlife Services, unpublished data as cited in USDA 2000). Elderly people are especially vulnerable to broken bones if they slip and fall or are knocked down by geese. They are also more vulnerable to medical complications from such injuries. In some situations, geese have nearly drowned dogs which were being used as a non-lethal method of harassment to disperse birds from the area (Wisconsin Wildlife Services, unpublished data as cited in USDA 2000). Financial costs related to human safety threats involving

resident Canada geese may include time costs from delaying departure and arrival times of commercial aircraft, personal injuries, aircraft repairs, and vehicle repairs (USDA 2000).

5. Human Health

a. Waterborne Disease Transmission

Resident Canada geese may potentially impact human health. A foraging Canada goose defecates between 5.2 and 8.8 times per hour (Bedard and Gauthier 1986). Kear (1963 In Allan 1995) recorded a maximum fecal deposition rate for Canada geese of 0.39 pounds per day (dry weight). Waterfowl can threaten human health through fecal matter when contaminated water or fecal droppings are ingested or causative organisms are inhaled. There are several pathogens involving waterfowl which may be contracted by humans, however, the risk of infection is believed to be low.

Cryptosporidiosis is a disease caused by the parasite (*Cryptosporidium parvum)* and was not known to cause disease in humans until as late as 1976 (Centers for Disease Control and Prevention (CDCP) 1998). A person can be infected by drinking contaminated water or direct contact with the droppings of infected animals (CDCP 1998). The public is advised to be careful when swimming in lakes, ponds, streams, and pools, and to avoid swallowing water while swimming (Colley 1996). The public is also advised to avoid touching stools of animals and to drink only safe water (Colley 1996). Cryptosporidium can cause gastrointestinal disorders (Virginia Department of Health 1995) and produce life-threatening infections in immunocompromised and immunosuppressed people (Roffe 1987, Graczyk et al. 1998). Cryptosporidiosis is recognized as a disease with implications for human health (Smith et al. 1997). Using molecular techniques, it was shown that Canada geese in Maryland could disseminate infectious *Cryptosporidium parvum* oocytes through mechanical means in the environment (Graczyk et al. 1998).

Giardiasis is an illness caused by a microscopic parasite (*Giardia lambia)* (Centers for Disease Control and Prevention 1998). During the last 15 years, *Giardia lambia* has become recognized as one of the most common causes of waterborne disease in humans in the United States (Centers for Disease Control and Prevention 1998). Several community-wide outbreaks of Giardiasis have been linked to municipal water contaminated with Giardia (Centers for Disease Control and Prevention 1998). Giardiasis causes diarrhea, cramps, and nausea (Centers for Disease Control and Prevention 1998). Giardiasis is contracted by swallowing contaminated water or oral contact with the stool of an infected animal or person (Centers for Disease Control and Prevention 1998). *Giardia sp.* oocytes were present in the feces of Canada geese in Maryland (Graczyk et al. 1998) and may have serious implications for the contamination of watersheds (Upcroft et al. 1997, cited from Graczyk et al. 1998, Davidson and Nettles 1997, Smith et al. 1997).

Salmonella *(Salmonella spp.)* may be contracted by humans by handling materials soiled with bird feces (Stroud and Friend 1987). Salmonella causes gastrointestinal illness, including diarrhea.

Chlamydia psittaci, which can be present in diarrhetic feces of infected waterfowl, can be transmitted if it becomes airborne (Locke 1987). Severe cases of Chlamydiosis have occurred among wildlife biologists and others handling snow geese, ducks, and other birds (Wobeser and Brand 1982). Chlamydiosis can be fatal to humans if not treated with antibiotics. Waterfowl, herons, and rock doves (pigeons) are the most commonly infected wild birds in North America (Locke 1987).

Geese can also act as a host in the life cycle of the schistosome parasites which cause cercarial dermatitis ("swimmers itch") in humans (Blankespoor and Reimink 1991, CDC 1992). The schistosome requires two hosts, one being one of several species of snail, and the other being one or more species of waterfowl (Guth et al. 1979, Blankespoor and Reimink 1991, Loken et al. 1995).

Escherichia coli (*E. coli*) are fecal coliform bacteria associated with fecal material of warm-blooded animals. There are over 200 specific serological types of *E. coli* and the majority are harmless (Sterritt and Lester 1988). Probably the best known serological type of *E. coli* is *E. coli* O157:H7, which is harmful and usually associated with cattle (Gallien and Hartung 1994). It has been demonstrated that Canada geese can disseminate *E. coli* into the environment and result in elevated fecal coliform densities in the water column (Hussong et al. 1979), however, unknown is whether these types are harmful to humans. Many communities monitor water quality at swimming beaches, but lack the financial resources to pinpoint the source of elevated fecal coliform counts. When fecal coliform counts at swimming beaches exceed established standards the beaches are temporarily closed, adversely affecting the human quality of life.[1] Many communities, such as the Wisconsin cities of Milwaukee and Madison, monitor water quality at swimming beaches on a regular basis and regularly close some beaches, which receive high use by waterfowl, to public use because of elevated bacteria counts (USDA 2000). Unfortunately, linking the elevated bacterial counts to frequency of waterfowl use and attributing the elevated levels to human health threats has been problematic until recently. Advances in genetic engineering have allowed microbiologists to match genetic code of coliform bacteria to specific animal species and link these animal sources of coliform bacteria to fecal contamination (Jamieson 1998, Simmons et al. 1995). Simmons et al. (1995) used genetic fingerprinting to link fecal contamination of small ponds on Fisherman Island, Virginia to waterfowl. Microbiologists were able to implicate waterfowl and gulls as the source of fecal coliform bacteria at the Kensico Watershed, a water supply for New York City (Klett et al. 1998). Also, fecal coliform bacteria counts were correlated with the number of Canada geese and gulls roosting at the reservoir. According to the Wisconsin Department of Health and Family Services, no surveillance or testing of recreational water bodies is being done in the State to examine the threat waterfowl may pose to human health, therefore potential health threats in Wisconsin are unknown (Jim Kazmierczak, WDHFS, April, 2000, personal communication as cited in USDA 2000).

Avian tuberculosis, usually caused by the bacterium *Myobacterium avium,* is contracted by direct contact with infected birds, ingestion of contaminated food and water, or contact with a contaminated environment. All avian species are susceptible but the prevalence of tuberculosis in waterfowl has not been determined (Roffe 1987). There are many authenticated cases of *M. avium* infection in people (Roffe 1987).

Influenza A viruses are known to emerge from the aquatic avian reservoir and cause human pandemics (Schafer et al. 1993). Virtually all influenza viruses in mammalian hosts originate from the avian gene pool (Webster et al. 1993). Ito et al. (1995) studied the strains of avian influenza virus in Alaskan waterfowl, to learn whether they harbored Asian strains that would indicate a connection to birds migrating from Asia. They found North American strains of avian influenza virus in small numbers in

[1]Commonly adopted standards in the United States set indicator bacterial standards for drinking water at less than 20 fecal coliforms per 100 milliliters (Sterritt and Lester 1988) (Total Coliform Rule of the Safe Drinking Water Act [40 CFR 141.21]), for body contact recreational waters (swimming) at 200 fecal coliforms per 100 milliliters (Feachem et al 1983, 9 VAC 25-260-170), and for fishing and boating at less than 1000 fecal coliforms per 100 milliliters (USDA 1999b).

ducks, geese and lakes in southcentral Alaska, including geese and lake water of Lake Hood in Anchorage.

A new form of a disease called *hypersensitivity pneumonitis* has been attributed to droppings from Canada geese migrating through a suburban environment. In the past this immunologic reaction has been attributed to other organic agents in occupational, agricultural and home environments (Saltoun et al. 2000). Saltoun et al. (2000) stress that recognition of this disease is important because of the growing Canada goose population and increasing exposure to goose droppings in the United States, and that exposure to goose droppings may be causing other undiagnosed pulmonary disease.

Converse et al. (2000) summarized the current background and state of potential health concerns surrounding resident Canada geese as follows:

> "Several studies have been conducted to detect the presence of bacterial pathogens in fecal material of migratory waterfowl. *Campylobacter jejuni*, which causes acute diarrhea in humans, was isolated from caeca of 154 (35%) of 445 ducks killed by hunters in Colorado (Luechtefeld, et al., 1980). During a banding study in Washington, Pacha et al. (1988) collected cloacal swabs from ducks and recovered *Campylobacter* spp. from 82 (73%) of 113 samples. In addition, they collected recently deposited fecal material from fields with flocks of Canada geese and sandhill cranes (*Grus canadensis*); *Campylobacter* spp. were isolated from five of 94 (5%) fecal samples from Canada geese and 74 of 91 (81%) fecal samples from sandhill cranes (Pacha, et al., 1988). An earlier study by Hill and Grimes (1984), in the Wisconsin-Minnesota region of the upper Mississippi River, found no *Campylobacter* spp. in 50 cecal samples from ducks killed by local hunters. *Campylobacter* spp. have been previously isolated from other birds (Waldhalm, et al., 1964; Smibert, 1969; Simmons & Gibbs, 1977; Knill, et al., 1978; Fenlon, 1981; Skirrow, 1982; Kapperud & Rosef, 1983).
>
> *Listeria* spp. have been isolated from avian species including geese (Gray, 1958; Seeliger1961), however the geese typically mentioned in studies were domestic species. Isolation of *Listeria* spp. from wild Canada geese has not been documented although other species of wild birds have been reported as having *Listeria* spp. in their feces (Weis & Seeliger, 1975; Fenlon, 1985; Gautsch, et al., 2000). To investigate the possibility of *Listeria* spp. transfer from seagulls and rooks to silage, a study was conducted in Scotland to compare the presence of *Listeria* spp. in feces collected from gulls feeding at sewage treatment facilities with feces collected from gulls resting at other sites (Fenlon, 1985). Samples from 26 of 99 (26%) gulls using sewage sites were positive for *Listeria* spp. and 15 of 99 (15%) were positive for *L. monocytogenes*. At non-sewage sites, 14 (8%) gulls were positive for *Listeria* spp. with only 8 (5%) positive for *L. monocytogenes*. This study indicates that exposure to sewage was a possible source of these pathogens.
>
> The natural reservoir for salmonellae is the intestinal tract of warm-blooded and cold-blooded animals. Most infected animals, however, seem to be subclinically ill excretors of salmonella. Most cases of human salmonellosis are the result of ingesting food, water, or milk contaminated with animal wastes and are manifested by gastroenteritis. Although human salmonellosis is usually self-limiting in healthy adults (though septicemia can occur), lost time from work and the usual involvement of many people in outbreaks can cause significant economic losses. *Salmonellae* have been shown to be able to survive in the environment for at least nine months (Quinn, et al.,1994) providing for increased dissemination potential. In the Czech Republic, *Salmonella* spp. were found in 1 of 8 gulls using sewage treatment ponds and 4% of 189 adult black-headed gulls (*Larus ribibundus*) and 19% of their young collected from other bodies of water (Cizek, et al., 1994). *Salmonella* Typhimurium was identified in 2% of 849 herring (*L. argentatus)*, black-headed , common (*L. canus canus*), black-backed (*L. marinus*) and lesser black-backed gulls (*L.*

fuscus) using a Copenhagen dump (Nielsen, 1960). In a two-year study in New Jersey, Bigus (1996) isolated eight *Salmonella pullorum* isolates from Canada geese. *Salmonella* spp. were not recovered in two other studies of Canada geese conducted in the Chesapeake Bay area of Maryland (Hussong, et al., 1979) and in eastern Massachusetts (unpublished report, L.C. Johnson and G. C. duMoulin, 1989, Beth Israel Hospital, Boston, MA). Hussong et al. (1979) reported only 44 samples were tested from migratory waterfowl; the total number of samples from geese was not specified. Johnson and duMoulin (1989) cultured 72 intestinal samples from 18 geese collected at three different sites during one summer. Although some authors have attempted to link the occurrence of *Salmonella* spp. in wild birds with the transmission of *Salmonella* spp. in domestic animals (Williams, et al., 1977; Macdonald & Bell, 1980) and humans (Hatch, 1996), to our knowledge, conclusive evidence that includes DNA studies is not available.

Escherichia coli is a member of the fecal coliform group and is considered a normal inhabitant of the intestinal track of all mammals and others, including Canada geese (Hussong, et al., 1979). Concern over *Escherichia coli* contamination, particularly when reported as high fecal coliform counts in recreational waters, is typically related more to its presence in feces and index of potential presence of other more serious pathogens, such as *Salmonella* and *Vibrio cholera*, than concern over inherent *Escherichia coli* pathogenicity. In the last few years, however, several well-documented food borne outbreaks occurred that were traced to strains of *Escherichia coli* capable of producing severe diarrhea and kidney damage leading to death in some immunocompromised or young people. The most well documented toxigenic *Escherichia coli* is serotype O157:H7 which belongs to the shiga toxin producing group, one of the four groups of *Escherichia coli* that are capable of causing illness. There are currently at least 112 serotypes of shiga toxin producing *Escherichia coli* (Bopp, et al., 1999).

Feare et al. (1999) collected 50 swabs of fecal material from Canada geese the summer of 1993 at six parks in London, England and the summer of 1994 at twelve sites throughout England. Samples collected in 1993 contained potentially pathogenic organisms, including *Escherichia coli* (Class 1), *Enterobacter cloacae, Salmonella* spp., *Aeromonas hydrophilia* and *Providencia alcalifaciens*, in 6% to 44% of the samples. In 1994, samples collected at each of the 12 sites had bacteria that were potentially pathogenic; no *Campylobacter* spp. were found in 1993 or 1994. Although reports of *Escherichia coli* of serotype O157:H7 from deer have been reported by Rice et. al. (1995), other reports from wildlife are rare (Wasteson, et al., 1999). In another study, Hussong, et al. (1979) examined a random selection of *Escherichia coli* from waterfowl and seven isolates of enterotoxin-producing *Escherichia coli* were identified but further details were omitted.

The ability of geese to act as transport or mechanical vectors for parasites was tested by Graczyk et al. (1997) by dosing Canada geese orally with *Cryptosporidium parvum* oocysts and subsequently monitoring feces for the presence of oocysts. In a follow-up study, Graczyk et al. (1998) collected fecal material of Canada geese during the winter at nine sites in Maryland; *Cryptosporidium* spp. oocysts were present in samples from seven of nine sites and *Giardia* spp. cysts were present in samples from all nine sites. *Cryptosporidium parvum* was identified in Canada goose feces from one site by using a mouse bioassay and by polymerase chain reaction (PCR), a molecular detection method. The mouse bioassay allowed Graczyk et al. (1998) to test if oocysts that passed through the gut would remain viable and infectious. Although *Cryptosporidium parvum* is not pathogenic to birds, presence of this organism suggests that it could be transmitted to mammals through contamination of drinking water. It should be noted that there are species of *Giardia* and *Cryptosporidium* which can infect and multiply within geese, however, these species are not human pathogens.

Skene et al. (1981) conducted a study at a waterfowl park and sanctuary in Ontario to detect the presence of coccidia in freshly deposited fecal material collected from randomly selected adult

> Canada geese during winter months and fecal material collected from newly hatched goslings from five families in the spring. They confirmed low numbers of coccidia in 21 (20%) of 104 samples from adult geese. Goslings from 3 of 5 families were shedding oocysts within eight days of hatching. Adult geese shed *Eimeria magnalabia* (3%), *Eimeria hermani* (14%), *Eimeria truncata* (2%), and *Tyzzeria parvula* (2%). Goslings only shed *Eimeria hermani* but the presence of oocysts within eight days of hatching indicated availability of oocysts on soil. *Eimeria* spp. and *Isospora* spp. are very host specific; *Isospora belli* is the only known human pathogen (Koneman, et al.,1997).
>
> Chlamydia, rotavirus, and avian influenza virus are all well described human pathogens. Avian influenza infection occurs in a variety of wild and domestic bird species with the outcome ranging from no obvious clinical signs to 100% mortality (Swayne, et al., 1998). A 1997 occurrence of avian influenza in Hong Kong involved 18 human cases (Snacken, et al., 1999) and raised concerns about transmission of avian influenza from birds to humans (Webster, et al., 1993). Rotaviruses are capable of causing gastroenteritis in the young of mammalian (Endtz, et al., 1991) and avian species (Stott, 1999). *Chlamydia psittaci* is capable of causing serious or fatal disease in most birds and mammals including humans (Grimes, et al., 1979; Wobeser & Brand, 1982; Brand, 1989; Franson & Pearson, 1995; Grimes, et al., 1997). *Chlamydia psittaci* has been isolated from at least 159 bird species including waterfowl (Friend and Franson1999).
>
> In addition to viruses that pose a risk to human health, isolation and identification of Newcastle disease virus and duck plague virus was included because they are diseases of importance to wild birds and domestic poultry and waterfowl (Awan, et al., 1994). Newcastle disease virus is one of the most important pathogens for birds of all types but the only known outbreaks have occurred in double crested cormorants (*Phalacrocorax auritus*) (Kuiken, et al., 1998; Glaser, et al., 1999). Duck plaque only occurs in ducks, geese and swans. It has been isolated from many areas in the United States (Converse & Kidd, 2001)."

While transmission of disease or parasites from geese to humans has not been well documented, the potential exists (Luechtefeld et al. 1980,Wobeser and Brand 1982, Hill and Grimes 1984, Pacha et al. 1988, Blandespoor and Reimink 1991, Graczyk et al. 1997, Saltoun, et al. 2000). In worst case scenarios, infections may even be life-threatening for immunocompromised and immunosuppressed people (Roffe 1987, Virginia Department of Health 1995, Graczyk et al. 1998). Even though many people are concerned about disease transmission from fecal droppings, the probability of contracting disease from fecal droppings is believed to be small.

Converse et al. (2000) looked at 12 study sites in the northeastern and mid-Atlantic States (Massachusetts, New Jersey and Virginia). In each State, they selected four areas that had daily use by resident Canada geese as well as frequent use by the public. Selected sites included several town parks; a municipal park in a residential area with a children's playground and picnic area; a park with two lakes, picnic areas, recreational sports field, a petting zoo, and a horse track; a park along the Delaware River with picnic areas, and playgrounds; a municipal park with a lake, picnic areas and hiking trails; a group of summer condominiums with several small lakes surrounded by mown grass; an area along a lake adjacent to a small shopping area and restaurant; a park with hiking trails, food concession, swimming and boat rentals; and a summer camping site for trailers with a swimming pool and a lake. They concluded they following:

> "This study was done to determine the presence of some selected organisms that could cause disease in humans exposed to fecal material of Canada geese collected at sites with a history of high public use and daily use by Canada geese in the northeastern United States. The methods

used for transect delineation, site preparation, and sample collection, preservation and transportation were very successful. Attempts to isolate four bacterial organisms resulted in no isolates of *Campylobacter* spp. or *Escherichia coli* O157:H7; two isolates of *Salmonella*, one *S.* Typhimurium and one *S.* Hartford; and forty-seven isolates of *Listeria* spp., including 13 isolates of *Listeria monocytogenes*. Attempts to detect two viruses and chlamydia resulted in no isolation of paramyxovirus; one detection of a rotavirus, and 13 samples that are suspected to contain *Chlamydia* spp. Parasitological examinations resulted in detection of four samples with *Giardia* spp. and three samples with *Cryptosporidium* spp. (Table 6).

Bacteria and viruses were successfully isolated in 24 hour and 5-day samples. There were decreasing numbers of samples positive for bacteria in five day samples, particularly in the second and third sample periods as drought conditions continued. A rotavirus was detected in a 24-hour sample and a total of 13 *Chlamydia psittaci* positive samples were detected in both 24 hour and 5-day samples. Eleven *Chlamydia psittaci* positive samples were detected in those collected after 24 hours while only two were detected after 5 hours. The detection methods used in this study do not differentiate between infectious and noninfectious *Chlamydia psittaci* or rotaviruses. Both of these agents, in an infectious state, pose a serious human health threat. As soon as possible further field and laboratory studies should be carried out to determine whether the fecal material, found where urban Canada geese congregate, contains infectious *Chlamydia psittaci* or rotaviruses.

These was no consistent distribution of positive samples over time, within sample periods or geographic locations (Table 7 (*editor's note* - see **Table III-35**)). Low frequency of positive cultures indicate that risk of humans to disease through contact with Canada goose feces appeared to be minimal at the four sites in Massachusetts, New Jersey and Virginia during the summer and early fall of 1999. We suggest further studies be conducted in other areas with resident Canada geese during different seasons to detect differences in prevalence and survival of organisms."

Financial costs related to human health threats involving resident Canada geese may include testing of water for coliform bacteria, cleaning and sanitizing beaches regularly of fecal droppings, contacting and obtaining assistance from public health officials, and implementing non-lethal and lethal methods of wildlife damage management. *Given the wide divergence of opinion within the public health community, the Service and cooperating agencies recognize and defer to the authority and expertise of local and State health officials in determining what does or does not constitute a threat to public health.*

Many State wildlife management agencies indicated during the scoping period that they regard the risk of disease transmission from resident Canada geese to humans as "concerned, but unable to substantiate." That is, there is a perception among the public and a concern among resource management personnel that resident Canada geese do have the ability to transmit diseases to humans, but a direct link is difficult to establish due to the expense of testing and the difficulty of tracing the disease back to Canada geese. Studies have confirmed the presence of human pathogens in goose feces, so the presence of these feces in water or on the ground where humans may come into contact with them is a legitimate health concern. State natural resource agencies often do not have the expertise to deal with human health/disease questions and have to rely on other more pertinent agencies.

Table III-35. Number of positive isolations by organisms within groups and States (from Converse et al. 2000).

	Organism	Massachusetts	New Jersey	Virginia
Viruses	Rotavirus			1
	Avian influenza			
	Hemagglutinating agent, unidentified	9	1*	
	Duck plague			
Bacteria	*Chlamydia*	8*	5	
	Campylobacter			
	Listeria	9	13	10
	Salmonella	1	1	
	E. coli O157:H7			
Parasites	*Giardia*	2	1	1
	Cryptosporidia	3		

*pooled sample

b. Goose Meat and Food Safety

There is no evidence in the literature to indicate that resident Canada geese captured on golf courses, parks, or other turf areas are unfit for human consumption (Cooper 1995). Moreover, Canada geese captured and tested for pesticide residues and heavy metals in Virginia during 1998 had no pesticide residues and no heavy metals except zinc and copper which were within dietary requirements established by the National Academy of Science according to the Virginia Department of Health (M. Lowney, State Director, Wildlife Services, Moseley, Virginia, and P. Eggborn, Virginia Department of Agriculture and Consumer Services, Richmond, Virginia, unpublished data). Additionally, a risk analysis conducted by USDA-APHIS-Policy and Program Development determined "...there is a very low risk of human health effects associated with the consumption of goose meat." And the risk analysis further concluded that "...there is no evidence of risk which support the expenditure of additional resources to further quantify risk" (L. Miller, 1998, unpublished report).

However, waterfowl captured from industrial sites should not be used for human consumption since harmful chemical residues may occur in the tissue of such Canada geese (Amundson 1988, cited from Cooper 1995). At a contaminated site in Cedarburg, Wisconsin, tests conducted in 2000 found Canada geese to contain high levels of polychlorinated biphenyls (PCBs) (Behm 2001). Tissue levels ranged from 0.27 to 0.46 parts per million (ppm) and exceeded the State health department's "Do Not Eat" level of 0.22 ppm. By comparison, only one of nine geese tested from Milwaukee, Wisconsin parks were found to contain any level of PCBs (0.054 ppm) (Behm 2001).

To ensure that Canada geese captured and processed will be safe for human consumption, the Wisconsin Department of Natural Resources (WDNR) established a protocol requiring geese from each community/locale to be sampled for contaminants known to be harmful to human health (WDNR 2000). The contaminant analyses is conducted by certified laboratories. Previously conducted contaminant analysis (UWTF) is evaluated with recent results of contaminant sampling. The WDNR Wildlife Health Team, in consultation with the Wisconsin Department of Health and Family Services (WDHFS), evaluates whether contaminant levels meet safe human consumption levels and makes recommendations if utilization for donation to food pantries is safe. In addition, geese are only processed by facilities licensed by the State governing authority.

6. Costs of Management Program

a. Administrative Costs

In Fiscal Year (FY) 2001 (October 1, 2000 to September 30, 2001), the Service allocated $1,048,000 for the migratory bird permit program. This budget was divided among the seven Service regions and the Washington office for management and administration of the migratory bird permit program. This represented about a two percent increase from FY2000. Since 1996, when the permit program was transferred from the Law Enforcement program to the Migratory Bird program, the overall budget has increased only $156,000, or 18 percent.

Further, of the 34,572 permits (active as of 8/22/2000), 2,541 were depredation permits, about 7 percent. Since all depredation permits are valid for no longer than one year from the date of issuance, we believe this number serves as a representative index of the number of depredation permits issued in 2000. Further analysis shows that of the 2,541 depredation permits, 1,571 were issued for resident Canada geese, about 62 percent. Based on permit workload analysis, we estimate that it takes an average of 5.5 hours to review and issue a depredation permit. Thus, the 1,571 permits for resident Canada geese represent 8,640 man-hours or slightly more than 4 full-time-equivalent (FTE) positions. Since this figure does not account for time spent denying permits, issuance of special Canada goose permits, or preliminary discussions with people who subsequently decide not to submit a permit application, it is undoubtably an underestimate of the time currently allocated to the administration of depredation permits for resident Canada geese.

For Wildlife Services, the costs of conducting resident Canada goose damage management activities is highly variable between States and is often a combination of Federal and cooperative dollars. For example, in Virginia in FY2000, Wildlife Services estimated they spent $66,856 conducting resident Canada goose management. However, $57,951 of these expenditures were from cooperators. In Illinois, of $10,500 expended to conduct resident Canada goose damage management activities, $4,800 was from cooperators. Nationwide, Wildlife Services reports that 18 State Wildlife Service programs received $491,850 from 230 individual cooperative funding sources to conduct services and activities related to damage management of resident Canada geese in FY2000. However, 26 State programs reported receiving no cooperative funding for resident Canada goose management activities in FY2000.

b. Monitoring Costs

Measures to monitor resident Canada goose populations can be categorized into four general groups: 1) Breeding population and production surveys to assess status and growth of the population; 2) banding,

neck-collaring, and observation activities to assess goose distribution, movements, and survival estimates; 3) winter surveys to assess distribution and habitat use of wintering/staging waterfowl; and 4) harvest surveys to assess mortality. Most monitoring programs that are specific to resident geese are conducted by State agencies, while programs that incorporate migrant waterfowl are supported cooperatively by Federal and State agencies. Some programs, such as wintering counts and harvest surveys, are difficult to allocate to resident or migrant waterfowl. It is apparent however, that State and Federal agencies contribute significant resources to monitoring resident goose, migrant goose, and other waterfowl populations (**Table III-36**).

State expenditures for annual breeding population surveys for resident Canada geese alone are estimated to exceed $220,000 dollars (**Table III-36**: Data extracted or extrapolated from Cooperative migratory bird surveys in North America. U.S. Fish and Wildlife Service, unpublished report, February 2000). Many other expenditures regarding resident Canada geese (e.g., localized nesting surveys, nuisance abatement education, translocation, experimental regulation monitoring) are not included below.

Table III-36. Estimated annual expenditures (dollars) of State and Federal agencies on monitoring programs for resident Canada geese.

	Breeding Population Surveys	**Banding, Collaring, & Observation**	**Wintering Surveys**	**Harvest Surveys**
Atlantic Flyway	$75,000[a]	$45,000 + $50,000[b]	--	$2,000 + $5,500[c]
Mississippi Flyway	$90,000[a]	$150,000[b]	$30,000[c]	$9,500[c]
Central Flyway	$10,000[a]	$55,000[b]	$15,000[c]	$6,000 + $5,500[c]
Pacific Flyway	$47,000[a]	$20,000	$45,000[c]	$6,000[c]
Federal	$5,000[a]	$8,000 + $2,000[b]	$225,000[c]	$300,000[c]
Total	$227,000[a]	$73,000 + $257,000[b]	$315,000[c]	$8,000 + $326,000[c]

[a] Expenditures are for resident geese only.
[b] Expenditures are for resident and migrant geese.
[c] Expenditures are for resident geese, migrant geese, and other waterfowl.

c. Other Costs

Public Costs for Depredation Permits: Based on the information contained in section **III.B.6.a. Administrative Costs**, 62 percent of depredation permits were issued for resident Canada geese in 2000. Information supplied to the Office of Management and Budget (OMB) for information collection purposes shows that the Service normally expects approximately 788 applications for depredation permits each year (not including the number of permittees requesting renewal of a permit due to expire). The amount of time it takes an applicant to provide the information collected will depend on the specifics of the permit. Some applicants only need to take one or several birds, in which case it takes about 30 minutes to complete the application. Other applicants may need authorization for large numbers of birds, in which case it may take about 3 hours to complete the application. We estimated it takes the average applicant an average of 1.5 hours to complete the application, with a total burden assumed by all applicants of 733 hours (788 x 1.5 hours x 0.62).

Holders of depredation permits are also required to submit an annual report detailing the number of birds, eggs, or nests actually taken under the permit. The Service uses this information to determine whether a permit holder is in compliance with the permit and to track the number of birds actually taken from the wild and monitor the impact on the resource. All permits require an annual report. As with the application, the amount of time it takes to complete the annual report depends on the scope of the permit and the number of birds taken under it. We estimate it takes an average of 1 hour to complete the annual report. Therefore, the total annual report burden assumed by all depredation permittees would be 1,571 hours or less (1,571 x 1 hour). Thus, the total annual burden to resident Canada goose depredation permit holders is 2,304 hours.

Additionally, the annual "out-of-pocket" cost to the applicants is approximately $12,225 (788 x 0.62 applicants multiplied by a $25 application processing fee).

Special Canada Goose Permits: Information supplied to OMB for information collection purposes shows that the Service normally expects approximately three State wildlife agencies to apply for a Special Canada Goose Permit each year (not including the number of permittees requesting renewal of a permit due to expire). We estimate it takes an average of 8 hours to complete the application, with a total burden assumed by all applicants of 24 hours. Eventually, we anticipate approximately 45 permits may be valid in future years.

As with the depredation permits, each permittee is also required to submit an annual report detailing the number of birds, eggs, or nests actually taken under the permit. The Service uses this information to determine whether a permit holder is in compliance with the permit and also to enable us to monitor the impact on the resource. We estimate it takes an average of 2 hours to complete the annual report. Therefore, the total annual report burden assumed by all applicants is 90 hours or less, and the total annual burden to Special Canada Goose Permit holders is 114 hours.

There is no annual "out-of-pocket" cost to the respondents because State agencies are exempt from the $25 application processing fee (50 CFR 13.11).

Conflict Abatement Costs: Each homeowner, landowner or business, whether they ultimately obtain a permit or not, usually must expend some funds on one or more goose abatement techniques. The Ohio Division of Wildlife reported that, in 1998, 64 landowners spent $21,083 in to haze geese and 37 landowners spent $14,290 in 1999. On the average, Ohio estimates that each landowner spent $350 annually trying to keep geese off of their property.

Another example of conflict abatement costs are those expended by State wildlife agencies. For example, the State of South Dakota, through the South Dakota Department of Game, Fish and Parks, has an active landowner assistance program. Each year, the SDGFP provides man-hours, materials, and cost-sharing to assist landowners with conflict abatement. In 1999, SDGFP expended over 4,690 man-hours and $183,000 in equipment, supplies and damage management expenses. Assuming expenditures from South Dakota are indicative of expenses (either currently expended, or necessary but unavailable) in other States, we estimate that conflict abatement cost expenditures from State wildlife agencies currently exceeds $6.4 million and 164,000 man-hours (based on 35 States).

IV. ENVIRONMENTAL CONSEQUENCES

This section analyses and describes potential environmental impacts and consequences that could result from the implementation of an alternative strategy to control and manage resident Canada geese. Alternatives A, B, C, D, E, F, and G, identified in section **II.B. Principal Alternative Actions**, are analyzed. This chapter is organized by Alternative, with discussion of the consequences of each alternative on various impacted resource areas. Generally, many of the impacts discussed are common to more than one alternative, but vary in magnitude.

A. ALTERNATIVE A - NO ACTION

1. Biological Impacts

a. Resident Canada Goose Populations

The recent creation of a Special Canada goose permit, increasing the numbers of other permits issued authorizing control activities, and increasing the numbers of resident Canada geese taken by sport hunters in expanded hunting seasons have not appreciably slowed the population growth of resident Canada geese. Under the current resident Canada goose management/control system, resident Canada goose populations would likely continue to grow, at variable rates, until ultimately limited by available food, water, sanctuary, or other resource needs. Given the increasing urbanization of rural areas coupled with abundant food resources and the high survival and fecundity rates of these geese, populations likely will continue to increase during the foreseeable future. In addition, distribution of resident Canada goose problems and conflicts likely will expand within the conterminous United States due to increases in numbers, attendant population pressures for dispersal, and the availability of suitable habitat.

The current program has had little success in stabilizing the overall growth of resident Canada goose populations, although, in some areas, the rate of increase appears to have slowed in the past few years. In the Atlantic Flyway, the spring 2001 population was estimated at 1,011,300 geese, an average annual increase of 8 percent since 1991 (U.S. Fish and Wildlife Service 2001). This growth has occurred despite an average annual sport harvest of approximately 240,000 resident birds (1997-99), the reported take of over 60,000 eggs (1995-99), and the reported permit take of 7,840 adult geese (1995-99). Assuming a conservative future growth rate of 5 percent, we estimate that the spring population in the Atlantic Flyway will approach 1.3 million in 5 years and 1.6 million in 10 years.

In the Mississippi Flyway, the spring 2001 population was estimated at 1,371,100 geese, an average annual increase of 6 percent since 1993 (U.S. Fish and Wildlife Service 2001). This growth has occurred despite an average annual sport harvest of approximately 595,000 giant Canada geese (1996-99), the reported take of almost 40,000 eggs (1994-99), and the reported permit take of 13,729 adult geese (1994-99). Assuming a conservative future growth rate of 4 percent, we estimate that the spring population in the Mississippi Flyway will approach 1.7 million in 5 years and 2.0 million in 10 years.

In the Central Flyway, the spring 2001 index was 558,700 for that portion of the Western Prairie Population and Great Plains Population ranges in the May Breeding Habitat and Population Survey (BHPS). These estimates have increased an average of 12 percent annually since 1992 (U.S. Fish and Wildlife Service 2001). For the Hi-Line Population, the spring 2001 estimate was 252,000 in the BHPS.

This population has increased an average of 6 percent annually since 1992 (U.S. Fish and Wildlife Service 2001). In total, the spring 2001 estimate for these two populations was 810,700 birds in the BHPS, which includes part of prairie Canada. These increases have occurred despite an average annual sport harvest of over 422,000 large Canada geese in the States of the Central Flyway and 590,000 in the entire Central Flyway (1995-98). By 2010, the Central Flyway Council estimates that the Great Plains Population breeding in the U.S. will approach 767,000 birds (Gabig 2000). Likewise, they predict the Hi-Line Population will continue to grow approaching 177,000 breeding birds in the U.S. by 2010 (Gabig 2000). Assuming a conservative future growth rate of 5 percent for both populations, we estimate that the numbers in the BHPS will approach 1.26 million by 2010.

In the Pacific Flyway, the Rocky Mountain Population's spring 2001 estimate was 161,400 birds in the BHPS. This estimate has increased 7 percent annually during the last 10 years (U.S. Fish and Wildlife Service 2001). For Pacific Population geese, the breeding pair index was over 64,000 pairs in 1998 (U.S. Fish and Wildlife Service 2001). This index has been relatively stable over the past 20 years with the exception of growth in Montana, Washington, and Oregon (Subcommittee on the Pacific Population of Western Canada Geese 2000). This growth has occurred despite increases in harvest from approximately 155,000 in the late 1970s to over 300,000 in the mid 1990s (see section **III.B.1.b.(3)(d) Pacific Flyway**). Assuming a conservative future growth rate of 5 percent for both populations, we estimate that the populations will approach 450,000 by 2010.

Under the Current Program (No Action), the population of resident geese in most areas would be expected to continue to increase until they reach, or exceed, the carrying capacity of the environment. Biological carrying capacity is the land or habitat's limit for supporting healthy populations of wildlife without degradation to the animal's health or environment over an extended period of time (Decker and Purdy 1988). Based on known population growth curves, Savidge (1980) estimated that it was likely that almost all areas were well below their carrying capacity for Canada geese.

While Savidge's study is more than 20 years old, little has occurred over the past 20 years to contradict these results. Unlike arctic nesting geese, resident Canada geese inhabit temperate environments with relatively stable breeding habitat conditions, are very tolerant of human disturbance, and have shown the ability to utilize a wide range of habitats. Further, while breeding Canada geese are territorial by nature (Kossack 1950, Brackage 1965), resident Canada geese are willing to nest in close proximity to other goose pairs and densities as high as 100 nests per acre have been found on islands (Klopman 1958, Ewaschuk and Boag 1972, Zenner and LaGrange 1998). High nest densities are more indicative of colonial nesting geese, such as snow geese.

Normally, with higher densities of colonial nesting geese in breeding colonies, food supplies would eventually become depleted resulting in poor body condition of adults and slower development and/or starvation of goslings. The impacts of decreased food supplies would likely occur over an extended period of time, and include an increase in mortality of goslings and adults from malnutrition, physiological stress, parasites, disease and predation due to insufficient breeding and brood-rearing habitat. Survivors likely would continue to decline in body size, possibly affecting breeding propensity and success over their lifetimes (U.S. Department of the Interior 2001).

With resident Canada geese, although not classified as a colonial nesting bird, populations have continued to increase, both on a local and regional scale, and we have not seen any of the above-mentioned food supply related problems. Given the large amount of available urban and suburban

habitat and the continuing population expansion into the few remaining unoccupied rural habitats, we believe it likely resident Canada geese remain significantly below their carrying capacity.

In addition to food supply related problems with over population, we would expect habitat degradation to increase as well. At some future point, it is possible that density-dependent regulation of the population would occur. That is, it is possible that geese would so deplete their food resources that a population decline would begin. However, the timing, likelihood, and scale of a population decline of this nature is unpredictable.

b. Natural Resources

Under the "No Action" alternative, negative impacts to soil and water resources would continue and likely increase. With increasing numbers of geese, especially in urban and suburban areas, the potential to negatively affect water quality around beaches (recreational waters) and wetlands would increase because of the increasing amount of fecal droppings. Excessive grazing by Canada geese would likely increase erosion along shorelines of ponds and lakes, golf courses, yards, and parks negatively impacting water quality, and cause increased erosion and sedimentation. Additionally, wildlife habitats susceptible to damage, such as native wetlands and marshes (Haramis and Kearns 2000), would continue to be overgrazed by increasing numbers of resident Canada geese.

c. Other Wildlife Including Federally Protected Species

Under the "No Action" alternative, we would not expect any new effects on threatened or endangered (T & E) species since resident Canada goose management activities would continue under current practices, guidelines, and restrictions. Given that any goose damage management requiring the capture, relocation, or take of geese requires a Federal permit, permit conditions preclude any new adverse effects on T & E species. Presently, most permitted actions with geese occur during the summer molt which generally occurs in June and July or involve nest and egg destruction in the spring. These seasonal captures harvest only resident geese due to the absence of migratory Canada goose populations at this time of year. All capture and removal methods allow for positive identification of target species and there has been no impact observed on non-target, threatened, and endangered species. Further, potential effects on T & E species during migratory bird hunting seasons, including Canada goose seasons, are annually considered as part of the hunting regulation establishment process. See section **III.A.4. Other Wildlife Including Federally Protected Species** for a further discussion of current effects on T & E species.

Resident Canada goose damage to habitat intended for wintering and migrating waterfowl would continue and likely increase due to growing numbers of birds.

2. Sociological Impacts

a. Sport Hunting

Sport hunting would be largely unaffected under the "No Action" alternative, although with increasing resident goose populations, we would expect hunting opportunities to increase. Resident Canada goose populations in areas that are normally targeted for management/control activities under current management are generally those that provide little or no sport-hunting opportunities due to restricted access within urban/suburban areas where hunting is either precluded or severely restricted. Areas and

resident Canada goose populations already open to sport hunting would be expected to remain open, as special Canada goose season frameworks and guidelines would not change.

Despite the growing high harvest exhibited throughout the Flyways, wildlife agency population goals have been far surpassed in many States, and numbers of human/goose conflicts continue to increase. Given current frameworks and regulations, and increasing urbanization, it does not appear that currently available sport harvest can adequately control resident Canada goose populations.

(1) Regular Hunting Seasons

Given the expected continued growth in resident goose populations, hunting opportunities would likely continue to increase before gradually leveling off at some unknown point in the future. Under current management/control practices, resident Canada goose harvest has continued to significantly increase and expand. Since 1986, the nationwide harvest of resident Canada geese has increased from less than 10,000 geese to over 1.5 million in the late 1990s, with resident populations continuing to increase. To date, existing control efforts have not significantly impacted goose population growth on anything more than a local scale. All available evidence suggests that populations of locally-breeding Canada geese will continue to increase. Thus, the regular season sport harvest would likely continue to increase under this alternative, as any reduction in goose numbers due to current control activities likely would be offset by increasing resident goose populations.

(2) Special Hunting Seasons

Like regular hunting seasons, the expected continued population growth of resident geese would likely increase special hunting opportunities before gradually leveling off at some future time. Under current management/control practices, special season resident Canada goose harvest has continued to increase and harvest distribution expand. Special hunting seasons targeted at resident Canada geese have been significantly expanded over the last 15 years with little overall impact on resident populations. Currently, special early or late seasons are offered in all four Flyways, with 35 States participating.

b. Migratory Bird Permit Program

(1) Wildlife Services Program

Under the “No Action” alternative, because resident goose populations would be expected to increase, Wildlife Services workload would likely increase as complaints increase. Because Wildlife Services is a cooperatively funded, service-oriented program, Wildlife Services cooperates with private property owners and managers and with appropriate land and wildlife management agencies, as requested and appropriate, with the goal of effectively and efficiently resolving wildlife damage problems in compliance with federal, State, and local laws, regulations, policies, orders, and procedures. Wildlife Services would continue to provide technical assistance and recommendations for deterring geese, using non-lethal methods, and lethal control, to reduce damage. Direct damage management would continue to be provided by Wildlife Services if requested, funded, and the requested direct damage management was consistent with Wildlife Services recommendations, policy and federal and State laws. Increasing complaints would also likely translate into increased requests for equipment to deter geese by non-lethal means. The Wildlife Services program would continue to loan, sell, or otherwise distribute this equipment to the public.

Alternately, although the resident goose population and related damages would likely increase, the numbers of requests for assistance may not. Available data suggests that when Wildlife Services does not have the ability or resources to respond readily or effectively to requests for assistance, the number of calls for assistance does not reflect the extent of the need. Rather, complainants may perceive the lack of Wildlife Services' ability to deliver satisfactory results and don't bother complaining or act independently to handle the problem. After the program has the support and ability to respond adequately to requests for assistance (such as permits in place, funding, and personnel), the numbers of requests often increase.

(2) U.S. Fish and Wildlife Service Program

Under the "No Action" alternative, increasing populations of resident Canada geese would likely result in increases in complaints and goose/human conflicts. Thus, more complaints and requests for assistance would result in an increased workload (i.e., permit review and issuance) for the Service.

Currently, States that do not participate in the special Canada goose permit program must continue to respond to individual resident Canada goose problems within their respective jurisdictions. Service administration responsibilities for each individual control activity currently necessitates the determination and/or issuance of a permit. Under this alternative, these determinations would be expected to increase. The Service, in most instances outside the special Canada goose permit, must decide on a case-by-case basis whether a permit should be issued. This process would continue.

(3) State Programs

Under the "No Action" alternative, increasing populations of resident Canada geese would likely result in increases in constituent complaints and goose/human conflicts. More complaints and more conflicts would likely translate to an increased workload (i.e., requests for technical assistance, permit recommendations, assistance funds, etc.) for the States.

Currently, States that do not participate in the special Canada goose permit program must either request a permit for each management activity related to resident Canada goose problems or refer complainants to Wildlife Services. Under this alternative, since requests for assistance would be expected to increase, we expect that additional States would request special Canada goose permits to handle the anticipated increased workload. These State requests would occur despite the fact that many States do not consider the special Canada goose permit program the best available method (both administratively and economically) for dealing with resident Canada goose conflicts (public scoping comments). Additionally, we believe those States that currently have a resident Canada goose damage management program would need additional funding and/or staffing to provide for increases in requests for technical assistance. For example, the South Dakota Department of Game, Fish, and Parks expended over 4,690 man-hours and $183,000 in equipment and supplies in 1999 to combat resident Canada goose damage. Other States without a resident Canada goose damage management program would likely look for available funding sources to start one.

c. Social Values and Considerations

(1) Aesthetics

Nearly everyone finds some pleasure in viewing wildlife. While some people might measure the aesthetic value of geese simply by their numbers (i.e., more geese = more beauty), other people might find large numbers of geese to be aesthetically displeasing (i.e., more geese = less beauty) because of the problems they cause. Coluccy et al. (2001) found that most (68 percent) central Missouri residents enjoyed Canada geese and 42 percent were satisfied with the current population level in the area. However, landowners and those reporting property damage indicated that they would like to see fewer geese and were more likely to describe geese as a nuisance.

Under the "No Action" alternative, the resident goose population would be expected to increase, providing more public viewing opportunities, and a probable divergence on the aesthetic value of geese, as seen by the public. However, aesthetic problems associated with large numbers of geese, i.e., droppings, feathers, etc. would likely also increase.

Resource owners would likely strongly oppose this management alternative since they would bear the aesthetic damage caused by Canada geese. There would likely be high levels of frustration because additional assistance would not be provided. Negative perceptions of geese would likely increase and the aesthetic value of geese would likely diminish as more people become affected by damage at work, home, and recreational areas. As observations of geese become more commonplace, the aesthetic value would likely decline or be taken for granted.

(2) Recreational Use of Impacted Areas

As goose populations continue to increase, recreational areas would be impacted more frequently and more severely, especially those located in urban and suburban environments. People would likely be less willing to use recreational areas frequented by large numbers of geese because of the perceived increase in disease threats and the accumulation of goose feces and feather litter. Additional parks and recreational areas, such as athletic fields, would likely be impacted as goose populations and distribution increase.

(3) Animal Rights and Humaneness

Use of lethal control techniques under this alternative would continue. Such lethal control would continue to be viewed negatively by those groups and/or individuals advocating animal protection and some outside the directly-affected problem area(s). However, these groups would be expected to oppose most control measures and/or management actions. Under this alternative, geese would continue to be captured or killed under current guidelines for humane handling of wildlife.

d. Economic Considerations

(1) Residential, Commercial, and Public Property

Under this alternative, impacts to private and public property are expected to continue to grow. In recent years, damage complaints about resident Canada geese have continued to increase despite current control and management activities. Complaints to Wildlife Services and the Service have significantly increased in the last 10 years. With an expected increase in numbers of resident Canada geese and the relative availability of suitable habitat, the number of damage complaints is expected to continue to rise. In particular, damage complaints related to fecal droppings and turf damage in urban and suburban areas,

such as parks, public swimming beaches, golf courses, schools, athletic facilities, cemeteries, corporate business areas, and college campuses are all expected to increase with increasing numbers of birds. Conflicts with humans likely will become more pronounced as resident Canada goose numbers increase and areas impacted become more numerous.

(2) Agricultural Crops

Impacts to agricultural crops would be expected to continue under the "No Action" alternative. Agricultural losses to small grain, peanut, corn, livestock, and forage (hay) producers would continue to increase. Over the past 10 years, damage complaints regarding resident Canada geese have continued to increase despite increased hunting and current control and management activities. In particular, damage complaints related to late spring and summer crop depredation are expected to increase with increasing numbers of birds.

e. Human Safety

Increasing numbers of geese will increase risks to human safety. Larger goose populations mean an increased risk of goose - aircraft strikes to commercial and military aviation and a likely greater incidence of aggressive encounters of geese on humans.

Threats to aviation and waterfowl-aircraft strikes would be expected to increase with increasing goose populations, in particular those in urban and suburban areas. Anxiety among civil aviation pilots, airports, and passengers would also likely increase as these geese become more numerous and visible. Anxiety among military pilots would most likely be highest because of the recent crash and deaths caused by Canada geese.

Attacks on humans by Canada geese would likely increase because of continued growth of geese in urban and suburban habitats.

f. Human Health

While there is considerable debate over the health threat from resident Canada geese, the threat, of disease to humans from contact with goose fecal material would be expected to increase with increased goose population.

g. Costs of Management Program

(1) Administrative Costs

As discussed in section **III.B.1.c.(1) Wildlife Services Program** and **III.B.6.a. Administrative Costs**, Wildlife Services likely does not have sufficient personnel and resources to respond to all requests for assistance. Additionally, the Service's budget for the migratory bird permit program has not kept pace with the rising costs of permit issuance and administration. Typically, the budget allocation falls far below the actual costs for administering program activities. These shortfalls must be subsidized by monies from other program areas. As the number of complaints continues to increase, greater demand likely will be placed on the States to assist in resident Canada goose damage management programs, on the Service to issue permits, on Wildlife Services for technical and in-field assistance, and exacerbate

ongoing funding problems.

Thus, under the "No Action" alternative, with a continuing increase in the numbers of resident Canada geese, the Service will continue to see increases in administrative costs due to likely increases in the requests for, and the issuance of, permits to control resident geese. Likewise, Wildlife Service would also continue to see costs increase as complaints continue to increase.

(2) Monitoring Costs

Monitoring cost would continue as they currently exists. No new costs would be expected. See section **III.B.6.b. Monitoring Costs** for further discussion of current costs.

(3) Other Costs

Costs associated with abating damage from resident Canada geese would be expected to increase with increasing populations of resident Canada geese, especially those borne by landowners experiencing goose conflicts and damage. See section **III.B.6.c. Other Costs** for further discussion of current costs.

B. ALTERNATIVE B - NONLETHAL CONTROL AND MANAGEMENT (Non-permitted activities)

1. Biological Impacts

a. Resident Canada Goose Populations

Under this alternative, take of resident Canada geese, except that occurring in regular hunting seasons, would cease. Given the increasing urbanization of rural areas, abundant food resources, the high survival and fecundity rates of these geese, and the lack of permitted take and special hunting seasons, population growth and distribution expansion would be significantly more pronounced than that under the "No Action" alternative (see section **IV.A.1.a. Resident Canada goose populations**) and would likely continue longer into the foreseeable future. Some areas would see rapid expansion and growth of populations. Without the special seasons annual sport harvest of approximately 520,000 geese in the four Flyways, populations of resident geese in most areas would increase rapidly until they reach the carrying capacity of the environment.

b. Natural Resources

Negative impacts to soil and water resources would continue and increase over those identified under the "No Action" alternative. With significantly more geese, the potential to negatively affect water quality around beaches and wetlands would increase because of the significant increase in the amount of fecal droppings. Additionally, excessive grazing by large numbers of Canada geese would increase erosion along shorelines of ponds and lakes, golf courses, yards, and parks negatively impacting water quality.

c. Other Wildlife Including Federally Protected Species

We would not expect any direct effects on T & E species since "Alternative B" would preclude all

currently permitted management practices and activities that might directly result in the take of geese outside of regular migratory bird hunting seasons. Habitat management and manipulation could, however, indirectly affect some species by the alteration of their habitat to make it less attractive to, or totally exclude, Canada geese.

As for other wildlife, since all permitted actions on geese would be eliminated, impacts of resident Canada geese on other migratory waterfowl would continue and increase more rapidly than under "Alternative A". Resident Canada goose damage to habitat intended for wintering and migrating waterfowl would increase due to growing numbers of birds. Additionally, management of wildlife areas to reduce the suitability for resident Canada geese could reduce habitat for migrant populations of waterfowl.

2. Sociological Impacts

a. Sport Hunting

Sport hunting would be widely affected under "Alternative B", although with increasing resident goose populations, we would expect regular season hunting opportunities in some areas to correspondingly increase. While resident Canada goose populations in areas that are normally targeted for management/control activities under current management are generally those that provide little or no sport-hunting opportunities (due to restricted access within urban/suburban areas where hunting is either precluded or severely restricted) would no longer be subject to permitted management or control activities resulting in take, some of these birds would likely disperse into hunting areas. Areas and resident Canada goose populations already open to sport hunting would be expected to remain open. However, regular Canada goose season frameworks and guidelines would likely become more liberal in an attempt to reduce the numbers of resident Canada geese.

(1) Regular Hunting Seasons

Given expected widespread increases in resident goose populations under this alternative, regular hunting season opportunities would continue to increase before eventually leveling off at some unknown point in the future. Some areas, particularly those near urban and suburban areas where past control actions would no longer be utilized, would likely see rapid growth in the number of geese available to hunting. More pronounced than that seen under current management/control practices ("No Action" alternative), resident Canada goose harvest under "Alternative B" would continue to significantly increase and expand as populations grow. Thus, the regular season sport harvest of resident Canada geese would likely increase under this alternative and become more liberal, although some are already at Treaty limits.

(2) Special Hunting Seasons

Under "Alternative B", all special seasons, associated hunting opportunities, and the annual sport harvest of approximately 520,000 geese in the Flyways, would be eliminated. Currently, special early or late seasons are offered in all four Flyways, with 35 States participating.

b. Migratory Bird Permit Program

Under "Alternative B", there would be significant changes in the migratory bird program of both the

Service and Wildlife Services as the programs shift from issuing permits to control and manage goose/human conflicts (in the case of the Service) and providing direct management activities (in the case of Wildlife Services) to providing only technical assistance.

(1) Wildlife Services Program

Under this alternative, Wildlife Services workload, especially technical assistance, would likely significantly increase as complaints increase with rapidly increasing populations. Wildlife Services would continue to provide technical assistance and recommendations for non-lethal resident Canada goose damage management. Non-lethal direct damage management would continue to be provided by Wildlife Services if requested, funded, and the requested direct damage management was consistent with Wildlife Services policy and federal and State laws. Increasing complaints would also likely translate into increased requests for equipment to deter geese by non-lethal means. The Wildlife Services program would likely have to expand these programs to meet increased demand. Wildlife Services would not intentionally kill any Canada geese because no lethal methods would be allowed.

(2) U.S. Fish and Wildlife Service Program

Under "Alternative B", significantly increased populations of resident Canada geese would likely result in significant increases in complaints and goose/human conflicts. While the Service's workload related to permits would significantly decrease (since no permits would be issued), the workload related to technical assistance would increase dramatically.

(3) State Programs

Under "Alternative B", significantly increased populations of resident Canada geese would likely result in significant increases in complaints and goose/human conflicts. While the States' workload related to permits requests and permit reports would significantly decrease (since no Federal permits would be issued), the workload related to technical assistance would increase dramatically. States participating in the special Canada goose permit program would have to cease all previously permitted management activities related to resident Canada goose problems. Those States that currently have a resident Canada goose damage management program would need additional funding and/or staffing to provide for increases in requests for technical assistance. Other States without a resident Canada goose damage management program would likely look for available funding sources to start one.

c. Social Values and Considerations

(1) Aesthetics

Under "Alternative B", the resident goose population would be expected to rapidly increase compared to the "No Action" alternative. While this increase would provide more public viewing opportunities, it would also likely result in a probable divergence on the aesthetic value of geese, as seen by the public. Some individuals or groups would consider a large increase in the resident goose population aesthetically pleasing. Others experiencing goose damage would most likely find the change aesthetically displeasing. The negative aesthetic problems associated with large numbers of geese, i.e., droppings, feathers, etc. would also significantly increase. Resource owners would bear the aesthetic damage caused by Canada geese. See section **IV.A.2.c.(1) Aesthetics**.

(2) Recreational Use of Impacted Areas

Since goose populations would continue to rapidly increase, recreational areas would continue to be impacted, especially those located in urban and suburban environments. Additional parks and recreational areas, such as athletic fields, would likely be impacted as goose populations and goose distribution expand.

(3) Animal Rights and Humaneness

No lethal control, including egg addling, would be allowed under this alternative. However, given the likely higher frustration levels among affected resource and property owners, there would be increased concern among all parties, including affected resource owners, if other parties or people took independent illegal action to capture, harass, or kill problem Canada geese. For example, in June of 2001, several resident Canada geese were decapitated and placed on the doorstep of an outspoken animal protectionist in suburban Maryland (The Washington Times, 2001).

d. Economic Considerations

(1) Residential, Commercial, and Public Property

Under this alternative, impacts to private and public property would be expected to increase more rapidly than under any other alternatives. In the absence of any permitted resident goose management, damage complaints related to fecal droppings and turf damage in urban and suburban areas, such as parks, public swimming beaches, golf courses, schools, athletic facilities, cemeteries, corporate business areas, and college campuses would all be expected to significantly increase with rapidly increasing numbers of geese. Conflicts with humans would likely become more pronounced than the current situation ("No Action" alternative).

(2) Agricultural Crops

Impacts to agricultural crops would be expected to continue and rapidly increase under "Alternative B". Agricultural losses to small grain, peanut, corn, livestock, and forage (hay) producers would likely significantly increase. In those areas where regular season hunting is limited by regulation or where special seasons were eliminated, such as rural areas, populations will increase at a greater rate than urban areas since rural populations were likely being reduced to some extent by special seasons. We would expect the increased numbers of geese in more rural areas to exacerbate existing agricultural conflicts.

e. Human Safety

Significantly more geese would negatively impact human safety issues. A larger goose population translates to an increased risk of goose - aircraft strikes to commercial and military aviation and a greater incidence of attacks on children. See section **IV.A.2.e. Human Safety**.

f. Human Health

The threat of disease transmission to humans from contact with goose fecal material would be expected to significantly increase since the quantity of fecal material correspondingly would likely significantly

increase with rapid population increases. See section **IV.A.2.f. Human Health**.

g. Costs of Management Program

(1) Administrative Costs

Under this alternative, resident goose populations would be expected to significantly increase and would likely result in significant increases in complaints and goose/human conflicts. Thus, more complaints and conflicts would likely result in an increased requests for assistance and complaints, and greater demand likely will be placed on Wildlife Services for technical and in-field assistance.

As discussed in section **IV.B.2.b.(1) Wildlife Services Program**, under this alternative, Wildlife Services would continue to provide technical assistance and recommendations for non-lethal resident Canada goose damage management by deterring geese using non-lethal methods to reduce damage. Workload related to technical assistance would increase significantly and dramatically. Significant increase in Wildlife Service's technical assistance budget would be necessary. For example, Ohio estimates that the average landowner spent $350 annually trying to keep resident geese off their property, while the South Dakota Department of Game, Fish, and Parks expended over 4,690 man-hours and $183,000 in equipment and supplies in 1999 to combat resident Canada goose damage. Nationwide, we conservatively expect costs to be in excess of 164,000 man-hours and $6.4 million in equipment and supplies (based on providing services in 35 States) just to cover agricultural depredation expenses.

The Service's workload related to permits would significantly decrease since no permits would be issued.

(2) Monitoring Costs

Monitoring costs would generally continue as they currently exist and no new costs would be expected. However, since no permits would be issued under this alternative and special seasons would be eliminated, there would be little State incentive to closely monitor resident Canada goose population status. Thus, some States would likely abolish, or significantly reduce, population monitoring surveys from current levels. See section **III.B.6.b. Monitoring Costs** for further discussion of current costs.

(3) Other Costs

Costs associated with abating damage from resident Canada geese would be expected to increase with increasing populations of resident Canada geese. Landowners would likely request some sort of financial assistance to defray damage management costs. See section **III.B.6.c. Other Costs** for further discussion of current costs.

C. ALTERNATIVE C - NONLETHAL CONTROL AND MANAGEMENT (Permitted activities)

1. Biological Impacts

a. Resident Canada Goose Populations

Under this alternative, all permitted take of resident Canada geese, except that occurring on nests and

eggs, would cease. As such, given the previously identified factors affecting growth of these populations (increasing urbanization, abundant food resources, high survival and fecundity rates), and the lack of permitted take, population growth and distribution expansion would be more pronounced than that under the "No Action" alternative (see section **IV.A.1.a. Resident Canada goose populations**), but likely less pronounced than that predicted under "Alternative B" (see section **IV.B.1.a. Resident Canada Goose Populations**). Some areas not conducive to nest and egg destruction management (i.e., dispersed nesting areas, large areas, or thick cover) would see expansion of populations.

In those areas subject to intensive nest and egg removal methods, some temporary localized relief from brood concentrations could take place. However, we estimate the overall effect on populations would be limited. Nest manipulations are labor intensive, do little to reduce the overall population size, require repeated annual treatments, and are not favored by the general public (Coluccy et al. 2001; Smith et al. 1999). To equal the effect of removing an adult bird from a population, all eggs produced by that goose during its entire lifetime must be removed (Smith et al. 1999). Furthermore, egg removal efforts must be nearly complete in order to prevent recruitment from a small number of surviving nests that would offset control efforts (Smith et al. 1999).

Available resident Canada goose modeling recently completed in Missouri (Coluccy 2000; Coluccy and Graber, 2000), when extrapolated to the entire Mississippi Flyway, indicates that to maintain a stable population of resident Canada geese would require the removal of an additional 242,000 nests per year over that which is already taking place in the Flyway. To reduce the Mississippi Flyway's resident population from the current 1,335,683 geese to the Flyway Council's goal of 989,000 geese would require a Flyway-wide nest removal of 264,000 nests annually for 10 years. Nest removal numbers in the Atlantic Flyway, where the resident Canada goose population is even further above established Flyway goals, would be even greater.

Although regular and special season sport harvest would continue under "Alternative C", and take of nests and eggs would be allowed and encouraged, populations of resident geese would likely continue to increase until they reach the carrying capacity of the environment. Further, even if complete egg removal could be achieved at a site, the large number of adult birds remaining in the population would continue to create conflicts and degrade habitats.

b. Natural Resources

Similar to that discussed in section **IV.B.1.b. Natural Resources** as some resident goose populations would remain stable while others increase.

c. Other Wildlife Including Federally Protected Species

Similar to that discussed in section **IV.B.1.c. Other Wildlife Including Federally Protected Species**.

2. Sociological Impacts

a. Sport Hunting

(1) Regular Hunting Seasons

See section **IV.B.2.a.(1) Regular Hunting Seasons**.

(2) Special Hunting Seasons

See section **IV.A.2.a.(2) Special Hunting Seasons**.

b. Migratory Bird Permit Program

(1) Wildlife Services Program

See section **IV.B.2.b.(1) Wildlife Services Program**.

(2) U.S. Fish and Wildlife Service Program

Similar to that discussed in section **IV.B.2.b.(2) U.S. Fish and Wildlife Service Program** as most permit issuance would be eliminated.

(3) State Programs

Similar to that discussed in section **IV.B.2.b.(3) State Programs** as most Federal permit issuance would be eliminated.

c. Social Values and Considerations

(1) Aesthetics

See section **IV.B.2.c.(1) Aesthetics**.

(2) Recreational Use of Impacted Areas

See section **IV.B.2.c.(2) Recreational Use of Impacted Areas**.

(3) Animal Rights and Humaneness

Similar to that discussed in section **IV.B.2.c.(3) Animal Rights and Humaneness** as there would be significantly less permitted impacts that the current program ("No Action") on adult birds. However, nest and egg destruction activities would increase significantly.

d. Economic Considerations

(1) Residential, Commercial, and Public Property

See section **IV.B.2.d.(1) Residential, Commercial, and Public Property**.

(2) Agricultural Crops

See section **IV.B.2.d.(2) Agricultural Crops**.

e. Human Safety

See section **IV.B.2.e. Human Safety**.

f. Human Health

See section **IV.B.2.f. Human Health**.

g. Costs of Management Program

(1) Administrative Costs

Costs similar to those discussed in section **IV.B.2.g.(1) Administrative Costs**.

(2) Monitoring Costs

No new costs. See section **IV.A.2.g.(2) Monitoring Costs**.

(3) Other Costs

Similar to that discussed in section **IV.B.2.g.(1) Other Costs**. In addition, Cooper and Keefe (1997) estimated that removal costs in Minnesota are $6.38 per egg. Using the Minnesota egg removal cost estimate for the entire Mississippi Flyway translates to (264,000 nests X 6.0 eggs per nest X $6.38 per egg) $10.1 million per year to induce population decline in the Flyway. Expanding this program over the necessary 10 year time period (see section **IV.C.1.a. Resident Canada Goose Populations**) to all Flyways would result in hundreds of millions of dollars in expenditures.

D. ALTERNATIVE D - INCREASED HUNTING

1. Biological Impacts

a. Resident Canada Goose Populations

Under the "Increased Hunting" alternative, population growth and distribution would be less pronounced than that under the "No Action" alternative (see section **IV.A.1.a. Resident Canada goose populations**). However, in urban and suburban areas not open to hunting seasons (and where the majority of goose/human conflicts occur), resident populations would likely continue increasing until ultimately limited by available food, water, sanctuary, or other resource needs. Areas not conducive to hunting would see continued expansion and growth, albeit at a lower rate than under the "No Action" alternative,

of resident goose populations until they reach the carrying capacity of the their environment.

In those areas open to expanded hunting methods, some localized population reductions could take place. However, we estimate the overall effect would be limited. Available information on the use of additional hunting methods, such as electronic calls, unplugged shotguns, and expanded shooting hours, during the special light goose seasons indicate that harvest increased approximately 50 - 69 percent (U.S. Fish and Wildlife Service, 2001b). However, this increase was attributable in large part to the Light Goose Conservation Order which authorized additional days of hunting outside the regular hunting season frameworks (September 1 - March 10). A more conservative estimate of the percentage increase in harvest attributable to the use of additional hunting methods within the hunting season frameworks would be 25 percent. Given a total special season harvest of approximately 520,000 geese, a 25 percent increase in special season harvest would only result in the harvest of an additional 130,000 Canada geese each year. A 50 percent increase in special season harvest would result in an additional 260,000 geese annually.

Current resident Canada goose modeling recently completed in Missouri (Coluccy 2000; Coluccy and Graber, 2000), when extrapolated to the entire Mississippi Flyway, indicates that to maintain a stable population of resident Canada geese would require the harvest of an additional 200,000 geese per year over that already occurring. To reduce the Mississippi Flyway's resident population from the current 1,335,683 geese to the Flyway Council's goal of 989,000 geese would require an additional harvest of 240,000 geese annually for 10 years. Harvest numbers in the Atlantic Flyway, where the resident Canada goose population is even further above established Flyway goals, would be even greater. Thus, to maintain a stable population in the Atlantic and Mississippi Flyways, an additional annual harvest in excess of 400,000 resident Canada geese would be required in these two Flyways alone.

b. Natural Resources

See section **IV.A.1.b. Natural Resources**.

c. Other Wildlife Including Federally Protected Species

Since expanded hunting methods within the Treaty frameworks would be the only additionally authorized management tool from those currently allowed, we would not expect any new effects on T & E species. Potential effects on T & E species during migratory bird hunting seasons, including Canada goose seasons, are annually considered as part of the hunting regulation establishment process. See section **III.A.4. Other Wildlife Including Federally Protected Species** for a further discussion of current effects on T & E species.

Most other resident Canada goose management would continue under current practices and conditions. Given that any goose damage management requiring the capture, relocation, or take of geese would continue to require a Federal permit, conditions in the permit would preclude any new adverse effects on T & E species. See section **IV.A.1.c. Other Wildlife Including Federally Protected Species** for further discussion.

2. Sociological Impacts

a. Sport Hunting

The general public has traditionally accepted hunting as a viable management alternative for controlling most wildlife populations. In central Missouri, Coluccy et al. (2001) found that traditional firearms hunting was generally viewed favorably (and actually received the highest approval) among respondents presented with various lethal and non-lethal resident goose management alternatives.

(1) Regular Hunting Seasons

See section **IV.A.2.a.(1) Regular Hunting Seasons**.

(2) Special Hunting Seasons

Under the "Increased Hunting" alternative, special season resident Canada goose hunting opportunities would increase. This alternative would provide new regulatory options to State wildlife management agencies to potentially increase the harvest of resident Canada geese above that which results from existing special Canada goose seasons that target resident Canada geese. This approach would authorize the use of additional hunting methods such as electronic calls, unplugged shotguns, and expanded shooting hours (one-half hour after sunset). During existing, operational, special September Canada goose seasons (i.e., September 1-15), these additional hunting methods would be available for use on an operational basis. Utilization of these additional hunting methods during any new special seasons or other existing, operational special seasons (i.e., September 15 -30) would be experimental and require demonstration of a minimal impact to migrant Canada goose populations. These experimental seasons would be authorized on a case-by-case basis through the normal migratory bird hunting regulatory process.

All expanded hunting methods and opportunities would be in accordance with the existing Migratory Bird Treaty frameworks for sport hunting seasons (i.e, 107 day limit from September 1 to March 10) and would be conducted outside of any other open waterfowl season (i.e., when *all other waterfowl and crane seasons were closed*).

Available information from the use of additional hunting methods, such as electronic calls, unplugged shotguns, and expanded shooting hours, during the special light goose seasons indicate that total harvest increased approximately 50 - 69 percent (U.S. Fish and Wildlife Service, 2001b). On specific days when light goose special regulations were in effect, the mean light goose harvest increased 244 percent (U.S. Fish and Wildlife Service, 2001b). However, this increase was attributable in large part to the Light Goose Conservation Order which authorized additional days of hunting outside the regular hunting season frameworks (September 1 - March 10). Olsen and Afton (2000) found that lesser snow goose flocks were 5.0 times more likely to fly within gun range ($\leq$50 meters) in response to electronic calls than to traditional calls and the mean number of snow geese killed per hour per hunter averaged 9.1 times greater for electronic calls than for traditional calls.

We believe a more conservative estimate of the percentage increase in harvest attributable to the use of additional hunting methods within the hunting season frameworks would be 25 percent. Given a total special season harvest of approximately 520,000 geese, a 25 percent increase in special season harvest

would only result in the harvest of an additional 130,000 Canada geese each year. A 50 percent increase in special season harvest would result in an additional 260,000 geese annually. Neither of these estimates would solely achieve the desired population stabilization or reduction (see section **IV.D.1.a. Resident Canada goose populations**).

b. Migratory Bird Permit Program

(1) Wildlife Services Program

Similar, but overall less pronounced, to that discussed under the "No Action" alternative in section **IV.A.2.b.(1) Wildlife Services Program**, especially in those urban and suburban areas not open to increased hunting.

(2) U.S. Fish and Wildlife Service Program

Similar, but overall less pronounced, to that discussed under the "No Action" alternative in section **IV.A.2.b.(2) U.S. Fish and Wildlife Service Program**, especially in those urban and suburban areas not open to increased hunting.

(3) State Programs

Similar, but overall less pronounced, to that discussed under the "No Action" alternative in section **IV.A.2.b.(3) State Program**, especially in those urban and suburban areas not open to increased hunting. Areas open to increased hunting would likely see fewer requests for technical assistance and management activities.

c. Social Values and Considerations

(1) Aesthetics

Similar, but overall less pronounced, to that discussed under the "No Action" alternative in section **IV.A.2.c.(1) Aesthetics**, especially in those urban and suburban areas not open to increased hunting.

(2) Recreational Use of Impacted Areas

Similar, but overall less pronounced, to that discussed under the "No Action" alternative in section **IV.A.2.c.(2) Recreational Use of Impacted Areas**, especially in those urban and suburban areas not open to increased hunting.

(3) Animal Rights and Humaneness

See section **IV.A.2.c.(3) Animal Rights and Humaneness**.

d. Economic Considerations

(1) Residential, Commercial, and Public Property

See section **IV.A.2.d.(1) Residential, Commercial, and Public Property**.

(2) Agricultural Crops

Similar, but significantly less pronounced, to that discussed under the "No Action" alternative in section **IV.A.2.d.(2) Agricultural Crops**, as most agricultural areas would be open to increased hunting.

e. Human Safety

See section **IV.A.2.e. Human Safety**.

f. Human Health

See section **IV.A.2.f. Human Health**.

g. Costs of Management Program

(1) Administrative Costs

Similar to that discussed in section **IV.A.2.g.(1) Administrative Costs**.

(2) Monitoring Costs

No new costs. See section **IV.A.2.g.(2) Monitoring Costs**.

(3) Other Costs

Similar to that discussed under "Alternative B" in section **IV.B.2.g.(3) Other Costs**.

E. ALTERNATIVE E - INTEGRATED DEPREDATION ORDER MANAGEMENT

Under this alternative, any one or all of the four strategies, the Airport Depredation Order, the Nest and Egg Depredation Order, the Agricultural Depredation Order, and the Public Health Depredation Order, could be implemented by the State. The Orders would be for resident Canada goose populations only and, as such, in order to ensure protection of migrant Canada goose populations, could only be implemented between April 1 and August 31, except for the Nest and Egg Depredation Order which would allow the additional take of nests and eggs in March.. In addition to these specific strategies, we would continue the use of special and regular hunting seasons, issued under 50 CFR §20, and the issuance of depredation permits and special Canada goose permits, issued under 50 CFR §§21.41 and 21.26, respectively.

1. **Airport Depredation Order**

a. Biological Impacts

(1) Resident Canada Goose Populations

Similar to that discussed under the "No Action" alternative in section **IV.A.1.a. Resident Canada goose populations**. However, some localized significant goose population reductions could occur at or near participating airports.

(2) Natural Resources

Similar to that discussed under the "No Action" alternative in section **IV.A.1.b. Natural Resources**. However, some localized significant reductions in natural resource impacts caused by resident Canada geese at or near airports.

(3) Other Wildlife Including Federally Protected Species

See section **IV.A.1.c. Other Wildlife Including Federally Protected Species**. Most goose damage management activities would continue as they currently exist, however, likely increases in localized goose management activities would occur at or near participating airports. These activities could increase the potential for effects on T & E species over that in the "No Action" alternative. However, in general, all management activities authorized under this alternative are currently being implemented at airports under permitted actions. Entities and individuals authorized to conduct management activities under this alternative would be required to report the take of any T & E species to the Service immediately.

b. Sociological Impacts

(1) Sport Hunting

(a) Regular Hunting Seasons

See section **IV.A.2.a.(1) Regular Hunting Seasons**.

(b) Special Hunting Seasons

See section **IV.A.2.a.(2) Special Hunting Seasons**.

(2) Migratory Bird Permit Program

(a) Wildlife Services Program

Establishment of an Airport Depredation Order would result in an initial increase in Wildlife Services' workload in two areas. First, all airports wishing to participate would be required to establish a non-lethal resident Canada goose harassment program. These programs would most likely be developed in cooperation and consultation with Wildlife Services. Second, following establishment of a non-lethal

harassment program, Wildlife Services would be required to certify the program before an airport could begin management actions under the Order. Once the programs are established, a subsequent Wildlife Services' workload reduction would likely result.

Most other workload regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(1) Wildlife Services Program**. However, it is possible that aggressive hazing programs at airports could translate to localized increases in goose complaints and conflicts, especially in urban areas near airports as these geese seek more protected areas.

(b) U.S. Fish and Wildlife Service Program

Most workload regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(2) U.S. Fish and Wildlife Service Program**. However, there would be a significant reduction in workload associated with permits for geese at airports. It is also possible that aggressive hazing programs at airports could translate to localized increases in goose complaints and conflicts, especially in urban areas near airports as these geese seek more protected areas.

(c) State Programs

Most workload regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(2) State Programs**. While there would be a significant reduction in workload associated with geese at airports, most States do not handle airport related problems but refer management activities in these areas to Wildlife Services. It is also possible that aggressive hazing programs at airports could translate to localized increases in goose complaints and conflicts, especially in urban areas near airports as these geese seek more protected areas.

(3) Social Values and Considerations

(a) Aesthetics

Similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(1) Aesthetics**. However, some localized significant reductions in resident Canada goose viewing opportunities could occur at or near airports.

(b) Recreational Use of Impacted Areas

Similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(2) Recreational Use of Impacted Areas**. However, some possible increases in resident Canada goose numbers at recreational areas, such as athletic fields, public swimming lakes, and parks, could occur as aggressive hazing of birds at participating airports causes displacement of geese to other protected areas near airports.

(c) Animal Rights and Humaneness

Similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(3) Animal Rights and Humaneness**, however, some increased impact on resident Canada geese at or near airports.

(4) Economic Considerations

(a) Residential, Commercial, and Public Property

Similar to that discussed under the "No Action" alternative in section **IV.A.2.d.(1) Residential, Commercial, and Public Property**. However, some possible increases in resident Canada goose numbers at sites near airports could occur as aggressive hazing of birds at participating airports causes displacement of geese to other protected areas near airports.

(b) Agricultural Crops

Similar to that discussed under the "No Action" alternative in section **IV.A.2.d.(2) Agricultural Crops** with some possible increases in resident Canada goose numbers at agricultural sites around airports as aggressive hazing of birds at participating airports causes displacement of geese to other protected areas near airports.

(5) Human Safety

Under an Airport Depredation Order there would be significantly less resident Canada goose impacts at airports. Airports would be authorized to establish and implement a resident Canada goose management program that includes indirect and/or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping and culling programs, or other general population reduction strategies on resident Canada goose populations posing threats to airport safety. Establishment of an Airport Depredation Order would significantly reduce the risk of goose-aircraft strikes at those airports participating in the depredation order.

Other human safety issue impacts would be similar to that discussed in section **IV.A.2.e. Human Safety** with some possible increases in resident Canada goose numbers at sites surrounding airports as aggressive hazing of birds at participating airports would likely cause displacement of geese to other protected areas near airports.

(6) Human Health

Similar to that discussed in section **IV.A.2.f. Human Health** with some possible increases in resident Canada goose numbers at sites around airports as aggressive hazing of birds at participating airports causes displacement of geese to other protected areas near airports.

(7) Costs of Management Program

(a) Administrative Costs

Overall, Wildlife Services and Service costs remain largely unaffected and similar to that discussed in section **IV.A.2.g.(1) Administrative Costs**. Wildlife Services would see an initial workload cost increase in establishing non-lethal harassment programs at airports.

(b) Monitoring Costs

No new costs. See section **IV.A.2.g.(2) Monitoring Costs**.

(c) Other Costs

Implementation of a Airport Depredation Order for resident Canada geese would result in significant savings to the aircraft industry, however, to what extent we are unsure. Canada geese, according to data from the National Wildlife Strike Database, 1991 to 1998, caused some damage in over 56 percent of reported goose strikes, and either destroyed or substantially damaged planes in 21.4 percent of reported goose strikes (Dolbeer et al. 2000). Where cost was estimated, the mean cost per goose strike was $257,144 (Dolbeer et al. 2000). It is further estimated that only 20 - 25 percent of all bird strikes are reported (Conover et al. 1995, Dolbeer et al. 1995, Linnell et al. 1996, Linnell et al. 1999), hence the number of strikes involving Canada geese is likely greater than Federal Aviation Administration records show. For further discussion see section **III.B.4.a. Airports**.

Other costs would be similar to that discussed in section **IV.A.2.g.(1) Administrative Costs**.

2. **Nest and Egg Depredation Order**

a. Biological Impacts

(1) Resident Canada Goose Populations

Under this alternative, all permitted take of resident Canada geese nests and their eggs would be allowed without a permit. Impacts would be similar to that discussed under the "No Action" alternative and "Alternative C" in sections **IV.A.1.a. Resident Canada goose populations** and **IV.C.1.a. Resident Canada goose populations**, respectively.

In those areas subject to intensive nest and egg removal methods, some localized reductions in goose population growth rates and some localized gradual population stabilizations could occur depending on the local aggressiveness of nest and egg addling programs. However, as we estimated under "Alternative C" in section **IV.C.1.a. Resident Canada goose populations**, the overall effect would be limited.

An examination of Region 5 permit data from 1995-99 shows that although the Service authorized the take of eggs in approximately 15,000 nests per year (74,912 total nests), the reported take was only about 13 percent, or roughly 2,000 nests per year (**Appendix 11**). In Region 3 (Midwest/Great Lakes), 1999 data shows that permits authorized control actions in over 4,000 nests, however the reported take was less than 50 percent (**Appendix 11**). We believe that even with a Nest and Egg Depredation Order, it would not be possible to increase this figure over 130 fold in both the Mississippi and Atlantic Flyways. Thus, the resident goose population impact of this Depredation Order would be minimal, at anything other than a localized level.

(2) Natural Resources

Similar to that discussed under the "No Action" alternative in section **IV.A.1.b. Natural Resources**.

Some localized gradual reductions in natural resource impacts caused by resident Canada geese at localized areas subjected to continued nest and egg addling actions.

(3) Other Wildlife Including Federally Protected Species

See section **IV.A.1.c. Other Wildlife Including Federally Protected Species**. Some localized gradual reductions in impacts caused by resident Canada geese to other species at localized areas subjected to continued nest and egg addling actions. Additionally, most other goose damage management activities would continue as they currently exist. These activities could increase the potential for effects on T & E species over that in the "No Action" alternative. However, in general, all management activities authorized under this alternative are currently being implemented under permitted actions. Entities and individuals authorized to conduct management activities under this alternative would be required to report the take of any T & E species to the Service immediately.

b. Sociological Impacts

(1) Sport Hunting

(a) Regular Hunting Seasons

See section **IV.A.2.a.(1) Regular Hunting Seasons**.

(b) Special Hunting Seasons

See section **IV.A.2.a.(2) Special Hunting Seasons**.

(2) Migratory Bird Permit Program

(a) Wildlife Services Program

Although some localized population growth rates would gradually decline, most workload regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(1) Wildlife Services Program**.

(b) U.S. Fish and Wildlife Service Program

Under this alternative, there would be a significant reduction in workload associated with permits for nest and egg destruction. For example, in Region 5 (Northeastern/New England area), the Service issued 1,268 permits from 1995-99 authorizing control activities on resident Canada goose nests (see section **III.B.1.c.(2) U.S. Fish and Wildlife Service** for further information).

Most other workload regarding resident Canada geese would be largely unaffected and similar to that discussed in section **IV.A.2.b.(2) U.S. Fish and Wildlife Service Program**.

(c) State Programs

Although some localized population growth rates would gradually decline, most workload regarding

resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(3) State Programs**.

(3) Social Values and Considerations

(a) Aesthetics

In the short-term, public viewing opportunities would see little impact and the problems associated with large numbers of geese, i.e., droppings, feathers, etc. would likely continue. In the long-term, impacts would be similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(1) Aesthetics**. Some localized reductions in resident Canada goose viewing opportunities could occur and some of the associated aesthetic problems with too many geese could decrease as populations gradually decrease.

(b) Recreational Use of Impacted Areas

In the short-term, impacts would continue. In the long-term, some localized goose population reductions would result in reduced levels of impacts. Overall, similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(2) Recreational Use of Impacted Areas**.

(c) Animal Rights and Humaneness

See section **IV.A.2.c.(3) Animal Rights and Humaneness**. Those opposed to the take of geese would support this alternative, however, other permitted actions and sport hunting seasons would continue to be allowed under this alternative and those actions would be opposed by this same group.

(4) Economic Considerations

(a) Residential, Commercial, and Public Property

Continued impacts and conflicts until localized goose populations gradually level off at reduced levels. At which point, impacts likely lessen. Overall, similar to that discussed under the "No Action" alternative in section **IV.A.2.d.(1) Residential, Commercial, and Public Property**.

(b) Agricultural Crops

Since the management actions approved under the Depredation Order would most likely target geese in urban and suburban areas, impacts to agricultural areas would continue and be similar to that discussed under the "No Action" alternative in section **IV.A.2.d.(2) Agricultural Crops**.

(5) Human Safety

Continued impacts. Assuming uninterrupted continuation of the program over a significant number of years (over 10), problem goose populations would gradually level off at reduced levels. At which point, some localized impacts probably lessen. Overall, similar to that discussed under the "No Action" alternative in section **IV.A.2.e. Human Safety**.

(6) Human Health

In the short-term, impacts would continue and the potential problems associated with large numbers of geese would likely also continue. In the long-term, impacts would be similar to that discussed under the "No Action" alternative in section **IV.A.2.f. Human Health**, although some localized reductions in resident Canada geese could occur and some of the associated potential health problems could decrease as populations gradually decrease.

(7) Costs of Management Program

(a) Administrative Costs

Overall, Wildlife Services and Service costs remain largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.g.(1) Administrative Costs**. The Service would see a slight reduction in costs associated with permit issuance for nest and egg destruction.

(b) Monitoring Costs

No significant new costs. See section **IV.A.2.g.(2) Monitoring Costs**.

(c) Other Costs

Similar to that discussed under the "No Action" alternative and "Alternative C" in section **IV.A.2.g.(2) Other Costs** and **IV.C.2.g.(2) Other Costs**, respectively.

3. **Agricultural Depredation Order**

a. Biological Impacts

(1) Resident Canada Goose Populations

Similar to that discussed under the "No Action" alternative in section **IV.A.1.a. Resident Canada goose populations**. However, some localized goose population reductions could occur at or near participating agricultural areas.

(2) Natural Resources

Similar to that discussed under the "No Action" alternative in section **IV.A.1.b. Natural Resources**. However, some localized significant reductions in natural resource impacts caused by resident Canada geese at or near participating agricultural areas.

(3) Other Wildlife Including Federally Protected Species

See section **IV.A.1.c. Other Wildlife Including Federally Protected Species**. In general, most goose damage management activities would continue as they currently exist, however, there would be likely increases in goose management activities at or near participating agricultural areas. While these activities could increase the potential for effects on T & E species over that in the "No Action"

alternative, all management activities authorized under this alternative are currently being implemented under depredation permits (although not to the number or extent authorized under this alternative) . Entities and individuals authorized to conduct management activities under this alternative would be required to report the take of any T & E species to the Service immediately.

b. Sociological Impacts

(1) Sport Hunting

(a) Regular Hunting Seasons

See section **IV.A.2.a.(1) Regular Hunting Seasons**.

(b) Special Hunting Seasons

See section **IV.A.2.a.(2) Special Hunting Seasons**.

(2) Migratory Bird Permit Program

(a) Wildlife Services Program

Establishment of an Agricultural Depredation Order would result in an initial increase in Wildlife Services' workload in two areas. First, all agricultural areas wishing to participate would be required to establish a non-lethal resident Canada goose harassment program. These programs would most likely be developed in cooperation and consultation with Wildlife Services. Second, following establishment of a non-lethal harassment program, Wildlife Services would be required to certify the program before an area could begin management actions under the Order. Once the programs are established, a subsequent workload reduction would likely result.

Most other workloads regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(1) Wildlife Services Program**. However, it is possible that aggressive hazing programs at agricultural areas could translate to localized increases in goose complaints and conflicts, especially in urban areas near these areas as these geese seek more protected areas.

(b) U.S. Fish and Wildlife Service Program

Most workload regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(2) U.S. Fish and Wildlife Service Program**. However, there would be a significant reduction in workload associated with permits for depredating geese in agricultural areas. It is also possible that aggressive hazing programs at agricultural areas could translate to localized increases in goose complaints and conflicts, especially in urban areas near agricultural areas as these geese seek more protected areas.

(c) State Programs

Most workload regarding resident Canada geese would be largely unaffected and similar to that discussed

under the "No Action" alternative in section **IV.A.2.b.(3) State Programs**. However, there would be a significant reduction in workload associated with depredating geese in agricultural areas. It is also possible that aggressive hazing programs at agricultural areas could translate to localized increases in goose complaints and conflicts, especially in urban areas near agricultural areas as these geese seek more protected areas.

(3) Social Values and Considerations

(a) Aesthetics

Similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(1) Aesthetics**. However, some localized significant reductions in resident Canada goose viewing opportunities could occur at or near participating agricultural areas.

(b) Recreational Use of Impacted Areas

Similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(2) Recreational Use of Impacted Areas**. Some possible increases in resident Canada goose numbers at recreational areas, such as athletic fields, public swimming lakes, and parks, could occur as aggressive hazing of birds at participating agricultural areas causes displacement of geese to other protected areas near agricultural areas.

(c) Animal Rights and Humaneness

Similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(3) Animal Rights and Humaneness**, however, some increased impact on resident Canada geese at or near agricultural areas.

(4) Economic Considerations

(a) Residential, Commercial, and Public Property

Similar to that discussed under the "No Action" alternative in section **IV.A.2.d.(1) Residential, Commercial, and Public Property**. Some possible increases in resident Canada goose numbers at recreational, commercial, and public sites around agricultural areas could occur as aggressive hazing of birds at participating agricultural areas causes displacement of geese to other protected areas near agricultural areas.

(b) Agricultural Crops

Under an Agricultural Depredation Order there would be significantly less resident Canada goose impacts at participating agricultural sites. Landowners, operators, and tenants actively engaged in the production of commercial agriculture (or their employees or agents) would be authorized to conduct indirect and/or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping and culling programs, or other general population reduction strategies on resident Canada goose populations when found committing or about to commit depredations to agricultural crops.

In States such as Maryland, Virginia, Massachusetts, New York, Pennsylvania, Minnesota, South Dakota, North Dakota, and Oklahoma, resident Canada geese are causing significant agricultural damage. Collectively, resident Canada geese caused over $3.0 million in damages last year in these States alone (see section **III.B.3.b. Agricultural Crops**). Establishment of an Agricultural Depredation Order would significantly reduce goose depredation at those commercial agriculture sites participating in the depredation order.

Other agricultural impacts would be similar to that discussed under the "No Action" alternative in section **IV.A.2.d.(2) Agricultural Crops** with some possible increases in resident Canada goose numbers at nonparticipating sites around these agricultural areas as aggressive hazing of birds at participating sites would likely cause displacement of geese to other protected areas.

(5) Human Safety

Similar to that discussed under the "No Action" alternative in section **IV.A.2.e. Human Safety** with some possible increases in resident Canada goose numbers at sites around agricultural areas, such as airports, as aggressive hazing of birds at participating agricultural areas causes displacement of geese to other protected areas near agricultural areas.

(6) Human Health

Similar to that discussed under the "No Action" alternative in section **IV.A.2.f. Human Health** with some possible increases in resident Canada goose numbers at sites around agricultural areas as aggressive hazing of birds at participating agricultural areas causes displacement of geese to other protected areas near agricultural areas.

(7) Costs of Management Program

(a) Administrative Costs

Overall, Wildlife Services and Service costs remain largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.g.(1) Administrative Costs**. Wildlife Services would see an initial increase in establishing non-lethal harassment programs at agricultural areas.

(b) Monitoring Costs

No significant new costs. See section **IV.A.2.g.(2) Monitoring Costs**.

(c) Other Costs

Implementation of a Agricultural Depredation Order for resident Canada geese would undoubtably result in significant savings to the agricultural industry, however, to what extent we are unsure. Canada geese caused over $3.0 million in damages last year in States such as Maryland, Virginia, Massachusetts, New York, Pennsylvania, Minnesota, South Dakota, North Dakota, and Oklahoma (see section **III.B.3.b. Agricultural Crops**). Establishment of an Agricultural Depredation Order would significantly reduce goose depredation at those commercial agriculture sites participating in the depredation order.

Other costs would be similar to that discussed under the "No Action" alternative in section **IV.A.2.g.(1) Administrative Costs**.

4. **Public Health Depredation Order**

a. Biological Impacts

(1) Resident Canada Goose Populations

Similar to that discussed under the "No Action" alternative in section **IV.A.1.a. Resident Canada goose populations**. However, some localized significant goose population reductions could occur at sites recommended by public health officials as public health threats.

(2) Natural Resources

Similar to that discussed under the "No Action" alternative in section **IV.A.1.b. Natural Resources**. However, some localized significant reductions in natural resource impacts caused by resident Canada geese at or near sites recommended by public health officials as public health threats.

(3) Other Wildlife Including Federally Protected Species

See section **IV.A.1.c. Other Wildlife Including Federally Protected Species**. In general, most goose damage management activities would continue as they currently exist, however, there would be likely increases in localized goose management activities at or near participating areas of public health concern. While these activities could increase the potential for effects on T & E species over that in the "No Action" alternative, all management activities authorized under this alternative are currently being allowed under Service-permitted actions. Entities and individuals authorized to conduct management activities under this alternative would be required to report the take of any T & E species to the Service immediately.

b. Sociological Impacts

(1) Sport Hunting

(a) Regular Hunting Seasons

See section **IV.A.2.a.(1) Regular Hunting Seasons**.

(b) Special Hunting Seasons

See section **IV.A.2.a.(2) Special Hunting Seasons**.

(2) Migratory Bird Permit Program

(a) Wildlife Services Program

Establishment of a Public Health Depredation Order would result in an initial increase in Wildlife Services' workload. Workload increases would likely come in two areas. First, all public health areas of concern wishing to participate would be required to establish a non-lethal resident Canada goose harassment program. These programs would most likely be developed in cooperation and consultation with Wildlife Services. Second, following establishment of a non-lethal harassment program, Wildlife Services would be required to certify the program before a site could begin management actions under the Order. Once the programs are established, a subsequent workload reduction would likely result.

Most other workloads regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(1) Wildlife Services Program**. However, it is possible that aggressive hazing programs at these specific sites could translate to localized increases in goose complaints and conflicts, especially in other protected areas close by as these geese seek more protected areas.

(b) U.S. Fish and Wildlife Service Program

Most workloads regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(2) U.S. Fish and Wildlife Service Program**. However, there would be a significant reduction in workload associated with permits for geese causing public health concerns. It is also possible that aggressive hazing programs at these sites could translate to localized increases in goose complaints and conflicts, especially in other urban areas near these sites as these geese seek more protected areas.

(c) State Programs

Most workloads regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(3) State Programs**. However, there would be a significant reduction in workload associated with geese causing public health concerns. It is also possible that aggressive hazing programs at these sites could translate to localized increases in goose complaints and conflicts, especially in other urban areas near these sites as these geese seek more protected areas.

(3) Social Values and Considerations

(a) Aesthetics

Similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(1) Aesthetics**. However, some localized significant reductions in resident Canada goose viewing opportunities could occur at or near sites recommended by public health officials as public health threat areas.

(b) Recreational Use of Impacted Areas

Similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(2) Recreational Use of**

Impacted Areas. However, some possible increases in resident Canada goose numbers at recreational areas, such as athletic fields, public swimming lakes, and parks, could occur as aggressive hazing of birds at participating public health areas causes displacement of geese to other protected areas, especially in urban and suburban environments.

(c) Animal Rights and Humaneness

Similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(3) Animal Rights and Humaneness**, however, some increased impact on resident Canada geese at or near sites recommended by public health officials as public health threats.

(4) Economic Considerations

(a) Residential, Commercial, and Public Property

Similar to that discussed under the "No Action" alternative in section **IV.A.2.d.(1) Residential, Commercial, and Public Property**. However, some possible increases in resident Canada goose numbers at recreational, commercial, and public areas around public health sites could occur as aggressive hazing of birds at recommended public health areas causes displacement of geese to other protected areas, such as residential and commercial areas.

(b) Agricultural Crops

Similar to that discussed under the "No Action" alternative in section **IV.A.2.d.(2) Agricultural Crops**. However, some possible increases in resident Canada goose numbers at agricultural areas could occur as aggressive hazing of birds at public health sites causes displacement of geese to other protected areas near these areas.

(5) Human Safety

Similar to that discussed under the "No Action" alternative in section **IV.A.2.e. Human Safety** with some possible increases in resident Canada goose numbers at sites around recommended public health areas as aggressive hazing of birds at these sites causes displacement of geese to other protected areas, such as airports.

(6) Human Health

Under a Public Health Depredation Order there would be significantly less resident Canada goose impacts at sites recommended as public health threats from Canada geese. State, County, municipal, or local public health officials (or their agents) would be authorized to conduct indirect and/or direct population control strategies such as aggressive harassment nest and egg destruction, gosling and adult trapping and culling programs, or other general population reduction strategies on resident Canada goose populations when recommended by health officials that there is a public health threat.

State wildlife management agencies and public health officials would strongly approve of this alternative since public health concerns were identified as a growing concern during public scoping. While we agree that transmission of disease or parasites from geese to humans has not been well documented, the

potential does exists (Luechtefeld et al. 1980,Wobeser and Brand 1982, Hill and Grimes 1984, Pacha et al. 1988, Blandespoor and Reimink 1991, Graczyk et al. 1997, Saltoun, et al. 2000). And while many people are concerned about disease transmission from fecal droppings, the probability of contracting disease from fecal droppings is believed to be small. However, in recognition and deference to the authority and expertise of local and State health officials, under this alternative, the determination of what does or does not constitute a threat to public health is left to these public health authorities.

As discussed in section **III.B.5. Human Health**, there is a perception among the public and a concern among resource management personnel that resident Canada geese do have the ability to transmit diseases to humans, but a direct link is difficult to establish due to the expense of testing and the difficulty of tracing the disease back to Canada geese. Studies have confirmed the presence of human pathogens in goose feces, so the presence of these feces in water or on the ground where humans may come into contact with them is a legitimate public health concern. Neither we nor State natural resource agencies have the expertise to deal with human health/disease questions, and thus, must rely on other more pertinent knowledgeable agencies. Establishment of a Public Health Depredation Order would significantly reduce potential resident Canada goose health concerns at those recommended sites participating in the depredation order.

Other human health impacts would be similar to that discussed under the "No Action" alternative in section **IV.A.2.f. Human Health** with some possible increases in resident Canada goose numbers at non-participating sites around these areas as aggressive hazing of birds at participating sites would likely cause displacement of geese to other protected areas.

(7) Costs of Management Program

(a) Administrative Costs

Overall, Wildlife Services and Service costs remain largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.g.(1) Administrative Costs**. Wildlife Services would see an initial increase in establishing non-lethal harassment programs at these sites.

(b) Monitoring Costs

No significant new costs. See section **IV.A.2.g.(2) Monitoring Costs**.

(c) Other Costs

Similar to that discussed in section **IV.A.2.g.(2) Other Costs**.

5. Summary of Integrated Depredation Order Management

Used in concert, the four Depredation Orders could provide localized relief in specific resident Canada goose conflict areas: airports, urban/suburban areas, agricultural areas, and potential public health threat areas. Under the Depredation Orders, resident Canada goose management activities would be specifically directed to those areas needing direct relief from ongoing goose damage or conflicts.

a. Biological Impacts

(1) Resident Canada Goose Populations

Some localized significant goose population reductions could occur at or near participating airports, participating agricultural areas, or at sites recommended by public health officials as public health threats. Additionally, some localized reductions in goose population growth rates and some localized gradual population stabilizations could occur depending on the local aggressiveness of nest and egg addling programs. Taken together, while some localized goose population impacts could be significant, the Depredation Orders would not result in overall significant resident goose population reductions. Overall population impacts would likely be less than those realized under "Alternative D (Increased Hunting)", but significantly more than under the "No Action" Alternative.

(2) Natural Resources

Similar to that discussed under the "No Action" alternative in section **IV.A.1.b. Natural Resources**. However, some localized significant reductions in natural resource impacts caused by resident Canada geese at or near participating airports, participating agricultural areas, or sites recommended by public health officials as public health threats. Additionally, some localized gradual reductions in natural resource impacts caused by resident Canada geese at localized areas subjected to continued nest and egg addling actions.

(3) Other Wildlife Including Federally Protected Species

See section **IV.A.1.c. Other Wildlife Including Federally Protected Species**. Overall, most goose damage management activities would continue as they currently exist. There would be likely increases in localized goose management activities at or near participating airports, agricultural areas, and areas of public health concern. While these activities could increase the potential for effects on T & E species over that in the "No Action" alternative, all management activities authorized under this alternative are currently being allowed under Service-permitted actions. Entities and individuals authorized to conduct management activities under this alternative would be required to report the take of any T & E species to the Service immediately.

In addition, there could be some localized reductions in impacts caused by resident Canada geese to other species at localized areas subjected to the various management actions.

b. Sociological Impacts

(1) Sport Hunting

See section **IV.A.2.a. Sport Hunting**.

(2) Migratory Bird Permit Program

(a) Wildlife Services

Establishment of the various Depredation Orders would result in initial increases in Wildlife Services'

workload in two areas. First, all eligible parties (i.e., airports, agricultural producers, public health officials) wishing to participate would be required to establish a non-lethal resident Canada goose harassment program. These programs would most likely be developed in cooperation and consultation with Wildlife Services. Second, following establishment of a non-lethal harassment program, Wildlife Services would be required to certify the program before any management actions could occur under the Order. Once the programs are established, a subsequent significant reduction in Wildlife Services' workload would likely result.

Other workload regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(1) Wildlife Services Program**. It is also possible that aggressive hazing programs at these specific sites could translate to localized increases in goose complaints and conflicts, especially in urban and suburban areas close to actively managed areas as these geese seek more protected areas.

(b) U.S. Fish and Wildlife Service Program

Most workload regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(2) U.S. Fish and Wildlife Service Program**. However, there would be a significant reduction in workload associated with permits for geese at airports, depredating geese in agricultural areas, and for geese causing public health concerns. It is possible, however, that aggressive hazing programs at these sites could translate to localized increases in goose complaints and conflicts, especially in urban areas as these geese seek more protected areas. There would also be a significant reduction in workload associated with permits for nest and egg destruction.

(c) State Programs

Most workload regarding resident Canada geese would be largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.b.(3) State Programs**. There would be a significant reduction in workload associated with geese at airports, depredating geese in agricultural areas, and geese causing public health concerns. It is possible, however, that aggressive hazing programs at these sites could translate to localized increases in goose complaints and conflicts, especially in urban areas as these geese seek more protected areas. There would also be a significant reduction in workload associated with request for nest and egg destruction.

(3) Social Values and Considerations

Impacts to aesthetics would be similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(1) Aesthetics**. Some localized significant reductions in resident Canada goose viewing opportunities could occur at or near participating airports, agricultural areas, and sites recommended by public health officials as public health threat areas. Overall, other than these specific areas, in the short-term, public viewing opportunities would see little impact and the problems associated with large numbers of geese, i.e., droppings, feathers, etc. would likely continue. In the long-term, some localized reductions in resident Canada goose viewing opportunities could occur and some of the associated aesthetic problems with too many geese could decrease as populations gradually decrease.

Impacts to recreational areas would also be similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(2) Recreational Use of Impacted Areas**. However, some possible increases in

resident Canada goose numbers at recreational areas, such as athletic fields, public swimming lakes, and parks, could occur as aggressive hazing of birds at participating airports, agricultural areas, and recommended public health areas causes displacement of geese to other protected areas. In the long-term, some localized goose population reductions would result in reduced levels of impacts.

Impacts to animal rights and humaneness would be similar to that discussed under the "No Action" alternative in section **IV.A.2.c.(3) Animal Rights and Humaneness**, however, some increased impacts on resident Canada geese would occur at or near participating airports, agricultural sites, and sites recommended by public health officials as public health threats.

(4) Economic Considerations

Other than agricultural areas, and those sites recommended as public health threat areas, impacts to private property would be similar to that discussed under the "No Action" alternative in section **IV.A.2.d.(1) Residential, Commercial, and Public Property**. Additionally, some possible increases in resident Canada goose numbers at recreational, commercial, and public areas around sites participating under the various Depredation Orders could occur as aggressive hazing of birds at these areas causes displacement of geese to other protected areas, such as residential and commercial areas. In the long-term, under the Nest and Egg Depredation Order, localized impacts and conflicts could gradually level off at reduced levels as populations are gradually reduced.

Agricultural areas would experience significant benefits from an Agricultural Depredation Order as there would be significantly less resident Canada goose impacts at participating agricultural sites. Establishment of an Agricultural Depredation Order would significantly reduce goose depredation at those commercial agriculture sites participating in the depredation order.

(5) Human Safety

Under the Airport Depredation Order there would be significantly less resident Canada goose impacts at airports. Establishment of an Airport Depredation Order would significantly reduce the risk of goose-aircraft strikes at those airports participating in the depredation order.

Other human safety issues impacts would be similar to that discussed under the "No Action" alternative in section **IV.A.2.e. Human Safety** with some possible increases in resident Canada goose numbers at non-participating sites around these areas as aggressive hazing of birds at participating sites would likely cause displacement of geese to other protected areas. In the long-term, through the Nest and Egg Depredation Order, some localized reductions in resident Canada geese could occur and some of the other associated potential safety problems could decrease as goose populations gradually decrease.

(6) Human Health

Under this alternative, if all four Depredation Orders were implemented, the potential benefits to solving problems associated with large numbers of geese would be significant at sites recommended as public health threat areas. Under the Public Health Depredation Order, specific problem areas could be specifically addressed by public health officials. Geese displaced from these areas to other protected areas, such as airports or agricultural areas, as a result of aggressive hazing, could likewise be specifically handled under the Airport of Agricultural Depredation Order. In the long-term, through the

Nest and Egg Depredation Order, some localized reductions in resident Canada geese could occur and some of the other associated potential health problems could decrease as populations gradually decrease.

Other human health impacts outside these specific areas covered by the Depredation Orders would be similar to that discussed under the "No Action" alternative in section **IV.A.2.f. Human Health** with some possible increases in resident Canada goose numbers at non-participating sites around these areas as aggressive hazing of birds at participating sites would likely cause displacement of geese to other protected areas.

(7) Costs of Management Program

Overall, both Wildlife Services and Service costs would remain largely unaffected and similar to that discussed under the "No Action" alternative in section **IV.A.2.g.(1) Administrative Costs**. Wildlife Services would see initial increases in help to establish non-lethal harassment programs at airports, agricultural areas, and public health locations. However, implementation of a Depredation Order for resident Canada geese would undoubtably result in significant savings to the agricultural and airport industry, and would lessen public costs at areas of public health concern.

Additionally, the Service would see a slight reduction in costs associated with permit issuance for nest and egg destruction. However, as discussed under "Alternative C" in section **IV.C.2.g.(1) Other Costs**, other costs related to nest and egg destruction would have to be borne by some entity. Using Cooper and Keefe's (1997) estimated removal costs in Minnesota of $6.38 per egg, the egg removal cost estimate for the entire Mississippi Flyway translates to (264,000 nests X 6.0 eggs per nest X $6.38 per egg) $10.1 million per year to induce population decline in the Flyway. Expanding this program over the necessary 10 year time period (see section **IV.C.1.a. Resident Canada Goose Populations**) to all Flyways would result in hundreds of millions of dollars in expenditures.

F. ALTERNATIVE F - STATE EMPOWERMENT (PROPOSED ACTION)

1. Biological Impacts

a. Resident Canada Goose Populations

Under the "No Action" alternative (see section **IV.A.1.a. Resident Canada Goose Populations**), we estimated that the population of resident geese in most areas would be expected to continue to increase until they reach the carrying capacity of the environment. In the Atlantic Flyway, we estimated that the population will approach 1.3 million in 5 years and 1.6 million in 10 years. In the Mississippi Flyway, we estimate that the population will approach 1.7 million in 5 years and 2.0 million in 10 years. In the Central Flyway, we estimate that the numbers in the BHPS will approach 1.26 million by 2010. In the Pacific Flyway, we estimate that the populations will approach 450,000 by 2010.

In light of these projected increases (despite past and current management actions), we believe a much more aggressive management program is warranted and must be implemented. Under the "State Empowerment" alternative, State wildlife management agencies would be provided flexibility, within predefined guidelines, to deal with the problems caused by resident Canada goose populations within their respective States. States could choose to implement specific strategies, such as any of the specific

depredation orders identified in Alternative E (Integrated Depredation Order Management), expand hunting opportunities, or implement other indirect and/or direct population control strategies. We believe the combination of various management strategies would successfully reduce numbers of resident Canada geese to more acceptable levels.

Recently completed resident Canada goose modeling in Missouri (Coluccy 2000; Coluccy and Graber 2000), when extrapolated to the entire Mississippi Flyway, indicates that to reduce the Mississippi Flyway's resident population from the current 1,335,683 geese to the Flyway Council's goal of 989,000 geese would require one of several management actions: 1) the harvest of an additional 240,000 geese annually over that already occurring; 2) the take of an additional 426,000 goslings per year; 3) a Flyway-wide nest removal of 264,000 nests annually; or 4) a combination of harvesting an additional 120,000 geese annually and the take of an additional 160,000 goslings per year. Each of these management alternatives would be required annually for 10 years to reach the Flyway's population management goal. In the Atlantic Flyway, where the resident Canada goose population is even further above established Flyway goals, these numbers would be even greater. Similar numbers would be expected in the Central Flyway, while numbers would be correspondingly smaller in the Pacific Flyway.

Thus, to reduce the four Flyways' resident populations from the current level of approximately 3.5 million to the Flyway Councils' goals of approximately 2.1 million geese would require, at a minimum for the next 10 years, either the harvest of an additional 480,000 geese annually, the take of an additional 852,000 goslings per year, a Flyway-wide nest removal of 528,000 nests annually, or a combination of the harvest of an additional 240,000 geese annually and the take of an additional 320,000 goslings per year. We believe the only way to possibly attain these numbers is to give the States *the flexibility* to address the problems caused by resident Canada goose populations within their respective States. By addressing population reductions on a wide number of available fronts, we believe the combination of various damage management strategies and population control strategies would successfully reduce numbers of resident Canada geese *in those priority areas identified by the States*. Since the States are the most informed and knowledgeable local authorities on wildlife conflicts in their respective States, we believe it is logical to place the primary responsibilities and decisions of the program with them.

For example, in those areas subject to intensive nest and egg removal methods, some localized population stabilizations and reductions could take place. While the overall effect would be limited, as we estimated in section **IV.C.1.a. Resident Canada goose populations** and **IV.E.2.a.(1) Resident Canada goose populations**, the management actions would help contribute to the overall population reduction and help address specific goose problem areas.

Likewise, the combination of Depredation Orders discussed in "Alternative E", while not solely able to address all goose population conflicts would help contribute to the overall population reduction and help address specific resident goose problem areas.

Additionally, as discussed in section **IV.F.2.a.(2) Special Hunting Seasons**, States could opt to increase and expand hunting opportunities in those areas already opened (September 1-15) to expanded hunting methods. While neither a 50 percent increase (an additional 260,000 resident Canada geese) or a 70 percent increase (an additional 364,000 resident Canada geese) in special season harvest annually would solely achieve the desired population stabilization or reduction, the management actions would help contribute to the overall population reduction and help address specific resident goose problem areas.

b. Natural Resources

Under Alternative F, impacts of excessive numbers of resident Canada geese to soil and water resources would be significantly reduced. Decreased numbers of geese, especially in urban and suburban areas, would likely lead to improved water quality around beaches and wetlands because of the decreased amount of fecal droppings and decreased grazing by Canada geese.

c. Other Wildlife Including Federally Protected Species

Under the "State Empowerment" alternative, we would not expect any new effects on T & E species since resident Canada goose management activities would continue under current practices and conditions. Conditions in the alternative (primarily timing restrictions) would preclude any new adverse affects on T & E species. Overall, most goose damage management activities would continue as they currently exist. Depending on the State's selection of strategies, there could be likely increases in goose management activities at or near participating airports, agricultural areas, and areas of public health concern. While these activities could increase the potential for effects on T & E species over that in the "No Action" alternative, all management activities authorized under this alternative are currently being allowed under Service-permitted actions. Entities and individuals authorized to conduct management activities under this alternative would be required to report the take of any T & E species to the Service immediately.

Additionally, most management actions with resident Canada geese, other than expanded hunting opportunities under the new conservation season (August 1 to September 15) and existing operational special Canada goose seasons (September 1-15), would occur during the spring nesting season and the summer molt (generally occurs in June and July). All of these seasonal management actions, including expanded hunting opportunities, would take only resident geese due to the absence of migratory Canada goose populations at these times of the year. All direct capture and removal methods would allow for positive identification of target species and there has been no impact observed on non-target, threatened, or endangered species. See section **III.A.4. Other Wildlife Including Federally Protected Species** for a further discussion of current effects on T & E species.

There would be a significant reduction in resident goose impacts on other migratory waterfowl. Less resident Canada geese would likely result in reduced damage to habitat intended for wintering and migrating waterfowl.

2. Sociological Impacts

a. Sport Hunting

(1) Regular Hunting Seasons

See section **IV.A.2.a.(1) Regular Hunting Seasons**. Regular hunting seasons would be largely unaffected under the "State Empowerment" alternative. There could be some reductions in hunting opportunities in areas close to urban and suburban areas as goose populations decrease. However, most goose population reductions would occur in areas already closed to hunting or with limited hunting opportunity.

(2) Special Hunting Seasons

Under the "State Empowerment" alternative, resident Canada goose special hunting opportunities and potential harvest would be significantly increased from that discussed in section **IV.D.2.a.(2) Special Hunting Seasons**. States could opt to increase and expand special hunting opportunities for resident Canada geese through newly available hunting methods and an expansion of the special seasons.

Under the "Increased Hunting" alternative (Alternative D), special season resident Canada goose hunting opportunities would increase significantly. This alternative would provide new regulatory options to State wildlife management agencies to potentially increase the harvest of resident Canada geese above that which results from existing special Canada goose seasons that target resident Canada geese. This approach would authorize the use of additional hunting methods such as electronic calls, unplugged shotguns, and expanded shooting hours (one-half hour after sunset). During existing, operational, special September Canada goose seasons (i.e., September 1-15), these additional hunting methods would be available for use on an operational basis. Utilization of these additional hunting methods during any new special seasons or other existing, operational special seasons (i.e., September 15-30) could be approved as experimental and would require demonstration of a minimal impact to migrant Canada goose populations. These experimental seasons would be authorized on a case-by-case basis through the normal migratory bird hunting regulatory process. All of these expanded hunting methods and opportunities would be in accordance with the existing Migratory Bird Treaty frameworks for sport hunting seasons (i.e, 107 day limit from September 1 to March 10) and would be conducted outside of any other open waterfowl season (i.e., when *all other waterfowl and crane seasons were closed*). These additional seasons would continue to be available to States under the "State Empowerment" alternative.

Additionally, under new regulations implementing Service established criteria and guidelines, States would be able to offer special expanded harvest opportunities during either the Treaty closed period (August 1-31) and the Treaty open period (September 1-15). This alternative would create a new Subpart to 50 CFR Part 21 specifically for the management of overabundant resident Canada goose populations. Under this new Subpart, we would establish a Conservation Order under the authority of the Migratory Bird Treaty Act with the intent to reduce and/or stabilize resident Canada goose population levels. The Conservation Order would authorize each State in eligible areas to initiate aggressive resident Canada goose harvest strategies, within the conditions that we provide, with the intent to reduce the populations. The Order will enable States to use hunters to harvest resident Canada geese, by way of shooting in a hunting manner, during a period when *all waterfowl and crane hunting seasons, excluding falconry, are closed, inside or outside the migratory bird hunting season frameworks*. The Order would also authorize the use of additional methods of take to harvest resident Canada geese during that period. The Conservation Order would authorize the use of electronic calls and unplugged shotguns, liberalize daily bag limits on resident Canada geese, and allow shooting hours to continue until one-half hour after sunset. The Service would annually assess the overall impact and effectiveness of the Conservation Order to ensure compatibility with long-term conservation of this resource. If at any time evidence is presented that clearly demonstrates that there no longer exists a serious threat of injury to the area or areas involved for a particular resident Canada goose population, we will initiate action to suspend the Conservation Order, and/or regular-season regulation changes, for that population. Suspension of regulations for a particular population would be made following a public review process.

As discussed in section **IV.D.2.a.(2) Special Hunting Seasons**, available information from the use of additional hunting methods, such as electronic calls, unplugged shotguns, and expanded shooting hours,

during the special light goose seasons indicate that total harvest increased approximately 50 - 69 percent (U.S. Fish and Wildlife Service, 2001b). On specific days when light goose special regulations were in effect, the mean light goose harvest increased 244 percent (U.S. Fish and Wildlife Service, 2001b). This increase was attributable in large part to the Light Goose Conservation Order which authorized additional days of hunting outside the regular hunting season frameworks (September 1 - March 10). Olsen and Afton (2000) found that lesser snow goose flocks were 5.0 times more likely to fly within gun range ($\leq$50 meters) in response to electronic calls than to traditional calls and the mean number of snow geese killed per hour per hunter averaged 9.1 times greater for electronic calls than for traditional calls.

Given a total special season harvest of approximately 520,000 geese, a 50 percent increase in special season and conservation season harvest would result in the harvest of an additional 260,000 resident Canada geese each year. A 70 percent increase in special season and conservation season harvest would result in an additional 364,000 resident Canada geese annually. While neither of these estimates would solely achieve the desired population stabilization or reduction (see section **IV.F.1.a. Resident Canada goose populations**), these additional authorized methods, when used in concert with other management activities, would help to significantly reduce resident Canada goose numbers.

b. Migratory Bird Permit Program

(1) Wildlife Services Program

Under the "State Empowerment" alternative, Wildlife Service's workload would vary depending on the States' selection of management strategies. In those States choosing to continue current operations and management, the Wildlife Service's program would be largely unaffected. In those States choosing to alter their current management to take advantage of conditions offered by the "State Empowerment" alternative, there would be a probable significant initial workload increase establishing non-lethal harassment programs and assisting in establishing and implementing other programs.

Workload increases would likely come in two areas. First, States opting to establish one or more of the various depredation orders would be required to have eligible parties (i.e., airports, agricultural producers, public health officials) wishing to participate establish a non-lethal resident Canada goose harassment program. These programs would most likely be developed in cooperation and consultation with Wildlife Services. Second, following establishment of a non-lethal harassment program, Wildlife Services would be required to certify the program before any management actions could occur under any of the Orders.

Once the States' programs were established and goose conflicts lessened due to a smaller goose population, a subsequent significant reduction in Wildlife Services' workload would likely result. However, it is likely that much of the remaining resulting workload would be "maintenance" in nature and similar to that discussed in section **IV.A.2.b.(1) Wildlife Services Program**.

(2) U.S. Fish and Wildlife Service Program

Depending on the States' selection of management strategies, Service workload could vary widely under the "State Empowerment" alternative. In participating States, since most permits for resident Canada goose work would be eliminated (as decisions on management activities would fall to the State), a significant reduction in Service workload associated with resident Canada goose permits could occur.

There would likely be a significant reduction in workload associated with permits for geese at airports, depredating geese in agricultural areas, and for geese causing public health concerns. There would also be a significant reduction in workload associated with permits for nest and egg destruction and active management of resident Canada geese (aggressive harassment programs, trap and relocation programs, and food shelf programs). However, given that permits for resident Canada goose work is only a small overall percentage of the overall permit program, and permit costs vary widely between Regions, it is unlikely the Service would be able to redirect these operating funds. Further, requests for information and education programs and State assistance in establishing and conducting monitoring surveys for resident Canada geese would likely require additional funding.

Since most decisions concerning individual resident Canada goose management activities would fall to the respective State wildlife agency in those participating States, there would be a corresponding increase in the Service's role of population monitoring and program oversight (see section **IV.F.2.g. Costs of Management Program**). To ensure the long-term health and conservation of resident Canada goose populations, participating States would be required to develop and implement resident Canada goose population monitoring surveys (within Service established guidelines and Service review) and track all take resulting from authorized management actions. The initial surge in workload associated with assisting States to develop these surveys and review monitoring plans would be significantly reduced once the plans were in place.

In those nonparticipating States, most workload regarding resident Canada geese would be largely unaffected and similar to that discussed in section **IV.A.2.b.(2) U.S. Fish and Wildlife Service Program**.

(3) State Programs

Depending on the States' selection of management strategies, workload could vary widely under the "State Empowerment" alternative. In participating States, decisions regarding resident Canada goose management activities would fall to the State. Under the available depredation orders (Alternative E), there would likely be a significant reduction in State workload associated with requests for assistance and management activities for geese at airports, depredating geese in agricultural areas, geese causing public health concerns, and requests for nest and egg destruction. Active management of resident Canada geese (such as aggressive harassment programs, trap and relocation programs, and food shelf programs) would all be available to those participating States.

Since most decisions concerning individual resident Canada goose management activities would fall to the respective State wildlife agency in those participating States, to ensure the long-term health and conservation of resident Canada goose populations, participating States would be required to develop and implement resident Canada goose population monitoring surveys (within Service established guidelines and Service review) and report all take resulting from authorized management actions.

In those nonparticipating States, most workload regarding resident Canada geese would be largely unaffected and similar to that discussed in section **IV.A.2.b.(2) U.S. Fish and Wildlife Service Program**.

An analysis of scoping comments from State wildlife or resource agencies shows that, of the 18 States agencies that specifically expressed a preference on the alternatives presented during scoping, 9 endorsed

the "State Empowerment" alternative (identified at that time as the "Conservation Order" alternative). Furthermore, a closer look at those States either expressing no preference or preference for the "Depredation Order" alternative, shows that a number of States recommended allowing a variety of options and letting States decide which they preferred to use. Several stated that the more available tools at their disposal, the better they would be able to effectively deal with the various problems. For example, the Minnesota Department of Natural Resources stated,

> "Clearly, one or two management techniques will not work in every situation, and Minnesota needs as many viable goose management options available to us as possible while, at the same time, minimizing unnecessary administrative procedures."

The Atlantic Flyway Council stated,

> "We recommend that a variety of options, including the general depredation order (Alternative F) be implemented, and let states decide which approach they prefer. The alternatives are not mutually exclusive, and states may differ in the extent to which they want certain activities regulated by the Service. States could develop guidelines or further regulate goose control activities where they have the authority and desire to do so. This approach provides maximum flexibility to the states, ... It is unlikely that any one single alternative will satisfy everyone."

The New Jersey Division of Fish, Game, and Wildlife, in a theme reflected by several other States supporting a general depredation order, further stated,

> "Recently, the USFWS has proposed issuance of one statewide resident goose control permit to state wildlife agencies, which could then make effected landowners sub-permittees. This is an unacceptable solution to resident goose problems. First, this plan does nothing to relieve the affected landowner of a burdensome permit process. It still requires them to apply for a permit, keep records and report on their activities.... This plan also transfers the six-figure cost of administering the permit program for this federal species to the states without compensation."

We believe the "State Empowerment" alternative provides States the most flexibility to deal with resident Canada goose damage management activities. States are provided with a menu of available management options ranging from specific depredation orders dealing with airports, agriculture, public health, and nests and eggs, to increased hunting opportunities both inside and outside the Treaty frameworks. Thus, States are able to choose and implement only those specific programs they are either comfortable with, have experience with, or believe to be the best available option to deal with goose conflicts and populations in their respective States. For example, if a State decided to implement a nest and egg depredation order, an airport depredation order, an agricultural depredation order, a conservation season in August, and expanded hunting methods in September, it could do so.

Further, there is no Federal requirement in any of these management alternatives for the State to issue permits or subpermits to those allowed to conduct management activities. If a State wishes to keep detailed records of those allowed to conduct management activities or issue permits, it may do so. However, if a State merely wishes to grant, through an order of their choosing, a certain group of entities or individuals the authority to conduct resident goose damage management activities, it may also do so. The only Federal requirements, other than overall program restrictions, are to monitor the spring breeding population and annually report the number of geese (adults, gosling, nests, and eggs) taken within the State. These requirements are necessary in order to adequately assess population status and the effectiveness of management activities.

c. Social Values and Considerations

(1) Aesthetics

Depending on the State's selection of management strategies there would be a reduction in the numbers of resident Canada geese. While the overall number of viewing opportunities would likely remain unchanged, there would likely be fewer geese in each flock. Some localized reductions in resident Canada goose viewing opportunities could occur at or near airports, agricultural areas, and sites recommended by public health officials as public health threat areas as geese are removed. However, problems associated with large numbers of geese, i.e., droppings, feathers, etc. would also significantly decrease as goose populations decreased. Overall, in the long-term, some localized reductions in resident Canada goose numbers would occur, but viewing opportunities would still be readily available.

(2) Recreational Use of Impacted Areas

The impacts of resident Canada geese on recreational areas would be significantly reduced as urban and suburban birds are likely targeted for reduction efforts by States. Additionally, removal of birds could significantly lessen existing impacts and conflicts. However, there could be some possible increases in resident Canada goose numbers at any nonparticipating recreational areas, such as athletic fields, public swimming lakes, and parks, as aggressive hazing of birds at participating sites causes displacement of geese to other protected areas. In the long-term, conflicts would level off at reduced levels as populations are significantly reduced.

(3) Animal Rights and Humaneness

Under the "State Empowerment" alternative, impacts to animal rights and humaneness would be more significant than those discussed in section **IV.A.2.c.(3) Animal Rights and Humaneness** depending on the State's selection of management strategies. All current goose management activities would be continued, and in many cases, significantly expanded (such as removal of adults and goslings), especially in urban and suburban areas of conflict.

d. Economic Considerations

(1) Residential, Commercial, and Public Property

In urban and suburban areas, there would likely be a significant reduction in property conflicts as resident geese in these areas would likely be targeted by States for reduction efforts. At these sites, decreases in resident Canada goose populations could occur as aggressive hazing of birds causes displacement of geese to other protected areas. Additionally, removal of birds would significantly lessen impacts and conflicts. In the long-term, conflicts would level off at reduced levels as populations are significantly reduced.

(2) Agricultural Crops

Under the "State Empowerment" alternative, if a State chose to implement an Agricultural Depredation Order, impacts would be similar to those discussed in section **IV.E.3.b.(4)(b) Agricultural Crops** as aggressive hazing would likely cause emigration of birds to other areas. Under an Agricultural

Depredation Order, agricultural areas would see significant benefits as there would be significantly less resident Canada goose impacts at participating agricultural sites.

e. Human Safety

Under the "State Empowerment" alternative, if a State chose to implement an Airport Depredation Order, impacts would be similar to those discussed in section **IV.E.1.b.(5) Human Safety** as aggressive hazing of geese would likely cause emigration of birds to other areas. However, establishment of an Airport Depredation Order would significantly reduce the risk of goose-aircraft strikes at those airports participating in the depredation order and there would be significantly less resident Canada geese at airports.

Other human safety issues impacts would be less than that discussed in section **IV.A.2.e. Human Safety** with some possible increases in resident Canada goose numbers at non-participating sites around areas aggressively hazing birds. In the long-term, the combination of various goose management activities authorized by the alternative would result in not only localized reductions in resident Canada goose numbers, but overall goose population reductions, as well. These significant reductions would decrease the likelihood of other associated potential goose safety problems.

f. Human Health

Under the "State Empowerment" alternative, if a State chose to implement a Public Health Depredation Order, impacts would be similar to those discussed in section **IV.E.4.b.(6) Human Health**. Under this alternative, specific problem areas could be specifically addressed by public health officials. In the long-term, the combination of various goose management activities authorized by the alternative would result in not only localized reductions in resident Canada goose numbers, but overall goose population reductions, as well. These significant reductions would decrease the likelihood of other associated potential health problems areas.

Other human health impacts would be less than that discussed in section **IV.A.2.f. Human Health** with some possible increases in resident Canada goose numbers at non-participating sites around areas aggressively hazing birds.

g. Costs of Management Program

(1) Administrative Costs

As we discussed in section **IV.F.2.b.(1) Wildlife Services Program**, under the "State Empowerment" alternative, Wildlife Service's workload would vary depending on the States' selection of management strategies; thus, costs would also vary. In those States choosing to continue current operations and management, the Wildlife Service's program and costs would be largely unaffected. In those States choosing to alter their current management to take advantage of conditions offered by the "State Empowerment" alternative, there would be a probable significant initial workload increase establishing non-lethal harassment programs and assisting in establishing and implementing other programs. In these States, Wildlife Services would see a significant initial increase in costs. However, once the States' programs were established and goose conflicts lessened due to a smaller goose population, a subsequent reduction in Wildlife Services' costs would likely result and resulting costs would be more operational

(i.e., equipment, supplies, and cooperator) in nature.

For the Service, as we discussed in section **IV.F.2.b.(2) U.S. Fish and Wildlife Service Program**, depending on the States' selection of management strategies, Service costs could vary widely under the "State Empowerment" alternative. In participating States, since most permits for resident Canada goose work would be eliminated (as implementation would fall to the State), a significant reduction in Service costs relating to resident Canada goose permit administration and review could occur. However, there would be a corresponding increase in the Service's role of population monitoring and program oversight. To ensure the long-term health and conservation of resident Canada goose populations, participating States would be required to develop and implement resident Canada goose population monitoring surveys and track all take resulting from authorized management actions (see section **IV.F.2.g.(2) Monitoring Costs** below). We estimate the initial surge in workload associated with assisting States develop these resident Canada goose breeding population surveys and review monitoring plans would be approximately $50,000. Once the monitoring plans were in place and operational, Service survey-related costs would essentially disappear except for periodic review.

Depending on the States' selection of management strategies and how they choose to implement each selected strategy, State administrative costs could vary widely under the "State Empowerment" alternative. States are provided with a menu of available management options and are able to choose and implement only those specific programs they are either comfortable with, have experience with, or believe to be the best available option to deal with goose conflicts and populations in their respective States. In participating States, there could be significant reductions in costs for handling requests for assistance and management activities for geese at airports, depredating geese in agricultural areas, geese causing public health concerns, and requests for nest and egg destruction depending on the State's implementation process. For those States desiring to keep detailed records and issue permits to entities and individuals allowed to conduct damage management activities on resident Canada geese, administrative costs could be significant. However, a permit process would provide the highest level of management control. For those States desiring a less-burdensome administrative process and lower management control, such as issuing State regulations that implement a chosen strategy or merely authorize certain entities and individuals to conduct management activities, administrative costs (not including monitoring costs) should be minimal.

In those nonparticipating States, most costs regarding resident Canada geese would be largely unaffected and similar to that discussed in section **IV.A.2.g.(1) Administrative Costs**.

(2) Monitoring Costs

Under this alternative, monitoring would likely have to be significantly increased, especially for those participating States with resident Canada goose populations not currently monitored or not adequately monitored. As we discussed in section **III.B.6.b. Monitoring Costs**, States currently spend in excess of $220,000 annually monitoring resident Canada goose breeding populations. For the most part, those States with significant numbers of resident Canada geese do an adequate job of surveying breeding geese. In the Mississippi Flyway, surveys of giant Canada geese were initiated in 1992 in Ohio and Michigan. By 1993, the pilot survey had expanded to seven States and one Province. The survey became operational in 1997.

To demonstrate the importance of spring breeding surveys, the 1992 Mississippi Flyway mid-winter

survey indicated a population of 1.2 million Canada geese and allocated 250,000 to the resident giant Canada goose population. However, the first extensive giant Canada goose breeding survey estimated a spring population of 710,000 birds. Thus, well-designed and regularly-conducted annual surveys are an invaluable tool for monitoring and evaluating not only population status, but the effectiveness of any regulatory program.

The Mississippi Flyway spent $89,600 in operational costs and 106 staff-days conducting the giant Canada goose breeding population survey in 1999 (Moser 2000). The annual survey is conducted in early April to early May in States and Provinces of the Mississippi Flyway with spring giant Canada goose populations of at least 10,000 birds. The Atlantic Flyway annually conducts a waterfowl breeding pair survey in mid-April to early May that provides an index to the number of breeding pairs of resident Canada geese. In 1999, the States spent $31,280 in operational costs and 347 staff-days conducting the survey.

We estimate that, based on the information compiled by Moser (2000), the average State resident Canada goose spring breeding population survey will cost approximately $10,000 annually. Expanding this estimate to those States with both sufficient numbers of resident Canada geese to justify the expense of the survey and sufficient goose conflicts to warrant the added burden of program responsibility would result in an annual resident Canada goose survey expenditure of over $300,000 nationwide. This estimate would not include any recordkeeping, reporting costs, equipment, or staff time. However, implementation of this alternative in those States with existing adequate survey programs would not necessarily result in any expenditure increases related to surveys.

The second part of an operational monitoring program required by Alternative F would be an accurate and reliable reporting system. While the spring breeding population surveys would be the most significant portion of any overall resident Canada goose monitoring plan, the impacts (i.e., resulting take) of any implemented goose damage management activities should also be monitored. The easiest and most cost-effective method for accomplishing this objective is through annual reporting. We do not envision this requirement being either overly burdensome or detailed, but merely sufficient on a State level to allow the Service to monitor and evaluate the cumulative Flyway effects of the various programs, especially when considered in conjunction with other programs such as annual hunting seasons.

(3) Other Costs

Under the "State Empowerment" alternative, most Federal permits for resident Canada goose damage management activities in participating States would be eliminated. As such, public costs related to Federal permit applications would be eliminated. Conflict abatement costs (described in section **III.B.6.b.(3) Other Costs**) should eventually be reduced as problem goose populations decrease.

G. ALTERNATIVE G - GENERAL DEPREDATION ORDER

1. Biological Impacts

a. Resident Canada Goose Populations

Impacts would be similar to that discussed in section **IV.F.1.a. Resident Canada Goose Populations**.

b. Natural Resources

See section **IV.F.1.b. Natural Resources**.

c. Other Wildlife Including Federally Protected Species

See section **IV.F.1.c. Other Wildlife Including Federally Protected Species**. However, the potential for unintentional take of protected species by those authorized to conduct resident Canada goose management activities is greater than that under Alternative F since most State program oversight is removed. Private individuals, entities, and State agencies could be directly authorized by the Service to conduct damage management actions.

2. Sociological Impacts

a. Sport Hunting

(1) Regular Hunting Seasons

Impacts would be similar to that discussed under "Alternative A" in section **IV.A.2.a.(1) Regular Hunting Seasons**, but at a slower rate of growth. There would be some reductions in hunting opportunities in suburban-related areas as goose populations decrease in these specific areas as a result of damage management activities. However, most non-hunting related goose population reductions would occur in areas already closed to hunting or with limited hunting opportunity.

(2) Special Hunting Seasons

Impacts would be similar to that discussed under "Alternative D" in section **IV.D.2.a.(1) Special Hunting Seasons**. There could be some reductions in hunting opportunities in suburban-related areas as goose populations decrease in these specific areas as a result of damage management activities. However, most non-hunting related goose population reductions would occur in areas already closed to hunting or with limited hunting opportunity.

b. Migratory Bird Permit Program

(1) Wildlife Services Program

Impacts would be similar to that discussed in section **IV.F.2.b.(1) Wildlife Services Program**.

(2) U.S. Fish and Wildlife Service Program

Impacts would be similar to that discussed in section **IV.F.2.b.(2) U.S. Fish and Wildlife Service Program**. However, the administration of the program would function much differently than under Alternative F. Under Alternative F, authority for implementation and responsibility would fall to the State wildlife agency to make primary decisions on resident Canada goose damage management activities and population reduction actions. Under Alternative G, these decisions would largely remain with the Service. States wishing to participate in the various programs would have to approach the Service for entry of entities and persons in their respective State for entry into the program. Persons and entities

authorized by the Service under the Depredation Order would not need to obtain authority from the State unless required to do so under State law. The State would not be responsible, or accountable, for any such Service-authorized action. Likewise, the State would also not serve as the primary manager as under Alternative F. Thus, while the Service would experience a significant reduction in permit workload, as almost all permits for resident Canada goose work would be eliminated, other Service program oversight functions would increase.

(3) State Programs

Impacts would be similar to that discussed in section **IV.F.2.b.(3) State Programs**. However, the administration of the program would function much differently than under Alternative F. Under Alternative F, authority for implementation and responsibility would fall to the State wildlife agency to make primary decisions on resident Canada goose damage management activities and population reduction actions. Under Alternative G, these decisions would largely remain with the Service, although States could be more restrictive. States wishing to participate in the various programs would have to approach the Service for entry of entities and persons in their respective State for entry into the program. Persons and entities authorized by the Service under the Depredation Order would not need to obtain authority from the State unless required to do so under State law. The State would not serve as the primary decision maker and manager as under Alternative F. Thus, the States would likely experience a significant reduction in permit recommendation and technical assistance workload.

The Ohio Division of Wildlife stated,

> "We are uncomfortable with language in this alternative stating that "affected individuals" or "authorized persons" would be given implementation authority. This will usurp the Ohio Division of Wildlife's statutory authority and is unacceptable. Population monitoring and tactic evaluation is required under this alternative; however, the state wildlife agencies are the most appropriate and capable entities to handle these tasks. Proper monitoring will only be accomplished if the activities of affected individuals are regulated and monitored by the state wildlife agencies. The states must maintain ultimate authority and responsibility for managing their resident goose populations and should be held accountable by the Service."

Based on comments received during public scoping, we do not believe this is the best use of the States' expertise, usurps States' management responsibilities, removes management flexibility from the States, and most importantly removes damage management decisions from the local level.

c. Social Values and Considerations

(1) Aesthetics

Impacts would be similar to that discussed in section **IV.F.2.c.(1) Aesthetics**.

(2) Recreational Use of Impacted Areas

Impacts would be similar to that discussed in section **IV.F.2.c.(2) Recreational Use of Impacted Areas**.

(3) Animal Rights and Humaneness

Impacts would be similar to that discussed in section **IV.F.2.c.(3) Animal Rights and Humaneness**. However, with the general liberalizations afforded by the Depredation Order alternative, the possibility exists that some individuals would view this alternative as permission to kill resident Canada geese for any purpose, at any time, and using any method. While, this is not the intent of this alternative, the possibility exists.

d. Economic Considerations

(1) Residential, Commercial, and Public Property

Impacts would be similar to that discussed in section **IV.F.2.d.(1) Residential, Commercial, and Public Property**.

(2) Agricultural Crops

Impacts would be similar to that discussed in section **IV.F.2.d.(2) Agricultural Crops**.

e. Human Safety

Impacts would be similar to that discussed in section **IV.F.2.e. Human Safety**.

f. Human Health

Impacts would be similar to that discussed in section **IV.F.2.f. Human Health**.

g. Costs of Management Program

(1) Administrative Costs

For Wildlife Services, impacts would be similar to that discussed in section **IV.F.2.g.(1) Administrative Costs**.

For the Service, the administrative costs related to permits would significantly decrease since most permits for resident Canada goose work would be eliminated. Under Alternative G, persons and entities authorized by the Service under the Depredation Order would not need to obtain permits to perform management or control activities. Thus, while the Service would experience a significant reduction in permit workload costs for resident Canada geese, other Service program oversight functions would increase.

(2) Monitoring Costs

Impacts would be similar to that discussed in section **IV.F.2.g.(2) Monitoring Costs**, except that some primary responsibilities for monitoring costs such as reporting and recordkeeping would be shifted from the State to authorized individuals and entities.

(3) Other Costs

Impacts would be similar to that discussed in section **IV.F.2.g.(3) Other Costs**.

H. RELATIONSHIP TO LAWS AND POLICIES

1. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

FIFRA requires the registration, classification, and regulation of all pesticides used in the United States. The U. S. Environmental Protection Agency (EPA) is responsible for implementing and enforcing FIFRA. All pesticides used by the Wildlife Services program are registered with and regulated by the EPA and are used by Wildlife Services in compliance with labeling procedures and requirements. No toxicants are currently used or registered for use in managing geese or reducing goose damage. The repellents ReJeX-iT AG-36™ and FlightControl™ are registered for use in reducing goose damage to vegetation in some States.

2. Investigational New Animal Drug (INAD)

The drug alpha-chloralose (AC) has been used as a sedative for animals and is registered with the U.S. Food and Drug Administration (FDA) to capture waterfowl, coots, and pigeons. FDA approval for use under INAD (21 CFR, Part 511) authorized Wildlife Services to use the drug as a non-lethal form of capture. The drug can only be purchased from Wildlife Services.

3. National Historic Preservation Act (NHPA) of 1966, as amended

The National Historic Preservation Act (NHPA) of 1966, and its implementing regulations (36 CFR§800), requires Federal agencies to: 1) determine whether activities they propose constitute "undertakings" that can result in changes in the character or use of historic properties and, 2) if so, to evaluate the effects of such undertakings on such historic resources and consult with the State Historic Preservation Office regarding the value and management of specific cultural, archaeological and historic resources, and 3) consult with appropriate American Indian Tribes to determine whether they have concerns for traditional cultural properties in areas of these federal undertakings. Service and Wildlife Services actions on tribal lands are only conducted at the tribe's request and under signed agreement; thus, the tribes have control over any potential conflict with cultural resources on tribal properties. Activities, as described under the proposed action, do not cause ground disturbances, nor do they otherwise have the potential to significantly affect visual, audible, or atmospheric elements of historic properties and are thus not undertakings as defined by the NHPA. The proposed alternative could benefit historic properties if such properties were being damaged by geese. In those cases, the officials responsible for management of such properties would make the request and would select the methods to be used in their program. Harassment techniques that involve noise making could conceivably disturb users of historic properties if they were used at or in close proximity to such properties; however, it would be an exceedingly rare event for noise producing devices to be used in close proximity to such a property unless the resource being protected from goose damage was the property itself, in which case the primary effect would be beneficial. Also, the use of such devices is generally short term and could be discontinued if any conflicts with historic properties arose. We have determined that resident Canada goose management actions are not undertakings as defined by the NHPA because such actions do not

have the potential to result in changes in the character or use of historic properties. A copy of this DEIS has been provided to the Bureau of Indian Affairs to allow them an opportunity to express any concerns that might need to be addressed prior to a decision.

4. Environmental Justice

Executive Order 12898, entitled, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" promotes the fair treatment of people of all races, income levels and cultures with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Environmental justice is the pursuit of equal justice and protection under the law for all environmental statutes and regulations without discrimination based on race, ethnicity, or socioeconomic status. It is a priority within the Service and Wildlife Services. Executive Order 12898 requires Federal agencies to make environmental justice part of their mission, and to identify and address disproportionately high and adverse human health and environmental effects of federal programs, policies and activities on minority and low-income persons or populations.

The Service and Wildlife Services implement Executive Order 12898 principally through their compliance with NEPA. All activities are evaluated for their impact on the human environment and compliance with Executive Order 12898. Wildlife Services personnel use only legal, effective, and environmentally safe wildlife damage management methods, tools, and approaches. It is not anticipated that the proposed action would result in any adverse or disproportionate environmental impacts to minority and low-income persons or populations. In fact, providing processed goose meat products at no cost to food shelf operations within States will benefit and low-income persons or populations who receive services provided by such operations.

5. Protection of Children from Environmental Health and Safety Risks (Executive Order 13045)

Children may suffer disproportionately for many reasons from environmental health and safety risks, including the development of their physical and mental status. Because we make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children, we have considered the impacts that this proposal might have on children. The proposed alternative would occur by using only legally available and approved methods where it is highly unlikely that children would be adversely affected. For these reasons, we conclude that it would not create an environmental health or safety risk to children from implementing this proposed action.

6. Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 requires agencies to assess the effects of Federal regulatory actions on State, local, and tribal governments and the private sector. The purpose of the act is to strengthen the partnership between the Federal government and State, local, and tribal governments and to end the imposition, in the absence of full consideration by Congress, of Federal mandates on these governments without adequate Federal funding, in a manner that may displace other essential governmental priorities. We have determined, in compliance with the requirements of the Unfunded Mandates Reform Act, 2 U.S.C. 1502 et seq., that the proposed action would not “significantly or uniquely” affect small governments, and will not produce a Federal mandate of $100 million or more in any given year on local or State government or private entities. Therefore, this action is not a “significant regulatory action” under the Unfunded Mandates Reform Act.

7. Energy Effects - Executive Order 13211

On May 18, 2001, the President issued Executive Order 13211 on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. As this proposed action is not expected to significantly affect energy supplies, distribution, or use, this proposed action is not a significant energy action and no Statement of Energy Effects is required.

8. Takings Implication Assessment

In accordance with Executive Order 12630, this proposed action does not have significant takings implications and does not affect any constitutionally protected property rights. This action will not result in the physical occupancy of property, the physical invasion of property, or the regulatory taking of any property. In fact, this proposed action will help alleviate private and public property damage and concerns related to public health and safety and allow the exercise of otherwise unavailable privileges.

9. Federalism Effects

Due to the migratory nature of certain species of birds, the Federal Government has been given statutory responsibility over these species by the Migratory Bird Treaty Act. While legally this responsibility rests solely with the Federal government, it is in the best interest of the migratory bird resource to work cooperatively with the Flyway Councils and States to develop and implement the various migratory bird management plans and strategies.

For example, in the establishment of migratory game bird hunting regulations, we annually prescribe frameworks from which the States make selections and employ guidelines to establish special regulations on Federal Indian reservations and ceded lands. This process preserves the ability of the States and Tribes to determine which seasons meet their individual needs. Any State or Tribe may be more restrictive than the Federal frameworks at any time. The frameworks are developed in a cooperative process with the States and the Flyway Councils. This allows States to participate in the development of frameworks from which they will make selections, thereby having an influence on their own regulations.

The DEIS's proposed alternative was developed following extensive input from the Flyway Councils, States, and Wildlife Services. Individual Flyway management plans were developed and approved by the four Flyway Councils (see section **I.E. Flyway Council Management Plans** and **Appendices 2- 5**). States actively participated in the scoping process (see **Appendix 8**).

This proposed action does not have a substantial direct effect on fiscal capacity, change the roles or responsibilities of Federal or State governments, or intrude on State policy or administration. The proposed alternative allows States the latitude to develop and implement their own resident Canada goose management action plan within the frameworks of the proposed alternative. Therefore, in accordance with Executive Order 13132, this proposed action does not have significant federalism effects and does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

10. Endangered Species Act Consideration

Section 7(a)(2) of the Endangered Species Act (ESA), as amended (16 U.S.C. 1531-1543; 87 Stat. 884) provides that "Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out *** is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat ***." We have initiated Section 7 consultation under the ESA for this proposed action. The result of our consultation under Section 7 of the ESA will be available to the public. A list of endangered, threatened, proposed and candidate species is included in **Appendix 11**.

11. Government-to-Government Relationship with Tribes

In accordance with the President's memorandum of April 29, 1994, "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951), E.O. 13175, and 512 DM 2, we have determined that this action has no effects on Federally recognized Indian tribes.

12. Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq) requires the preparation of flexibility analyses for actions that will have a significant effect on a substantial number of small entities, which includes small businesses, organizations, or governmental jurisdictions. The economic impacts of our proposed alternative will fall primarily on State and local governments and Wildlife Services because of the structure of wildlife damage management. Data are not available to estimate the exact number of governments affected, but it is unlikely to be a substantial number on a national scale. We estimate that implementation of new resident Canada goose management regulations would help alleviate local public health and safety concerns, decrease economic damage caused by excessive numbers of geese, and increase the quality of life for those people experiencing goose conflicts. Implementation of new resident Canada goose regulations would also help reduce agricultural losses caused by these geese. Our proposed action is to implement Alternative F "State Empowerment", which would give State fish and wildlife agencies significantly more latitude to manage resident Canada goose populations. If the proposed alternative is implemented, populations would be reduced to levels that local communities can support and agricultural damages will be reduced. We have determined that a Regulatory Flexibility Act analysis is not required.

13. Executive Order 12866

In accordance with the criteria in Executive Order 12866, this proposed action is not a significant regulatory action subject to Office of Management and Budget review. This rule will not have an annual economic effect of $100 million or adversely affect any economic sector, productivity, competition, jobs, the environment, or other units of government. Therefore, a cost-benefit economic analysis is not required. This proposed action will not create inconsistencies with other agencies' actions or otherwise interfere with an action taken or planned by another agency. The Federal agency most interested in this action is Wildlife Services. The action proposed is consistent with the policies and guidelines of other Department of the Interior bureaus. This proposed action will not materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients. This proposed action will not raise novel legal or policy issues because we have previously managed resident Canada geese under the Migratory Bird Treaty Act.

14. Migratory Bird Treaty Act

The Service has the primary statutory authority to manage migratory bird populations in the United States, authority which comes from the Migratory Bird Treaty Act (U.S.C. 703-711: 40 Stat. 755). The original treaty was signed by the U.S. and Great Britain (on behalf of Canada) in 1918 and imposed certain obligations on the U.S. for the conservation of migratory birds, including the responsibilities to: conserve and manage migratory birds internationally; sustain healthy migratory bird populations for consumptive and non-consumptive uses; and restore depleted populations of migratory birds. Conventions with Mexico, Japan, and Russia occurred in later years. The Act provides the Service regulatory authority to protect species of birds that migrate outside the United States. The law prohibits any "take" of the species, except as permitted by the Service. Regulations governing the take, capture, kill, possession, and transportation of migratory birds are authorized by the Migratory Bird Treaty Act and are promulgated in 50 CFR parts 13, 20, and 21.

In the past, several issues has arisen related to resident Canada goose population control and damage management activities. As an aid to the reader, we have attempted to readdress those issues here.

First, concern has been expressed that the Service does not have the authority under the Act to allow non-Service entities (i.e., States) to issue permits or permit damage management activities and that to do so is an abrogation of the Service's goose-management responsibility. However, under the proposed action Alternative F - State Empowerment), we propose to utilize a process whereby permitted entities (i.e., State wildlife management agency employees, airports, public health officials, agricultural operators, etc., or their designated agents) could carry out resident Canada goose damage management and control injurious problems within the overall conditions/restrictions of the program. This new process is essentially no different than the current permitting process contained in 50 CFR part 21.

Further, many have expressed concern that the entire concept and definition of "resident" Canada geese is invalid and that the new program is merely a mechanism to remove Canada geese from the protection afforded them under the Migratory Bird Treaty (Treaty). On the contrary, data and other information included in this DEIS clearly demonstrates the impact of resident Canada goose populations on personal property, agricultural commodities, and health and human safety. Further, we are not redefining what is or is not a migratory bird under the Treaty. Canada geese are clearly protected by the Treaty and will continue to be under the proposed action. We are using the term "resident" to identify those commonly injurious Canada geese that will be the subject of management control activities within the scope of the Treaty.

Lastly, some believe the Treaty only authorizes the killing of migratory birds if they are seriously injurious to commercial interests, not personal property. Article VII of the Treaty states, "Permits to kill any of the above named birds, which under extraordinary conditions may become seriously injurious to the agricultural **or other interests in any particular community** (emphasis added), may be issued by the proper authorities ...". We believe that resident Canada goose populations have reached this level. The information available to us as discussed in the DEIS, demonstrates that the current population levels are causing serious injury to increasing numbers of people and property. The Treaty does not limit the "interests" to be protected to those that are commercial. Rather, it provides the High Contracting Parties broad authority to address any affected interests.

Therefore, we believe that establishment and implementation of the proposed action (Alternative F - State Empowerment) is consistent with the provisions of the Act, the Service's authority, and in

accordance with the terms of the Treaty. For further discussion see section **I.D.1. U.S. Fish and Wildlife Service**.

15. Animal Damage Control Act

The Wildlife Services program is directed by law to protect American agriculture and other resources from damage associated with wildlife. This DEIS and the proposed action (Alternative F - State Empowerment) is consistent with the provisions of Wildlife Service's authority and responsibilities. For further discussion see section **I.D.2. Wildlife Services, Animal and Plant Health Inspection Service, U.S. Department of Agriculture**.

16. National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321-4347)

NEPA is our basic national charter for protection of the environment; it requires Federal agencies to evaluate the potential environmental impacts when planning a major Federal action and ensures that environmental information is available to public officials and citizens before decisions are made and before actions are taken.

In general, the NEPA process entails: determining what need must be addressed; identifying alternative ways of meeting the need; analyzing the environmental impacts of each alternative; and deciding which alternative to pursue and how. While NEPA does not place environmental protection over all other public values, it does require a thorough consideration of the environmental impacts associated with management actions. NEPA neither requires a particular outcome nor that the "environmentally-best" alternative is selected. It mandates a process for thoroughly considering what an action may do to the human environment and how any adverse impacts can be mitigated (http://npi.org/nepa/process.html).

More specifically, there are seven major steps in the planning process for the development of an EIS and the implementation of the proposed action. These include:

Publication of Notice of Intent – The Notice of Intent to prepare an Environmental Impact Statement on resident Canada goose management was published in the Federal Register (64 FR 45269) on August 19, 1999 (see **Appendix 6**). This initiated the scoping process.

Identification of Issues and Concerns – The Notice of Intent solicited public participation in the scoping process, which is the chief way that issues, concerns, and potential management options are communicated from the public to the lead agency. In addition to writing or e-mailing comments, citizens could attend any of nine public meetings held across the country. These meetings were publicized in a December 30, 1999 Federal Register (64 FR 73570) (see **Appendix 7**). The scoping period ended on March 30, 2000. All comments were read, compiled, and summarized in a public scoping report (see **Appendix 8**).

Development of Alternatives – Following scoping, seven alternatives were developed to offer a range of options for managing resident Canada geese. These were based on NEPA regulations, public comments, interagency meetings, internal discussion, and review of available scientific information.

Analysis of Environmental Effects – After significant issues and alternatives were established, the environmental analysis was prepared in order to help the public and decision-makers understand the

environmental consequences of the various alternatives.

Publication of Notice of Availability of Draft Environmental Impact Statement – This Federal Register publication announces the completion of the DEIS and its availability for public review. It is typically followed by a 60-day comment period during which several public meetings are held.

Publication of Notice of Availability of Final Environmental Impact Statement – This Federal Register publication follows the public comment period for the DEIS and announces the completion of the Final EIS, followed by a 30-day waiting period.

Publication of Record of Decision and National Management Plan – This is the final step of the EIS decision-making process, which states the selected alternative and why it was chosen. The actions associated with the EIS cannot be taken until the Record of Decision is issued.

17. Executive Order 13186

Executive Order 13186, entitled "Responsibilities of Federal Agencies to Protect Migratory Birds," directs any Federal agency whose actions have a measurable negative impact on migratory bird populations to develop a memorandum of understanding with the Fish and Wildlife Service to promote conservation of migratory birds. The MOUs would establish protocols to guide future agency regulatory actions and policy decisions; renewal of permits, contracts or other agreements; and the creation of or revisions to land management plans. The Executive Order also requires the Secretary of Interior to establish a Council for the Conservation of Migratory Birds to oversee implementation of the Executive Order. The council will be composed of representatives from the Department of Interior; the Departments of Commerce, Agriculture, State, Transportation, Energy, and Defense; the Environmental Protection Agency; and other agencies as appropriate.

I. UNAVOIDABLE ADVERSE IMPACTS

Some unavoidable adverse environmental impacts are likely to occur from implementation of the proposed action, Alternative F - "State Empowerment." There will be both localized and Flyway-wide adverse impacts on resident Canada goose populations where lethal population and damage management methods are used by authorized States. Many individual Canada geese will be killed each year, and resident Canada goose populations will be purposely reduced under Alternative F. In addition to the impacts on the resident Canada goose populations, there will be adverse impacts to those people and organizations that consider lethal control inhumane or unnecessary. Further, Federal, State, local, and individual dollars will be expended annually to implement the proposed program, and despite program efforts to minimize property losses from resident Canada geese, economic losses will continue into the future.

J. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The criteria for implementing NEPA require that any irreversible and irretrievable commitment of resources by a proposed action be included in the DEIS. Because the proposed action deals with wildlife, a renewable resource, the effects of the proposed action are not irreversible or irretrievable. No

construction or other major commitment of resources is part of the proposed action.

K. CUMULATIVE IMPACTS

Cumulative impacts are impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. **Table V-1** provides a comparison of impacts of the alternatives considered.

Under the "No Action" alternative, we expect resident Canada goose population increases to continue, conflicts with human activities to worsen, and property damage to expand into new areas. These population increases will continue to occur despite recent efforts to increase sport harvest, the increased issuance of permits, and the special Canada goose permit. Cumulative impacts to natural resources, especially in those areas already experiencing moderate to excessive damage, would increase as the degree of damage increases with higher populations of geese and their associated activities. Repeated, and almost year-round, incidences of resident Canada goose damage to agricultural crops and personal property may reach the point where farmers and other property owners demand compensation for financial losses. Growing conflicts with property, people and their activities will lessen the social value and consideration afforded Canada geese, and considerable safety concerns will continue to grow in stature and importance as the potential for goose-aircraft collisions increases. Federal and State workload related to responding to and handling resident Canada goose conflicts would be expected to continue increasing and begin to affect other resource program areas as additional financial resources are directed to dealing with goose conflicts. Over time, we expect that cumulative impacts will become more evident, prevalent, and significant as the goose populations continue to grow nationwide.

Cumulative impacts also would occur if the "No Action" approach were adopted in situations where other wildlife species have became overabundant. For example, light goose (snow geese and Ross's geese) population increases continue to cause severe damage to Arctic and subarctic habitats. These cumulative impacts to habitats, especially in sensitive tundra habitats, will be more persistent as the degree of damage increases with repeated exposure to goose feeding activities. Further, higher light goose populations increase the likelihood of disease outbreaks that would impact light geese as well as other susceptible species. Continued inaction for all situations where wildlife has become overabundant would likely cause significant cumulative impacts to habitats and conflicts with human activities would increase.

Under the proposed action, we expect that the use of resident Canada goose control and management activities, particularly lethal control methods would increase significantly. Lethal control methods associated with aggressive hazing techniques of adult birds would also be expected to increase. Such lethal and nonlethal activities would be expected to significantly decrease the number of injurious resident Canada geese in specific localized areas, especially urban/suburban areas. Expanded hunting opportunities, both inside and outside the Treaty frameworks, would help decrease populations on a more regional and statewide scale, compared to site-specific management activities. Regionally and nationally, we expect resident Canada goose populations would return to levels that we, the Flyway Councils, and the States believe are more compatible with human activities, especially in those high-conflict areas related to public health and safety, agricultural depredation, and urban and suburban areas. The long-term viability of goose populations would not be affected, however. The cumulative impacts to human activities and personal property would be that the rate of damage and conflicts from resident Canada

geese would be either stabilized, slowed ,or reversed depending on the State's selection of management strategies. Federal and State workload related to responding to and handling resident Canada goose conflicts would be expected to decrease as populations decrease. Over time, we expect that cumulative impacts will become more less evident and significant as the goose populations are reduced.

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V. COMPARISON OF ALTERNATIVES

A. SUMMARY TABLE OF ENVIRONMENTAL CONSEQUENCES

A comparison of the impacts by alternative is presented in **Table V-1**. The analyses are based on professional judgement, previous experience, examples of actions and results, and the currently available literature. The impacts presented in the table represent what we consider reasonable outcomes based on the alternatives and current conditions as described in the DEIS. The comparison of impacts is not intended to suggest that other outcomes are not possible. In fact, there may be an infinite number of possible outcomes for these alternatives.

B. CONSISTENCY WITH MANAGEMENT PLANS

The Atlantic, Mississippi, Central and Pacific Flyway Councils make recommendations to the Service on matters regarding migratory game birds and work in a unique partnership with the Service and Canadian Wildlife Service to manage populations of migratory birds. Since the conception of flyway management in the 1930s and the initiation of flyway management in 1948, the Councils stature and influence have grown. As part of this unique relationship, the Service and the Councils have cooperatively developed management plans for a wide variety of migratory bird species and activities, and these plans have been appropriate mechanisms to address national and international issues related to migratory bird population goals and objectives, harvest considerations, and information needs. Since there are large numbers of resident Canada geese in each Flyway, cooperative Flyway management plans were developed to address these populations (see section **I.E. Flyway Council Management Plans** for further discussion). A commonality among the plans' goals is the need to balance the positive aspects of resident Canada geese with the conflicts they can cause. To accomplish these goals, the plans identify objectives in population status, harvest management, and nuisance control/damage relief (see **Table I-4**). In formulating our proposed action, we have tried to incorporate Flyway objectives into our analyses to help define acceptable and desirable population reduction and management.

As we stated in section **I.E.5. Relationship of Flyway Management Plans to the DEIS**, "the role of this DEIS is to act as an umbrella document for the management of resident Canada geese and to act as a comprehensive programmatic plan to guide and direct resident Canada goose population growth and management activities in the conterminous United States. In particular, the DEIS evaluates the various alternative strategies to reduce, manage, and control resident Canada goose populations in the continental United States and to reduce related damages. Further, the objective of this DEIS and any ultimate proposal is to provide a regulatory mechanism that would allow State and local agencies, other Federal agencies, and groups and individuals to respond to damage complaints or damages by resident Canada geese. The means must be more effective than the current system; environmentally sound, cost-effective, flexible enough to meet the variety of management needs found throughout the flyways, should not threaten viable resident Canada goose populations as determined by each Flyway Council, and must be developed in accordance with the mission of the Service." We believe that Alternative F - "State Empowerment" is consistent with and best accomplishes the various goals and objectives of the individual Flyway management plans while remaining in accordance with the mission of the Service and Wildlife Services. Further, population reductions at the site-specific level within the guidelines and restrictions of this alternative will not be a significant impact on resident Canada geese because these levels maintain viable populations.

Table V-1. Comparison of impacts by alternative.

Impacted Area	Alternative A No Action	Alternative B Nonlethal Control & Management (Non-permitted Activities)	Alternative C Nonlethal Control & Management (Permitted Activities)	Alternative D Increased Hunting	Alternative E Airport Depredation Order	Alternative E Nest and Egg Depredation Order	Alternative E Agricultural Depredation Order	Alternative E Public Health Depredation Order	Alternative F State Empowerment	Alternative G General Depredation Order
Resident Canada goose populations	Population growth would continue at variable rates, depending on available habitat and conditions. At some future point, populations would probably level-off at some unknown but higher level.	Population growth would continue at highly variable rates, depending on available habitat and conditions. Overall, populations would eventually level-off at some unknown but much higher level.	Population growth would continue at variable rates, depending on available habitat and conditions. Overall, populations would probably level-off at some unknown but higher level.	Populations, especially those in urban areas, would likely continue to grow at variable rates, depending on available habitat and conditions. Some localized reductions could occur. Rural populations would likely experience reduced growth rates.	Localized significant reductions to populations at or near airports. Overall, population growth would continue at variable rates, depending on available habitat and conditions. Populations would probably level-off at some unknown but higher level.	Localized reductions in population growth rates and gradual stabilization of population depending on local aggressiveness of program. Overall, population growth would likely continue at variable, but slower rates than under Alt. A depending on available habitat and conditions.	Localized reductions in populations causing agricultural damage. Overall, population growth would likely continue at variable, but slower, rates than under Alt. A depending on available habitat and conditions. Populations would probably level-off at some unknown but slightly higher level.	Localized significant reductions to populations at specific location of management actions. Overall, population growth would continue at variable rates, depending on available habitat and conditions. Populations would probably level-off at some unknown but higher level.	Reduced growth rate or population reduction depending on State's selection of management actions. However, long-term viability of the various populations would not be affected. Populations would probably level-off at some unknown but significantly lower level.	Reduced growth rate or population reduction. However, long-term viability of the various populations would not be affected. Populations would probably level-off at some unknown but significantly lower level.
Natural resources	Continued impacts to soil and water resources.	Increased impacts to soil and water resources as populations rapidly increase.	Increased impacts to soil and water resources as populations increase.	Continued impacts to soil and water resources, however, impacts reduced from those experienced under Alt. A.	Overall, continued impacts to soil and water resources. Reduced localized impacts at participating airports.	Overall, continued impacts to soil and water resources. Gradual reduction in impacts at localized areas subjected to actions.	Overall, continued impacts to soil and water resources. Reduced localized impacts at agricultural locations.	Overall, continued impacts to soil and water resources. Significantly reduced localized impacts at site-specific locations.	Reduced or stabilized impacts to soil and water resources.	Reduced or stabilized impacts to soil and water resources.
Other wildlife including Federally protected species	Continued limited impacts to other migratory birds.	Increased impacts to other migratory birds.	Increased impacts to other migratory birds.	Continued limited impacts to other migratory birds, however, impacts reduced from those under Alt. A.	Continued limited impacts to other migratory birds.	Gradual decrease in impacts to other migratory birds.	Continued limited impacts to other migratory birds.	Continued limited impacts to other migratory birds.	Reduced or stabilized impacts to other migratory birds.	Reduced or stabilized impacts to other migratory birds.

Regular hunting seasons	Given continued population growth, hunting opportunities would continue to increase before gradually leveling off.	Given continued population growth, hunting opportunities would likely increase. Some new areas could be opened due to these population increases.	Given continued population growth, hunting opportunities would likely increase. Some new areas could be opened due to these population increases.	Given overall continued population growth, hunting opportunities would increase, but at a slower rate than under Alt. A.	Given continued population growth, hunting opportunities would continue to increase.	Given continued population growth, hunting opportunities would continue to increase.	Given continued population growth, hunting opportunities would continue to increase.	Given continued population growth, hunting opportunities would continue to increase.	Largely unaffected. Some slight reduction in hunting opportunities could occur in urban-related areas since most population reductions would occur in areas already closed to hunting or with limited opportunity.	Some reduction in hunting opportunities could occur in urban-related areas where most population reductions would occur. Other hunting opportunities would increase, but at a slower rate than under Alt. A.
Impacted Area	**Alternative A** **No Action**	**Alternative B** **Nonlethal Control & Management (Non-permitted Activities)**	**Alternative C** **Nonlethal Control & Management (Permitted Activities)**	**Alternative D** **Increased Hunting**	**Alternative E** **Airport Depredation Order**	**Nest and Egg Depredation Order**	**Agricultural Depredation Order**	**Public Health Depredation Order**	**Alternative F** **State Empowerment**	**Alternative G** **General Depredation Order**
Special hunting seasons	Given continued population growth, hunting opportunities would continue to increase before gradually leveling off.	Significant. Special hunting seasons would be eliminated.	Given continued population growth, hunting opportunities would continue to increase. Some new areas could be opened due to these population increases.	Given overall continued population growth and new available techniques, opportunities would increase significantly then likely level off.	Given continued population growth, hunting opportunities would continue to increase.	Given continued population growth, hunting opportunities would continue to increase.	Given continued population growth, hunting opportunities would continue to increase.	Given continued population growth, hunting opportunities would continue to increase.	Some slight reduction in hunting opportunities could occur in urban and suburban areas where population reductions would likely occur. New available methods would significantly increase hunting opportunities.	Some reduction in hunting opportunities could occur in urban-related areas where most population reductions would occur. New available techniques, opportunities would increase significantly then likely level off.
Wildlife Services program	Workload would increase as complaints continue to increase.	Significant. Requests for technical assistance would increase substantially as complaints and conflicts would likely increase.	Significant. Requests for technical assistance would increase substantially as complaints and conflicts would likely increase.	Workload would increase as complaints and conflicts, especially in urban areas, continue to increase.	Initial workload increase establishing non-lethal harassment programs at airports. Subsequent workload reduction at airports once programs are established. Overall, workload would increase as complaints and conflicts, especially in urban areas, continue to increase.	Workload would likely be unaffected. Although population growth rates would gradually decline, current workload would remain.	Initial workload increase establishing non-lethal harassment programs. Subsequent workload reduction in agricultural areas once programs are established. Overall, workload would increase as complaints and conflicts, especially in urban areas, continue to increase.	Initial workload increase establishing non-lethal harassment programs. Subsequent workload reduction in these specific areas once programs are established. Overall, workload would increase as complaints and conflicts, especially in urban areas, continue to increase.	Workload would vary depending on State's selection of strategies. Probable significant initial workload increase establishing non-lethal harassment programs and assisting in establishing and implementing other programs. Subsequent workload reduction once programs are established and conflicts lessen.	Significant initial workload increase establishing non-lethal harassment programs and assisting in implementing other programs. Probable subsequent workload reduction once programs are established and conflicts lessen.

U.S. Fish and Wildlife Service program	Likely continued increase in complaints and conflicts would result in an increased workload and more permits being issued.	Permit workload would decrease significantly since no permits would be issued.	Permit workload would significantly decrease since most permit issuance would be eliminated.	Likely increase in complaints and conflicts, especially in urban areas, would result in an increased workload and more permits being issued.	Significant reduction in workload associated with geese at airports. Other workload would remain largely unaffected and likely increase in complaints and conflicts, especially in urban areas, would result in an increased workload and more permits being issued.	Significant reduction in workload associated with permits for nest and egg destruction. Other workload would remain largely unaffected.	Significant reduction in workload associated with geese causing agricultural impacts. Other workload would remain largely unaffected and likely increase in complaints and conflicts, especially in urban areas, would result in an increased workload and more permits being issued.	Significant reduction in workload associated with geese at specific locations, such as beaches, parks, etc. Other workload would remain largely unaffected and likely increase in complaints and conflicts, especially in urban areas, would result in an increased workload and more permits being issued.	Depending on State's selection of strategies, workload would vary, but likely significant reduction in workload. Most permits for resident Canada goose work would be eliminated as individual management decisions fall to the State. Other workload would remain largely unaffected.	Significant reduction in workload. Most permits for resident Canada goose work would be eliminated as decisions falls to the State, private entities, and/or individuals.
Impacted Area	**Alternative A** **No Action**	**Alternative B** **Nonlethal Control & Management (Non-permitted Activities)**	**Alternative C** **Nonlethal Control & Management (Permitted Activities)**	**Alternative D** **Increased Hunting**	**Alternative E** **Airport Depredation Order**	**Nest and Egg Depredation Order**	**Agricultural Depredation Order**	**Public Health Depredation Order**	**Alternative F** **State Empowerment**	**Alternative G** **General Depredation Order**
State Programs	Increasing populations result in increases in conflicts and workload (i.e., requests for assistance, permit recommendations, assistance funds, etc.). States would likely look for increases in funding for goose damage management program.	Increased populations result in significant increases in conflicts. Workload related to technical assistance would increase. States participating in the special Canada goose permit program would have to cease all management activities.	Increased populations result in significant increases in conflicts. Workload related to technical assistance would increase. States participating in the special Canada goose permit program would have to cease most management activities.	Similar, but overall less pronounced, to Alt. A, especially in those urban and suburban areas not open to increased hunting. Areas open to increased hunting would likely see fewer requests for technical assistance and management activities.	Workload would remain largely unaffected and likely increase in complaints and conflicts, especially in urban areas, would result in an increased workload.	Significant reduction in workload associated with nest and egg destruction. Other workload would remain largely unaffected.	Significant reduction in workload associated with geese causing agricultural impacts. Other workload would remain largely unaffected and likely increase in complaints and conflicts, especially in urban areas, would result in an increased workload.	Significant reduction in workload associated with geese at specific locations, such as beaches, parks, etc. Other workload would remain largely unaffected and likely increase in complaints and conflicts, especially in urban areas.	Depending on State's selection of strategies, workload would vary. In participating States, increases in reporting and monitoring work. In non-participating States, workload would be unaffected and similar to Alt. A.	The State would not serve as the primary decision maker and manager as under Alternative F. Thus, the States would likely experience a significant reduction in permit recommendation and technical assistance workload as decisions falls to the State, private entities, and/or individuals.

Aesthetics	Likely increase in populations would provide more opportunities for public viewing. However, problems associated with large numbers of geese, i.e., droppings, feathers, etc. would likely increase.	Increase in populations would provide more opportunities for public viewing. However, problems associated with large numbers of geese, i.e., droppings, feathers, etc. would likely increase.	Increase in populations would provide more opportunities for public viewing. However, problems associated with large numbers of geese, i.e., droppings, feathers, etc. would likely increase.	Likely increase in urban populations would provide more opportunities for public viewing. However, problems associated with large numbers of urban geese (unavailable to hunting), i.e., droppings, feathers, etc. would likely increase.	Significant reduction in viewing opportunities at airports. Overall, likely increase in populations would provide more opportunities for public viewing. However, problems associated with large numbers of geese, i.e., droppings, feathers, etc. would likely increase.	In the short-term, public viewing opportunities would see little impact and the problems associated with large numbers of geese, i.e., droppings, feathers, etc. would likely continue. In the long-term, viewing opportunities would slightly decrease and associated problems should slightly decrease.	Little impact. Overall, likely increase in populations would provide more opportunities for public viewing. However, problems associated with large numbers of geese, i.e., droppings, feathers, etc. would likely increase.	Significant reduction in viewing opportunities at or near specific locations, such as beaches, parks, etc. Additionally, problems associated with large numbers of geese, i.e., droppings, feathers, etc. at these locations would also significantly decrease.	Likely significant reduction in viewing opportunities depending on the State's selection of management strategies. However, problems associated with large numbers of geese, i.e., droppings, feathers, etc. would also significantly decrease. Overall, viewing still readily available.	Likely significant reduction in viewing opportunities as populations decrease. However, problems associated with large numbers of geese, i.e., droppings, feathers, etc. would also significantly decrease. Overall, viewing still readily available.
Recreational use of impacted areas	Continued impacts as populations continue to grow.	Probable significant increase in impacts.	Probable significant increase in impacts.	Continued impacts as populations unavailable to hunting, i.e., those in urban areas, continue to grow.	Impacts likely increase as likely aggressive hazing of birds at airports causes displacement to other protected areas.	Continued impacts until populations gradually level off at reduced levels. At which point, impacts probably lessen.	Impacts likely increase as likely aggressive hazing of birds in agricultural areas causes displacement to other protected areas.	Continued impacts as likely aggressive hazing of birds in agricultural areas causes displacement to other protected areas.	Probable significant reduction in impacts as urban birds are targeted for reduction efforts.	Probable significant reduction in impacts as urban birds are targeted for reduction efforts.
Animal rights and humaneness	Continued use of lethal techniques.	Significantly less human-induced mortality. Potential for environmental mortality at carrying capacity.	Significantly less impacts on adult birds.	Continued use of lethal techniques. Increased impact on adult birds.	Continued use of lethal techniques. Increased impact on birds at airports.	Continued use of lethal techniques on both adults and eggs.	Continued use of lethal techniques. Increased impact on birds at agricultural sites.	Continued use of lethal techniques. Increased impact on birds at or near specific locations, such as beaches, parks, etc.	Significantly increased impact on birds depending on the State's selection of management strategies.	Significantly increased impact on birds.
Impacted Area	**Alternative A** **No Action**	**Alternative B** **Nonlethal Control & Management (Non-permitted Activities)**	**Alternative C** **Nonlethal Control & Management (Permitted Activities)**	**Alternative D** **Increased Hunting**	**Alternative E** **Airport Depredation Order**	**Nest and Egg Depredation Order**	**Agricultural Depredation Order**	**Public Health Depredation Order**	**Alternative F** **State Empowerment**	**Alternative G** **General Depredation Order**
Residential, commercial, and public property	Continued impacts and conflicts as populations continue to grow.	Probable significant increase in impacts and conflicts.	Probable significant increase in impacts and conflicts.	Continued impacts and conflicts as populations unavailable to hunting continue to grow.	Impacts and conflicts likely increase as aggressive hazing of birds causes displacement to other protected areas.	Continued impacts and conflicts until populations gradually level off at reduced levels. At which point, impacts probably lessen.	Impacts and conflicts likely increase as aggressive hazing of birds causes displacement of birds to other protected areas.	Continued impacts and conflicts as populations continue to grow. Likely aggressive hazing of birds causes displacement to other protected areas.	Probable significant reduction in conflicts as urban birds are targeted for reduction efforts.	Probable significant reduction in conflicts as urban birds are targeted for reduction efforts.

Agricultural crops	Continued impacts as populations continue to grow.	Probable significant increase in impacts.	Probable significant increase in impacts.	Impacts probably lessened as populations responsible for damage available to increased hunting.	Impacts likely increase as aggressive hazing of birds causes displacement of birds to other protected areas.	Continued impacts until populations gradually level off at reduced levels. At which point, impacts probably lessen.	Significantly less impacts as birds are aggressively hazed.	Impacts likely increase as aggressive hazing of birds causes displacement to other protected areas.	Probable significant reduction as aggressive hazing causes immigration of birds to other areas.	Probable significant reduction as aggressive hazing causes immigration of birds to other areas.
Human safety	Continued impacts as populations continue to grow.	Probable significant increase in impacts.	Probable significant increase in impacts.	Continued impacts as populations unavailable to hunting continue to grow.	Significantly less impacts at airports.	Continued impacts until populations gradually level off at reduced levels. At which point, impacts probably lessen.	Impacts likely increase as aggressive hazing of birds causes displacement of birds to other protected areas.	Impacts likely increase as aggressive hazing of birds causes displacement of birds to other protected areas.	Significantly less impact as problem birds are targeted for reduction efforts.	Significantly less impacts as problem birds area targeted for reduction efforts.
Human health	Continued impacts as populations continue to grow.	Probable significant increase in impacts.	Probable significant increase in impacts.	Continued impacts as populations unavailable to hunting continue to grow.	Impacts likely increase as aggressive hazing of birds causes displacement of birds to other protected areas.	Continued impacts until populations gradually level off at reduced levels. At which point, impacts probably lessen.	Impacts likely increase as aggressive hazing of birds causes displacement of birds to other protected areas.	Significantly less impacts.	Significantly less impacts as problem birds area targeted for reduction efforts.	Significantly less impacts as problem birds area targeted for reduction efforts.

Impacted Area	Alternative A No Action	Alternative B Nonlethal Control & Management (Non-permitted Activities)	Alternative C Nonlethal Control & Management (Permitted Activities)	Alternative D Increased Hunting	Alternative E Airport Depredation Order	Alternative E Nest and Egg Depredation Order	Alternative E Agricultural Depredation Order	Alternative E Public Health Depredation Order	Alternative F State Empowerment	Alternative G General Depredation Order
Administrative costs	FWS- Likely increase costs due to increases in permits issuance. WS-Costs would increase as complaints continue to increase.	FWS-Significant decrease as permits would be eliminated. WS-Significant increase in costs as complaints and requests for technical assistance would substantially increase.	FWS-Significant decrease as most permits would be eliminated. WS- Significant increase in costs as complaints and requests for technical assistance would substantially increase.	FWS-Likely increase in complaints and conflicts, especially in urban areas, would result in an increased workload, more permits being issued, and increased costs. WS-Costs would increase as complaints and conflicts, especially in urban areas, continue to increase.	FWS-Overall, costs remain largely unaffected. WS-Initial costs increase establishing non-lethal harassment programs. Overall, costs would remain largely unaffected.	FWS-Slightly less costs since reduction in workload associated with permits for nest and egg destruction. WS-Costs would likely be unaffected. Although population growth rates would gradually decline, current costs would remain.	FWS-Overall, costs remain largely unaffected. WS-Initial significant costs increase establishing non-lethal harassment programs. Subsequent costs reduction once programs are established.	FWS-Overall, costs remain largely unaffected. WS-Initial costs increase establishing non-lethal harassment programs. Subsequent costs reduction once programs are established.	FWS-Depending on State's selection of strategies, costs would vary, but likely significantly reduced. Most permits would be eliminated as decisions would fall to the State. WS-Costs would vary depending on State's selection of strategies. Probable initial costs increase establishing non-lethal harassment programs and assisting implementing other programs. Subsequent costs reduction once programs are established and complaints and conflicts lessen.	FWS-Significantly less since most permits for resident Canada goose work would be eliminated as decisions would fall to the State, private entity, or individuals. WS-Significant initial costs increase establishing non-lethal harassment programs and assisting in implementing other programs. Probable subsequent costs reduction once programs are established and complaints lessen.
Monitoring costs	Continued status quo. No new costs.	No new costs.	No new costs.	No significant new costs.	No significant new costs.	No significant new costs.	No significant new costs.	No significant new costs.	Significantly increased costs for those States with populations not currently monitored or not adequately monitored.	Significantly increased costs for those States with populations not currently monitored or not adequately monitored.

VI. CONSULTATION AND COORDINATION

We have assembled a mailing list of nearly 3,000 agencies, organization, and individuals for this DEIS. This list was constructed from the following: 1) the mailing list that the Division of Migratory Bird Management uses for its **Federal Register** notices; and 2) individuals, organizations, and agencies that submitted comments in response to our Notice of Intent published on August 19, 1999. A summary of agencies and organization on our mailing list is presented below; however, this list may not be all-inclusive.

Federal Agencies

U.S. Environmental Protection Agency
U.S. Department of Agriculture
Canadian Wildlife Service
Department of the Army, Corps of Engineers, Baltimore
Federal Aviation Administration, New England Region
Peterson Air Force Base, Colorado
United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services

Flyway Councils

Atlantic Flyway Council
Mississippi Flyway Council
Central Flyway Council
Pacific Flyway Council

State/Provincial Agencies

Texas Parks & Wildlife Department
Alabama Department of Cons. & Natural Resources
Alaska Department of Fish & Game
Arkansas Game & Fish Commission
Delaware Division of Fish & Wildlife
Georgia Department of Natural Resources
Hawaii Division of Forestry & Wildlife
Illinois Department of Natural Resources
Iowa Department of Natural Resources
Kentucky Department of Fish & Wildlife Resources
Maryland Department of Natural Resources
Massachusetts Division of Fisheries & Wildlife
Michigan Department of Natural Resources
Mississippi Dept. of Wildlife, Fisheries & Parks
Nebraska Game & Parks Commission
Nevada Division of Wildlife
New Jersey Division of Fish, Game & Wildlife
Tennessee Wildlife Resources Agency
West Virginia Division of Natural Resources
Wisconsin Department of Natural Resources
Connecticut Department of Environmental Protection
Florida Game & Fresh Water Fish Comm
Maine Department of Inland Fisheries & Wildlife
New Hampshire Fish & Game Department
New York Department of Environmental Conservation
North Carolina Wildlife Resources Commission
Pennsylvania Game Commission

Rhode Island Division of Fish & Wildlife
South Carolina Department of Natural Resources
Virginia Department of Game & Inland Fisheries
Ohio Division of Natural Resources
Manitoba Dept. of Natural Resources & Energy
Ontario Ministry of Natural Resources
Nova Scotia Department of Natural Resources
Quebec Ministere de l'Environnement et de la faune
Indiana Department of Natural Resources
Louisiana Department of Wildlife & Fisheries
Minnesota Department of Natural Resources
Missouri Department of Conservation
Kansas Department of Wildlife & Parks
Montana Department of Fish, Wildlife & Parks
North Dakota Game & Fish Department
Oklahoma Department of Wildlife Conservation
South Dakota Game, Fish & Parks Department
Government of Northwest Territories Wildlife & Fisheries Division
Saskatchewan Environment & Resource Management
Arizona Game & Fish Department
California Department of Fish & Game
Colorado Division of Wildlife
Idaho Department of Fish & Game
New Mexico Department of Game & Fish
Oregon Department of Fish & Wildlife
Utah Division of Wildlife Resources
Washington Department of Fish & Wildlife
Wyoming Game & Fish Department
Alberta Natural Resource Services
British Columbia Ministry of Environment & Parks
Yukon Dept. of Renewable Resources

Local Governments and Associations

Apple Valley Parks and Recreation Department, MN
Arlington Heights Park District, IL
Borough of Avon by the Sea, NJ
Bellevue Parks and Community Services Department, Bellevue, WA
Berkeley Township, NJ
Bollingbrook Park District, IL
Brick, NJ
Bristol Water Department, CT
Bucks Conservation District, New Britain, PA
Buffalo Grove Park District, IL
Burlington County Board of Agriculture, NJ
Camden, ME
Candlewick Lake Association, Poplar Grove, IL
Canton Board of Park Commissioners, Canton, OH
Cherbourg Homeowners Association, Libertyville, IL
Citation Lake Homeowners Association, IL
Dover, NJ
Dover Township Board of Health, NJ
Dover Township Environmental Commission, NJ
DuPage Environmental Commission, IL
Eden Prairie, MN
Elm Grove, WI
Emerald Green Property Owners Association, Inc, Rock Hill, NY
Fairway Mews Community Association, Spring Lake Heights, NJ
Gloucester County Planning Department, NJ
Hartford/Bloomfield Connecticut Health District, CT

Highland Park Park District, IL
Hoffman Estates Park District, IL
Horicon Police Department, Horicon, WI
Town of Hunts Point, WA
James River Park System, Richmond, VA
Lacey, WA
Lake County Board, IL
City of Lakewood Parks, Lakewood, CO
Lake Intervale Management Association, Parsippany, NJ
Lake Parsippany Property Owners Association, Parsippany, NJ
Lake Tansi Property Owners Association, Crossville, TN
Lewis County Department of Community Services, WA
Marple Environmental Advisory Board, PA
Manmouth County Park Board of Commissioners, NJ
Manmouth County Water Resources Commission, NJ
Minneapolis Park and Recreation Board, MN
Morris Township Health Department, NJ
New Jersey Senator Joseph Kyrollos Jr.
Northbrook Park District, IL
North Penn Water Authority
Ocean County Board of Health, NJ
Packanack Lack Country Club and Community Association, NJ
Pennsylvania House of Representatives, Paul Clymer
Pennsylvania House of Representatives, Thomas Corrigan
Pennsylvania House of Representatives, Gene DiGirolamo
Pennsylvania House of Representatives, Charles NcIlhinney
Pennsylvania House of Representatives, David Steil
Pennsylvania House of Representatives, Mathew Wright
Pennsylvania State University Cooperative Extension, Bucks County, PA
Redmond Parks and Recreation Department, WA
Regent Park Property Owners Association, IL
City of Renton Parks, WA
Salt Creek Rural Park District, IL
Schaumburg Park District, IL
Seattle Department of Parks and Recreation, WA
Shadow Lake Village Condominium Association, Inc., NJ
Sikorsky Memorial Airport, Bridgeport, CT
City of Sioux Falls, SD
Sioux Falls Parks and Recreation, SD
Streamwood Park District, IL
Sussex County Board of Agriculture, NJ
Thiensville, WI
Trumbull, CT
Tukwila Parks and Recreation Department, Tukwila, WA
Upper Schuylkill Valley Park, PA
U.S. House of Representatives, James Greenwood, 8th District, PA
Warren County Parks, OH
Waukesha County Department of Parks and Land Use, WI
West Bend Park, Recreation & Forestry Department
West Long Branch Governing Body and Environmental Commission, NJ
Wheaton Park District, IL
Woodland Community Association, VA
Wyndam Manor Homeowners Association, Northbrook, IL

Organizations

National Audubon Society
International Association of Fish & Wildlife Agencies
The Wildlife Legislative Fund of America
Wildlife Information Center Inc.
The Wildlife Society
Wildlife Management Institute
Finger Lakes & Western New York Waterfowlers Association
Delta Waterfowl Foundation
Outdoor Writers Assoc. of America, Inc.
National Wildlife Federation
Defenders of Wildlife

World Society for the Protection of Animals
National Fish & Wildlife Foundation
California Waterfowl Association
Waterfowl Improvement Assoc.
Texas Falconry Advisory Board
Texas Waterfowl Outfitters
American Bird Conservancy
Wildlife Management Institute
New Jersey State Federation of Sportsmen's Clubs
Safaria Club International
Arlington Sportsman's Club
Animal Alliance of Canada
Voices for Animals
World Society for the Protection of Animals
Oakville Humane Society
Etobicoke Humane Society
Marion County Humane Society
Wildlife Watch and Affiliates, LC
Kenora & District Humane Society
Arnprior & District Humane Society
Alliston & District Humane Society
Ottawa-Carleton Wildlife Centre
Animal Protection Institute
Arnprior & District Humane Society
The Peoria Humane Society
People for the Ethical Treatment of Animals
Mississippi Valley Duck Hunters Assoc.
Illinois Waterfowlers Alliance, Inc.
Conservation Federation of Missouri
KAW Valley Sportsmen's Association
Boulder County Audubon Society
Alabama Waterfowl Association Inc.
Animal Protection Institute
Anti-vivisection Society of America
Association of Lakes of Putnam County
Bloomingdale Republican Club
Brookings Wildlife Federation
Buck's County Farm Bureau
Capable Partners
Churchill Nature Center
Citizens for the Preservation of Wildlife, Inc.
Coalition to Prevent the Destruction of Canada Geese
Coalition to Protect Canada Geese
Committee to Abolish Sport Hunting
Committee to Save our Wetlands
Connecticut Association of Golf Course Supervisors
Connecticut Farm Bureau Association
Connecticut Harbor Management Association
Delaware Action for Animals Inc.
Delaware Riverkeeper Network
Doris Day Animal League
Ducks Unlimited
Federated Humane Society of Pennsylvania
Friends of Animals
Friends of the Ducks and Geese
Friends of Waterfowl at Covell Lake, SD
Fund for Animals
Geese Peace
Golf Course Superintendents Association of Colorado
Grain Forage Producers Association of New Jersey
Honor and Nonviolence for Animals
Housatonic Fish & Game
Humane Society of the United States
Illinois Farm Bureau
LCS Chapter of Waterfowl U.S.A.
Manmouth County SPCA
Maryland/Deleware (The Wildlife Society)

Megunticook Watershed Association
Middle Tennessee Golf Course Superintendents Association
Minnesota Duck and Goose Callers Association
Minnesota Waterfowl Association
National Humane Education Society
National Rifle Association
National Wildlife Control Operators
New Jersey Animal Rights Alliance
New Jersey Farm Bureau
North American Waterfowl Federation
Pennsylvania Farm Bureau
Pennsylvania State Grange
Peoria Humane Society
Prairie Woods Audubon Society
Progressive Animal Welfare Society
Sun City Friends of Animals Inc.
Supporting and Promoting Ethics in the Animal Kingdom
United Sportsmen for South Dakotans
Virginia Soybean Association
We Citizens of Wisconsin
Wildlife Foundation
Wildlife Preserves Inc.
Wildlife Rehabilitation and Rescue Center

Tribal

Colorado River Indian Tribes Department of Fish & Game
Conf. Salish & Kootenai Tribes of the Flathead Nation
Grand Transverse Band of Ottawa & Chippewa Indians
Great Lakes Indian Fish & Wildlife Commision
The Jicarilla Apache Tribe
Kalispel Tribe Kalispel Natural Resources Department
The Klamath Tribes
Lower Brule Sioux Tribe Dept. of Wildlife, Fish & Recreation
Oneida Tribe of Indians of Wisconsin
The Navajo Nation
Seminole Tribe of Florida
The Shoshone-Bannock Tribes
The Tulalip Tribes of Washington
Tulalip Department of Natural Resources
White Mountain Apache Tribe
Yankton Sioux Tribe
Fond du Lac Band of Lk Sup. Chippewa Tribe
Crow Creek Sioux Tribe
Point No Point Treaty Tribes
Squaxin Island Tribe
Swinomish Indian Tribal Community
Leech Lake Reservation
White Earth Reservation
Oneida Tribe of Indians of Wisconsin

Individuals and Businesses

Available upon request

VI. CONSULTATION AND COORDINATION ..... VI - 1

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IX. LIST OF ACRONYMS

Service	U.S. Fish and Wildlife Service
CFR	Code of Federal Regulations
DEIS	Draft Environmental Impact Statement
NEPA	National Environmental Policy Act
EA	environmental assessment
AFRP	Atlantic Flyway Resident Population of Canada geese
GPP	Great Plains Population of Canada geese
RMP	Rocky Mountain Population of Canada geese
MFRP	Mississippi Flyway Giant Population of Canada geese
HLP	Hi-Line Population of Canada geese
Pacific	Pacific Population of Canada geese
APHIS/WS	U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
DVE	duck virus enteritis
FAA	Federal Aviation Administration
Act	Migratory Bird Treaty Act
USDI	U.S. Department of the Interior
AFMP	Atlantic Flyway Management Plan
CFMP	Central Flyway Management Plan
PP	Pacific Population of Canada geese
IWDM	Integrated Wildlife Damage Management
AAWV	American Association of Wildlife Veterinarians
MA	methyl anthranilate
FDA	Food and Drug Administration
EPA	Environmental Protection Agency
IAFWA	International Association of Fish and Wildlife Agencies
HQS	Hunter Questionnaire Survey
PCS	Parts Collection Survey
AP	Atlantic Population of Canada geese
BBS	Breeding Bird Survey
MVP	Mississippi Valley Population of Canada geese
EPP	Eastern Prairie Population of Canada geese
SJBP	Southern James Bay Population of Canada geese
USFWS	U.S. Fish and Wildlife Service
TVA	Tennessee Valley Authority
CWS	Canadian Wildlife Service
WP	Western Prairie Population of Canada geese
ESA	Endangered Species Act
SGP	Short Grass Prairie Population
P	phosphorus
N	nitrogen
DCNR	Pennsylvania Department of Conservation and Natural Reosurces
ODWC	Oklahoma Department of Wildlife Conservation
SDGFP	South Dakota Game, Fish, and Parks Department
WDACP	Wisconsin Wildlife Damage Abatement and Claims Program
CDCP	Centers for Disease Control and Prevention
WDNR	Wisconsin Department of Natural Resources
FTE	Full time equivalents
OMB	Office of Management and Budget

U.S. FISH AND WILDLIFE SERVICE

PUBLIC MEETING

ON RESIDENT CANADA GOOSE POPULATIONS

April 1, 2002

Dallas, TX

A P P E A R A N C E S

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P R O C E E D I N G S

MR. SENG: Well, good evening. I'd like to welcome you to tonight's meeting on Resident Canada Goose Management.

My name is Phil Seng. I'll be the facilitator at tonight's meeting. I work with DJ Case & Associates, a communications consulting firm based up in Indiana, and when I was talking to someone this afternoon about this meeting tonight and they found out that I was from Indiana, they said: Well, you're probably really going to ramrod that meeting and speed it up so you can go see Indiana University play for the national championship in basketball tonight. But I had to be quick to point out that as a Purdue graduate, I really have no love for Indiana University, although I must admit that now Bobby Knight has come down to Texas, it's much harder to hate them than it used to be.

But in any case, there's really no conflict of interest --

VERNON BEVILL: And he’s doing a fine job, I might add.

MR. SENG: -- we'll take as much time as we need to.

We were contracted by the Fish and Wildlife Service to facilitate 11 of these public meetings around the country to take public input on the Draft Environmental Impact Statement that the service has developed on management of resident Canada geese, and tonight is the first of these 11 meetings.

Following tonight's meeting, we will go to Palatine, Illinois; Waupun, Wisconsin; Franklin, Tennessee; Bloomington, Minnesota; Brookings, South Dakota; Richmond Virginia; Danbury, Connecticut; New Brunswick, New Jersey; Denver, Colorado; and we will finish on May 30th in Bellevue, Washington, in Washington State.

The procedure tonight is very straightforward. We are going to have a brief slide presentation by Ron Kokel, who is a wildlife biologist with the Division of Migratory Bird Management, Fish and Wildlife Service, on the Draft EIS, and then we're going to turn it over to the public for your input.

When you came in, you should have received a numbered card like this. We will just take public comment in this order, starting with Number 1 and going till there's no cards left. And

also, if you choose not to make public comment tonight, but you think of something later you'd like to say, there's an address on back, both snail mail and e-mail addresses where you can send comments. And the current deadline for public comment is May 30th, and that's written on here as well.

When it comes time for public comment, I would ask that you come to the floor mike here in the center for two reasons: Number one, so everyone can hear what you have to say; and also, so that our court reporter, Jamie, can make sure we get everything verbatim that you had to say as well.

I would ask when you come to the mike if you would state your name and spell your name, unless it's immediately obvious how to spell it, also state whatever organization you represent, if any, and where you're from.

And the meeting -- as most of you know, the meeting is designed for the Service to take input. It's not -- the format is not set up for a give-and-take or debate discussion, so please keep that in mind as you come to the mike.

And I'll reiterate some of these

things when we come back to the public comment period. We have signup sheets that I will pass around while Ron's talking.

DAVE CASE: If you're confident that you'll get the Final EIS, you don't need to sign up. This is for people to get the Final DEIS.

MR. SENG: There's a check box on there that says you're already on the mailing list or you're not. So if you've gotten a copy of the Draft EIS, which looks like this, and you're on the mailing list, you'll get a copy of the Final when it's done.

If you haven't gotten a copy and you'd like one, please check the appropriate box. Or if you'd like to be taken off the list and you've got one and you don't want the Final, write something to that effect in there and we'll take you off the list.

With that, Ron Kokel, wildlife biologist with the U.S. Fish and Wildlife Service.

MR. KOKEL: Thanks, Phil.

Good evening. Again, my name is Ron Kokel. I'm a wildlife biologist with the Division of Migratory Bird Management with the Fish and Wildlife Service, stationed in Arlington, Virginia. And on behalf of our director, Steve Williams, I'd like to welcome all of you to this public meeting.

If I could get the lights and the slides.

This is the first of the 11 public meetings held across the country for the purpose of inviting public participation and input into our process of developing an environmental impact statement for Resident Canada Goose Management.

The Draft EIS was developed in full cooperation with the U.S. Department of Agriculture Wildlife Services.

Why are we here? Well, we're here to explain the DEIS, its proposed action and to listen to your comments. The Draft EIS considers a range of management alternatives for addressing expanding populations of locally breeding Canada geese, and as such, we're here to listen to you and invite your comments on the Service's recommended management of these birds.

First, a brief explanation of

NEPA. NEPA requires the completion of an EIS to analyze environmental and socioeconomic impacts that are associated with any significant actions. And second, NEPA also requires public involvement, which includes a scoping period before the draft and a comment period after the draft.

We began this process in August of 1999 when we published a Federal Register notice that announced our intent to prepare the EIS.

Then in February of 2000, we held nine public scoping meetings designed to seek public input into the process. Scoping ended in March of 2000. In response to scoping, we received over 3,000 comments, and we had over 1,250 people attend the nine public meetings.

During scoping, we found that the top issues of concern were property damage and conflicts, methods of conflict abatement, sport hunting opportunities, economic impacts of resident Canada geese, human health and safety concerns and the impacts to Canada geese.

NEPA also outlined a specific format for EIS. There's a purpose and need section, an alternative section, the affected environment, and finally, the environmental consequences.

The purpose of the EIS is to evaluate alternative strategies to reduce, manage and control resident Canada goose populations in the U.S.

Second was to provide a regulatory mechanism that would allow state and local agencies, other Federal agencies, and groups and individuals to respond to damage complaints or other damages.

And third, it was to guide and direct resident Canada goose population management activities in the U.S.

The need for the EIS was an increasing resident Canada goose population, coupled with growing conflicts, damages and socioeconomic impacts equal to reexamination of the Service's resident Canada goose management.

Alternatives. The Draft EIS examined seven management alternatives.

There's Alternative A, which is no action; Alternative B, nonlethal control and management, which includes nonpermitted activities; Alternative C, which is lethal control and management, including permitted activities; Alternative D, expanded hunting methods and

opportunities; Alternative E, integrated depredation order management; Alternative F, State Empowerment, which is the proposed action here; and Alternative G, which is general depredation order.

Under the "No Action" alternative, there would be no additional regulatory methods or strategies. We would continue the use of all special hunting seasons, the issue of depredation permits and the issuance of special Canada goose permit.

Under the second alternative, the nonlethal management, which includes nonpermitted activity, we would cease all lethal control of resident Canada geese and their eggs. Only nonlethal harassment techniques would be allowed. No permits would be issued, and special hunting seasons would be discontinued.

Under Alternative C, the nonlethal management, which would include permit activities, we would cease all permitted lethal control of resident Canada geese; we would promote nonlethal harassment techniques; there would be no depredation or special Canada goose permits issued. Egg addling would be allowed with permit, and special hunting seasons would be continued.

The fourth alternative, expanding hunting methods and opportunities, we would provide new regulatory options to increase the harvest of resident Canada geese. These would include authorizing additional hunting methods, such as electronic calls, unplugged guns and expanded shooting hours. These seasons would be operational during September 1 to 15 period; they could be experimental during September 16 to 31; and they would have to be conducted outside of other open seasons.

The fifth alternative, we termed it Integrated Depredation Order Management. This alternative consists of an Airport Depredation Order, a Nest and Egg Depredation Order, an Agricultural Depredation Order, and a Public Health Depredation Order.

Implementation would be up to the state wildlife agency. Special hunting seasons would be continued also, as would the issuance of depredation permits and special Canada goose permits.

The Airport Depredation Order would authorize airports to establish a program which would include any indirect and/or direct population

control strategies.

The intent of the program would be to significantly reduce goose populations at airports. Management actions would have to occur on the premises.

The Nest and Egg Depredation Order would allow the destruction of resident Canada goose nests and/or eggs without a permit. The intent of the program here would be to stabilize breeding populations.

The Agricultural Depredation Order would authorize land owners, operators and tenants actively engaged in commercial agriculture to conduct indirect and/or direct control strategies on geese depredating on agricultural crops. Again, the management actions would have to occur on the premises.

The last depredation order is a Public Health Depredation Order, which would authorize state, county, municipal or local health officials to conduct indirect and/or direct control strategies on geese, when recommended by health officials that there's a public health threat. Again, management actions would have to occur on the premises where there was a public

health threat.

The sixth alternative is our proposed action, which we termed State Empowerment. Under this alternative, we would establish a new regulation which would authorize state wildlife agencies or their authorized agents to conduct or allow management activities on resident goose populations.

The intent here would be to allow state wildlife management agencies sufficient flexibility to deal with problems caused by resident geese within their respective state.

We would also authorize indirect and/or direct population control strategies, such as aggressive harassment, nest and egg destruction, gosling and adult trapping and culling program.

We would also allow implementation of any of the specific depredation orders, which we just talked about in Alternative E.

Additionally, during special hunting seasons, we would expand methods of take to increase hunter harvest like we talked about in Alternative D. These would be authorized: additional hunting methods, such as electronic calls, unplugged shotguns, expanded shooting hours.

Again, these would be operational during September 1 to 15 seasons. It could be experimental during the September 16 to 31 seasons, and they would have to be conducted outside of any other open season.

Additionally, this alternative would establish a Conservation Order, which would provide special expanded hunting opportunities during a portion of the treaty closed period, that's August 1 to 31, and a portion of the treaty open period, September 1 to 15.

Under the Conservation Order, we would authorize additional hunting methods such as electronic calls, unplugged guns, expanded shooting hours, and liberalized bag limits. And again, these would have to be conducted outside of any other open seasons.

Under this alternative, the Service would annually inspect the impact and the effectiveness of the program. There would be a provision, though, for possible suspension of the regulations, and that's only the Conversation Order and/or the regular season changes when the threat was no longer present.

We would also continue all special

and regular hunting seasons, continue the issuance of all depredation permits.

And under this alternative, the only state requirements would be to annually monitor spring breeding populations and annually report any take under any authorized activities.

The last alternative is the General Depredation Order, which would allow any authorized person to conduct management activities on resident geese either posing a threat to health and human safety or causing damage.

It would be available between April 1 and August 31. It would provide expanded hunting opportunities as explained under Alternative D. There would be continued use of special and regular hunting seasons, and the issuance of depredation of special Canada goose permits. And under this alternative, the authorization for all management activities would come directly from the Service.

Affected environment. Under the affected environment, we divided it into a biological environment and a socioeconomic environment.

In the biological environment, we

looked at resident Canada goose populations, water quality and wetlands, vegetation and soils, wild life habitat and federally listed threatened and endangered species.

Under the socioeconomic economic environment, we looked at migratory bird program management. This includes both the sport hunting program, the migratory bird permit program, social values and considerations, economic considerings, such as property damages or agricultural crop damages, human health and safety and program costs.

Environmental consequences. The environmental consequences forms the scientific and analytic basis for comparison of the alternatives. It analyzes the environmental impact of each alternative in relation to the resource categories. And the "No Action" provides a baseline for all the analysis.

Under the "No Action," what we would expect is the populations with continued growth. We would expect the Atlanta Flyway to approach of about 1.6 million in 10 years; the Mississippi Flyway, 2 million in 10 years; Central Flyway, 1.3 million in 10 years; and the Pacific Flyway, 450,000 in 10 years.

We would also expect continued and expanded goose distribution problems and conflicts, increased workloads and continued impacts to property, safety and health.

Under the proposed action, we would expect a reduction in populations, especially in problem areas; we would expect increased hunting opportunities; we would expect a significant reduction in conflicts; decreased impacts to property, health and safety; initial workload increase, but long-term workload decreases; and we would maintain viable resident Canada goose populations.

Some recent modeling suggests that to reduce the four Flyways' population from approximately 3 and a half million to 2.1 million would require for 10 years a harvest of an additional 480,000 geese annually; the take of an additional 852,000 goslings annually; nest removal of about 528,000 nests annually; or a combination of additional harvests of 240,000 geese annually and a take of 320,000 goslings annually.

We believe that the only way to possibly attain these numbers is to give states the flexibility to address problems within their

respective state; also to address population reductions on a wide number of available fronts. And since states are the most informed and knowledgeable local authorities on wildlife conflicts, the primary responsibilities and decisions of the program should be placed with them.

What comes next? First is the development of a new regulation to carry out the proposed action. This should be forthcoming in April. Second, the public comment period on the Draft ends May 30th, 2002. And third would be the publication of the Final EIS and Record of Decision, which we anticipate for fall of 2002.

As I stated, the public comment period is open till May the 30th, and Phil has already outlined the various methods that you can use to submit your comments. These include any oral or written comments that you may submit tonight, or you may subsequently send. The address, again, is printed on the back of the card that you received when you arrived.

Additionally, we've set up an electronic site where you can send e-mail comments and access other information which is pertinent to

the EIS process. The Draft EIS should be available on the website now.

On behalf of the Fish and Wildlife Service, I'd like to thank all of you for attending the meeting, and particularly, any of those who provide comments.

Questions or comments?

MR. SENG: Thank you, Ron.

Well, now, the main thing we're interested in is to hear what you have to say. Again, I'll just reiterate quickly, we're going to go in numerical order, one through however many there were. Please come to the mike there in the center, state and spell your name, organization you represent and where you're from. And if you don't care to comment, when I call your number, just say "pass" so we can just move right along.

Card Number 1?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: Card Number 2?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 3? Card Number 3?

(No response.)

MR. SENG: 4?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 5?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 6?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 7?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 8?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 9?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 10?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 11?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 12?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 13? Come on, lucky Number 13.

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 14?

UNIDENTIFIED SPEAKER: I'll pass.

MR. SENG: 15?

MR. VANDEL: Oh, I can't miss an opportunity.

MR. SENG: Okay. We have a taker.

MR. VANDEL: No. I just think the presentation was good. I have a lot of work to do yet on the EIS to look into the details, but at least from a state perspective, it does appear like you gave the states what they asked for. So from that standpoint, I guess pending further review, I'd support the EIS and the preferred alternative.

THE REPORTER: Name. Name.

MR. VANDEL: George Vandal, South Dakota.

MR. SENG: Can you spell it, please?

MR. VANDEL: V-a-n-d-e-l.

MR. SENG: Thank you.

Card 16? Card 17 -- 16? Did you -- no comment?

17?

(No response.)

MR. SENG: 18?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 19?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 20?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 21?

(No response.)

MR. SENG: 22?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: 23?

UNIDENTIFIED SPEAKER: No comment.

MR. SENG: 24?

UNIDENTIFIED SPEAKER: No comment.

MR. SENG: 25?

UNIDENTIFIED SPEAKER: Pass.

MR. SENG: Okay. That's everybody. That's all the cards we handed out.

Was there anyone that didn't have a card that would like to make a comment? No. Okay.

Again, as Ron mentioned, the deadline for comment is May 30th. The signup sheet -- where is the signup sheet that went around? If any of the new-comers haven't signed the signup sheet and you'd like to receive a copy of the EIS, please make sure you sign it and check the appropriate box, and you'll get a copy of the revised version when it comes out.

With that, we stand adjourned.

Thanks for coming out and enjoy the game. Go IU.

(End of proceedings.)

- - - - -

THE STATE OF TEXAS X

COUNTY OF DALLAS X

This is to certify that I, Jamie K. Israelow, a Certified Shorthand Reporter in and for the State of Texas, Registered Professional Reporter and Certified Realtime Reporter, reported in shorthand the proceedings had at the time and place set forth, and that the above and foregoing pages contain a full, true, and accurate transcript of the said proceedings.

GIVEN UNDER MY HAND on this the _____ day of April, 2002.

Jamie K. Israelow

_____
Jamie K. Israelow, CSR, RPR, CRR
Texas CSR 3801
Expiration Date: 12/31/02
MillerParker, Inc.
100 Premier Place
5910 North Central Expressway
Dallas, Texas 75206

Job Sheet No. 5151M
Job Reference No. 02214

PUBLIC HEARING

Palatine, Illinois
Tuesday, April 23, 2002
7:00 p.m.
HOLIDAY INN EXPRESS
1550 E. Dundee Road

DISCUSSION REGARDING

DRAFT EIS ON RESIDENT CANADA GOOSE MANAGEMENT

U.S. FISH AND WILDLIFE SERVICE

MR. CASE: My is name Dave Case. I'm the facilitator for tonight's meeting, and as you know the purpose of this meeting is to get public comment on the draft environmental impact statement that has been prepared by the U.S. Fish and Wildlife Service on resident Canada Goose overabundance.

We do want to thank you in advance for taking time out of your evening to come provide comments. This is the second of 11 meetings that will be held across the country. There has been one held a few weeks ago in Dallas, Texas, tonight here in Palatine, tomorrow night in Waupun, Wisconsin, which is right near Fond Du Lac; and then Franklin, Tennessee; Bloomington, Minnesota; Brookings, South Dakota; Richmond, Virginia; Danbury, Connecticut; North Brunswick, New Jersey; Denver, Colorado and Bellevue, Washington. And those will all be completed by the end of May.

A couple people I would note are here tonight, in case they don't make comments, first I will introduce Ron Kokel here in a few

minutes from the U.S. Fish and Wildlife Service. Also from the U.S. Fish and Wildlife Service, John Rogner. He is with the Chicago Ecological Services Office of the U.S. Fish and Wildlife Service.

Also Pete Raffley with Congressman Crane's office here in the north suburbs.

The process we are going to follow is pretty straight forward.

There has been a draft environmental impact statement prepared by the Service and we want to get your comments on that.

Ron Kokel, is a biologist with the Service, is going to give you a brief presentation that outlines the alternatives and show us the preferred alternative and what that is all about.

We will move the projector there and set a microphone up here in front. As you came in you got cards, if you want to make comments tonight, we are just going to go over what is on the card there.

We ask you to come up front, we will put a microphone up here for two reasons, one is so everybody can hear you; and second so that Carla, our court reporter, can see you and she can read lips, so it helps her to be able to see you speak as well as hear you speak.

When you come up, if you could, we would appreciate it if you give us your name and spell your last name so we get the spelling correctly. There will be a public record of the comments, we want to make sure we get everything correct. Spell your last name, where you are from; and if you are officially representing an organization, let us know what that organization is.

I am going to pass around a sign-up sheet. If would you like to receive a copy of the final environmental impact statement, then go ahead and sign up on this. If you received one before, there are two boxes there, check one or the other box. If you received one before, go ahead and note that so we don't enter your name twice and you get two copies. And if you haven't received a copy

before, then go ahead and note that and we will make sure we enter your name in the database to make sure that you get a copy when the final comes out. Ron will go over the schedule for that.

I do apologize in advance. I don't think it will be any problem, but in the event that anybody gets too long winded and takes up too much time, I may ask you to hurry your comments along so everyone gets a chance to comment. I don't anticipate that's going to be a problem.

So with that I would like to introduce Ron Kokel, wildlife biologist with the U.S. Fish and Wildlife Service, to give us a brief slide presentation on the draft EIS, Ron?

MR. KOKEL: Thank you, Dave, and good evening, everybody. Again, my name is Ron Kokel. I'm a wildlife biologist with the division of migratory bird management in the U.S. Fish and Wildlife Service. I'm stationed in Arlington, Virginia.

On behalf of our director Steve

Williams, I would like to welcome all of you to this public meeting. If I could get the first slide, here we go. As Dave indicated, this is the second of eleven public meetings being held across the country for the purpose of inviting public participation and input into our process of developing an environmental impact statement for resident Canada goose management. This EIS was developed in full cooperation with the U.S. Department of Agriculture's Wildlife Services.

Why are we here? Well, we are here to explain the draft environmental impact statement, its proposed action, and to listen to your comments. The draft EIS considers a range of management alternatives for addressing expanding populations of locally breeding Canada geese, and as such, we are here to listen to you and invite your comments on our recommended management of these birds.

First, a brief explanation on the National Environmental Policy Act, or NEPA. NEPA requires completion of an EIS to analyze environmental and socioeconomic impacts associated with any federal significant action.

NEPA also requires public involvement, that's why we are here, which includes a public scoping period before the draft is issued, and a comment period after the issuance of the draft.

We began the scoping process on August 19, 1999, when we published a Federal Register notice that announced our intent to prepare this draft EIS. Then, beginning in February of 2000, we held nine public scoping meetings designed to seek public input into the process; Chicago was one of those meetings. Scoping ended in March of 2000.

In response to scoping we received over 3000 comments and over 1250 people attended the nine public scoping meetings.

In scoping we found that the top issues of concern were, property damage and complaints caused by resident Canada geese, methods of conflict abatement, sport hunting opportunities, economic impacts of resident Canada geese, human health and safety concerns and impacts to resident Canada geese.

NEPA also outlines a specific format for an EIS. First is purpose and need;

second is the alternatives that you're going to evaluate; thirdly is the affected environment; and fourth is what are the consequences to the environment of your proposed actions.

First, what exactly are resident Canada geese? Resident Canada geese are those geese nesting within the lower 48 states in the months of March, April, May or June, or residing within the lower 48 states in the months of April, May, June, July or August.

First, purpose and need. The purpose of the EIS is to evaluate alternative strategies to reduce, manage and control resident Canada goose populations in the continental United States.

Second, is to provide a regulatory mechanism that would allow state and local agencies, other federal agencies and groups and individuals to respond to damage complaints or management caused by resident Canada geese.

And thirdly is to guide and direct resident Canada goose population management activities in the United States.

The need for the environmental

impact statement is that increasing resident goose populations, coupled together with growing conflicts, damages and socioeconomic impacts have resulted in a re-examination of the Service's resident Canada geese management.

Alternatives. The draft environmental impact statement examines seven management alternatives, Alternative A, no action; Alternative B, non-lethal control and management, which will be only non-permitted activities, Alternative C, non-lethal control and management which would include permitted activities, expanding hunting methods and opportunities under Alternative D, Alternative E, integrated depredation water management, Alternative F, state empowerment, which is our proposed action, and Alternative G, which would be a general depredation order.

Under the no action alternative there be no additional regulatory methods or strategies to be authorized. We will continue the use of all special hunting seasons, the issuance of individual depredation permits and the issuance of any special Canada goose

permits.

Under the second alternative, non-lethal management, which is only non-permitted activities, we would cease all lethal control of resident Canada geese and/or their eggs. Only non-lethal harassment techniques will be allowed, no permits will be issued by the Service and all special Canada goose hunting seasons will be discontinued.

Under Alternative C, non-lethal management activities, which include permitted activities, we would promote non-lethal harassment techniques, we would cease all permitted lethal control of resident Canada geese. There would be no depredation or special Canada goose permits issued, egg addling would be allowed with a permit, and special hunting seasons will be continued.

Alternative D, was expanded hunting methods and opportunities. Under this alternative we would provide new regulatory options to increase the harvest of resident Canada geese. We would authorize additional hunting methods such as electronic calls,

unplugged guns and expanded shooting hours. These seasons will be operational during September 1 to 15 and experimental from September 16 to 30. And they would have to be conducted outside of any other open season.

The fifth alternative is one that returns integrated depredation order management. This alternative would consist of an airport depredation order, nest and egg depredation order, agriculture depredation order and a public health depredation order.

Implementation of any of these orders will be up to the state wildlife agencies, special hunting seasons will be continued, and the issuance of depredation permits and special Canada goose permits would also be continued.

The first depredation order is an airport depredation order that would authorize airports to establish and implement a program which could include indirect and/or direct population control strategies. The intent of the program would be to significantly reduce goose populations at airports. Management

actions would have to occur on airport premises.

The nest and egg depredation order would allow the destruction of resident Canada goose nests and eggs without a permit; and the intent of this program will be to stabilize breeding populations of resident Canada geese.

The agriculture depredation order would authorize landowners, operators and tenants which are actively engaged in commercial agriculture to conduct indirect and/or direct population control activities on Canada geese depredating on agricultural crops. The management activities would have to occur on the premises.

Lastly, the public health depredation order would authorize state, county, municipal or local public health officials to conduct indirect and/or direct population control strategies on resident Canada geese when it was recommended by health officials that there was a public health threat. Management activities would have to occur on the premises.

The sixth alternative is our

proposed action, termed state empowerment. Under this alternative we would establish a new regulation which would authorize state wildlife agencies or any authorized agent to conduct or allow management activities on resident goose populations. The intent here is to allow state wildlife management agencies sufficient flexibility to deal with the problems caused by resident geese within their respective state.

We would authorize indirect and/or direct population control strategies such as aggressive harassment techniques, nest and egg destruction, gosling and adult trapping and culling programs. We would allow implementation of any of the specific depredation orders that I just went over under Alternative E.

During existing special hunting seasons we would expand the methods of taking and increase hunter harvest as identified in Alternative D. We would authorize additional hunting methods such as electronic calls, unplugged guns, and expanded shooting hours. These seasons will be operational from

September 1 to 15, experimental from September 16 to 30, and they would have to be conducted outside of any other open season.

In addition, we would provide a conservation order which would provide special expanded hunting opportunities during the portion of the Migratory Bird Treaty closed period, that is August 1 to 31, and then open period September 1 to 15. This would authorize additional hunting methods such as electronic calls, unplugged guns, expanded shooting hours, and liberalized bag limits. And these would also have to be conducted outside of any other open seasons.

The U.S. Fish and Wildlife Service would annually assess the impacts and effectiveness of the program, and there would be provision for possible suspension of these regulations, that is the conservation order and/or the regular season changes when the need was no longer present.

Also, we would continue the use of all special and regular Canada goose hunting seasons, continue the issuance of depredation

and special Canada geese permits.

The state requirements under the program would be to annually monitor spring breeding populations and to annually report any unauthorized activities.

The last alternative was termed general depredation order. Under this alternative we would allow any authorized person to conduct management activities on resident geese that are posing threats to health and human safety or causing damage. This will be available from April 1 through August 31. It will provide expanded hunting opportunities as described under Alternative D. It would be continued use of special and regular hunting seasons and the issuance of depredation and special Canada goose permits and the authorization for all management activities would come directly from the U.S. Fish and Wildlife Service.

Effect on the environment. We looked at two things on the effect of the environment: We looked at the biological environment; and after the biological

environment we looked at the resident Canada goose populations, water quality and wetlands, vegetation and soils, wildlife habitat, and any federally listed presently endangered species.

Under the socioeconomic environment we looked at the migratory bird program, which includes a sport hunting program and a migratory bird permit program, social value considerations, economic considerations, which would include property damage of agricultural crops, human health and safety, and cost of the program.

The environmental consequences section forms the scientific and analytic basis for comparison of all the alternatives. It analyzes the environmental impacts of each alternative in relation to each of those categories that I just went over.

And the no action alternative provides the baseline for this analysis.

Under no action what we would expect is the populations of resident Canada geese would continue to grow. In the Atlantic

Flyway we would expect about 1.6 million within ten years; in the Mississippi Flyway we would expect about two million in ten years; in the Central Flyway, 1.3 million and the Pacific Flyway 450,000 within ten years.

We would also expect continued and expanded goose distribution problems and conflicts, increased workloads, and continued impacts to property, safety and health.

Under the preferred alternative, state empowerment, we would expect reduction in populations of resident Canada geese, especially in specific problem areas. We would expect increased hunting opportunities, a significant reduction in conflicts caused by resident Canada geese, deceased impact to property, safety and health; while there would be an initial workload increase, we think long term the workload would decrease, and the alternative would maintain viable resident Canada goose populations.

Some of the recent modeling that's been done suggests that to reduce all four flyway populations from about 3.5 million down

to the flyway's goals of 2.1 million would require annually for 10 years a harvest of an additional 480,000 resident Canada geese annually over what is now occurring; to take an additional 852,000 goslings annually, the nest removal of 528,000 eggs or nests annually, the combination of an additional harvest of 240,000 geese and the take of 320,000 goslings annually. All these would have to occur each year for ten years to reach that goal.

Thus, we believe the only way to possibly attain these numbers is to give states the needed flexibility to address problems within their respective states. And the population reductions would have to be addressed on a wide number of available fronts. Because states are the most informed and knowledgeable local authority on wildlife conflicts, primary responsibilities and decisions of the program should be placed with them.

What comes next? First is the development of a new regulation to carry out this proposed action. This should be

forthcoming next month.

Second, the public comment period on the draft environmental impact statement ends May 30 as they had indicated; and thirdly would be the publication of a filed environmental impact statement, our record of decision, and a final rule that we anticipate for this fall.

As I stated, the public comment period is open until May 30, and Dave has already outlined the various methods that you can use to submit your comments. These include any oral or written comments you submit tonight, and any you may subsequently send into us. The address is printed on the back of the card that you received when you got here tonight.

Additionally, we set up an electronic site where you can send e-mail comments and access all other information pertinent to the EIS process, including the environmental impact statement.

And on behalf of the Fish and Wildlife Service, I would like to thank all of you for attending this hearing and particularly for any of those that provide comments.

And that's the end of the presentation.

MR. CASE: Thank you, Ron. Just to reiterate the process we are going to follow, again it is pretty straightforward. As you came in, you got a comment card. As Ron mentioned it has the addresses if you want to submit written comments and so on. If you would like to make comments tonight, we ask you to come up to the microphone, which we will put out here in just a moment, if you could state your name and spell your last name for us, we would appreciate that. If you are officially representing

an organization, let us know what that is. We ask that you come up to the microphone for two reasons, so everybody can hear you; and also so that Carla, our court reporter, can see you and make sure that she gets everything down correctly.

There is a sign-up sheet going around. If you want to receive a copy of the final environmental impact statement, go ahead and sign up there. If you received a copy of it

before, go ahead and note that, check that box; or if you had not received a copy before, go ahead and check the other box, and that way we will know not to send you two copies. So if you want a copy of the final, go ahead and be sure to sign up and check one of those boxes.

So with that I would like to go ahead and start, we are going to put the microphone out first.

If I call your number and you don't jump up, I'll just go on to the next number, number 1?

PHILLIP DIMARZIO: My name is Phillip, DiMarzio, D-i-m-a-r-z-i-o. I live in DeKalb, Illinois. I work in Saint Charles, Illinois at the Kane County Judicial Center where there is a large population of resident Canada geese. I am here to speak in favor of your state empowerment proposal, Alternative F.

The proliferation of Canada geese in this area constitutes a serious health problem. I speak from personal experience. I suffer from histoplasmosis, which is contracted by breathing air contaminated by fumes from bird

1 droppings. This disease has seriously damaged
2 both of my eyes and has caused me to lose the
3 major part of the vision in my right eye,
4 despite three major eye surgeries.
5 My surgeon at the Barnes Retina
6 Institute in St. Louis believes that exposure to
7 this bacteria causes further damage even in
8 those who have already contracted the disease.
9 I do not think it is coincidental that each of
10 my recent flare-ups has closely followed
11 unavoidable exposure. I am told by my doctors that two
12
13 percent of the population is vulnerable to this
14 disease; in some it attacks the lungs, in others
15 like myself it ravages the eyes.
16 Each morning I look out the window
17 of my office and I see hundreds of unsuspecting
18 people making their way toward the building.
19 The thought that one out of 50 faces serious
20 health risks is disturbing to say the least.
21 There is no avoiding exposure when
22 the geese are present in such prolific numbers.
23 Even if one cautiously avoids going near them,
24 their droppings are literally everywhere. And

the air intake system for the building draws in air from the area extremely heavy in goose droppings. There is no known cure for histoplasmosis. I am participating in a study through Barnes Hospital in Saint Louis in the hopes that a cure will be found.

Children playing outdoors are particularly vulnerable. Some playgrounds and athletic fields become saturated with goose droppings. The wind carries the bacteria.

There is a need to protect people. The only way to do that is to limit exposure. The only way to accomplish that is to reduce the resident Canada goose population. I believe this is best done at the local level. I therefore strongly support Alternative F, state empowerment. Thank you for this opportunity to hear you.

MR. CASE: Is that a copy of your comments, if you can, that would be great, then she can check since you have it all written down, so she can check that against it, thank you. Number 2?

JANET L. HERBERT: My name is Janet L. Herbert. I'm from Rockford, Illinois, representing the Rockford Park District.

It is our intent to leave examination of the draft document to those who do not already have a plan to deal with the issues of Canada geese management.

In Rockford's case we implemented a three-part, comprehensive, completely non-lethal plan, using egg depredation to help to begin to stabilize the population. With our partners in this endeavor we turned in an impressive 1150 eggs total in our first year. Following the nesting season, we began to use our border collies to lure birds away from our most used and therefore favorite recreational paths and sites.

The third part of our comprehensive plan is a pilot education program to be launched this spring and summer. We will be attempting to teach children about Canada geese and how they can enjoy them without feeding them. Total success to us will be the placement of these programs in public and private schools beginning

September 2003.

Overall, our community is pleased with our approach. We have tackled the extremely difficult task of trying to deal with geese in a river corridor situation. Because we took these proactive, non-lethal approaches, we have succeeded hands down, in creating a positive and energizing solution which our community has embraced.

We have only one request, whoever asks or grants the permits, we would greatly appreciate if the U.S. Fish and Wildlife would develop and implement an application and standard procedure which would allow the use of county-wide egg depredation permits, thank you.

MR. CASE: Thank you. Number 3, 4?

JEFF KETELSEN: My name is Jeff Ketelsen, K-e-t-e-l-s-e-n, and I live in Palatine, and I would like to say that I'm in favor of the state empowerment program, including the expanded opportunities for hunting, thank you.

MR. CASE: Thank you. Number 4, 5, 6,

7, 8, 9, 10?

CHUCK WILLS: Chuck Wills of Lisle, Illinois, W-i-l-l-s.

First off, I would like to say this Alternative F, you talk about broad population strategies, it doesn't make any sense. People who don't want geese, they don't want one goose, so a broad bringing the population down 20, 30 percent makes no sense at all. It has to be site specific, okay.

So I would just like to say I'm here to oppose your efforts to expand use of deadly force. I suggest the problems that some people like to have all these geese, obviously the state of emergency doesn't exist by most people here.

Alternative F, your proposed regulation, is totally unacceptable. I will be negatively impacted if it is implemented. I urge you to adopt Alternative A for a non-lethal management option in the final EIS.

Most goose conflicts involve relatively few geese in well-defined areas affecting few people. Circumstances verse the

ever-growing arsenal of non-lethal management options are cost effective, reliable and humane.

The draft EIS shows that my views, and those of the majority of the prior scoping sessions, as well as the views of prior commentary raised were ignored. 60 percent, 60 percent is never mentioned of the 3,000 comments were opposed to any deadly force, but it is not what the Service wants. The Service dismissed these comments because they were in conflict with the Service's premeditated goal of turning over its congressionally appointed responsibility to manage geese, to the state wildlife agencies. Legitimate issues raised were ignored.

The Service is abrogating its responsibility and mandate, betraying the public trust and intention of the Migratory Bird Treaty Act, and outright downright violating the law. The Service claims that goose populations are expanding, are not migrating, are somehow less worthy than other geese, and are causing public health problems are all gross misrepresentations

of the truth. There is no scientific proof that they are a health risk. And I believe that wasn't shown in the EIS in my opinion.

No federal emergency exists. A court challenge is in order and there will a court challenge of the state act because you are violating the Migratory Bird Treaty Act and just totally abrogating your responsibility.

In conclusion also, I would like to file a complaint with the Service today against the Illinois DNR's agent McGaw Prairie Institute. McGaw has been engaged in unpermitted egg shaking through Northern Illinois, under the guise of a productivity study. They have been unable to produce the required permits when approached, and are shaking eggs on private property without consent. I demand to be investigated because we are a country of laws, even though you want to change it, it's not been changed. So it would be appreciated if looked into.

And I would just like to say that most people are opposed to Alternative F, and that the prior periods reflect that. And

obviously there is not an emergency by the number of people here, so thank you.

MR. CASE: Thank you, number 11?

RAY DIETER: My name is Ray Dieter, D-i-e-t-e-r, from Glen Ellyn, Illinois.

If I may first thank the Service for the opportunity to come here and discuss this problem. I cannot say what I feel is the best option. The Option F or Number 6, I believe it was, seems like it may have some advantages. My goal is not necessarily to rid us of the geese but maybe control their location where they are.

If I may first mention I have here in my hand a paper entitled, "Zoonotic Diseases: Health Aspects of Canadian Geese." This was published in the International Journal of Circumpolar Health, and I will be happy to give you a copy of this, discussing the health considerations of the Canadian goose.

Listed in this are a number of considerations. The physical considerations, and if I may give an example there recently, by recently I mean about two weeks ago, a funeral,

people at the cemetery, one of the individuals being attacked and they were concerned about his ear, it took 17 stitches to suture his ear back.

Infectious considerations, including bacterial, parasitic and viral considerations, the chemical considerations, the allergic and the hypersensitivity type of problems that we hear of.

If I may then go further into some of the physical concerns. If you look for example at the Surgicenter where I work, you can't get in the back door or the front door during the biggest periods of our Surgicenter because it is so slippery and there is so much goose droppings. And if you recall, there is approximately three pounds of goose droppings a day.

Now, any of us, now excuse me ladies, if any of us took human feces and put it by the doors to our center or to our hospitals, we would be thrown in the clinker, but we are permitted to let the geese, not only permitted, mandated not to do anything about the geese

where we are at a health facility. I don't understand where people have gotten the permits to be able to destroy these because we would love to have those permits to destroy and prevent some of this or else move them out of our area.

Anyhow, in addition to the falls and fractures; and recently in Oak Brook there was quite an article in the paper, attacks of children, pecking, flapping with their wings, auto accidents, swerving to miss them, hitting other cars, rear-enders, and their carcasses lying on the road, air strikes with as many as 20 some people killed in one airplane accident, as I understand and certainly the property destruction.

My wife and I enjoy seeing them, but we don't enjoy not being able to get in our home because of them or in the hospital.

At any rate this paper explains some of our concerns. We believe very strongly that there should be a way of limiting or preventing them being in the school grounds where children play, in the soccer fields and

football fields, other areas where people are.

When I took my grandchildren about ten days ago to a park, I couldn't even walk them across the grass to the edge of the water, there was no place they could walk without walking on the goose droppings.

Again, we don't want to eliminate them, get rid of them all, but they have to be controlled.

If Item 7 is the best or if you folks have another item, we do appreciate your thoughts. Thank you very much.

MR. CASE: Thank you. Number 12?

CHARLES WENK: My name is Charles Wenk, W-e-n-k. I'm from Winfield, Illinois. I'm a board member of the DNR advisory board, although I'm not here speaking for the DNR, Illinois Department of Natural Resources.

I looked at two of your options and they kind of caught my eye, one was the airport option. At the DuPage County Airport, they have had many close calls, and in fact one goose was sucked into a jet engine out there, causing a serious situation. I'm sure, and I know that

your sister agency, the FAA, is very concerned about that.

The other option that you propose was the hunting option. And it was gratifying to see all of the points that you made; however, in reality, entire counties of Chicago where the resident goose population is the heaviest, Kane County, DuPage County, Lake County, Will County, there are forest preserve districts, conservation districts and finally hunting programs, and they take up a goodly portion of the land that may be available for hunters to be able to hunt geese. We have a lot of wetlands that are unavailable in this area.

I know that you have a nuisance goose season that precludes the regular season; and if you check the figures on what was taken in the entire counties, you will find that they are very low. Consider although your hunting option is welcome, widespread, it is infective because there is no place to hunt.

MR. CASE: Thank you. Number 13, 14?

JOHN CHURILLO: My name is John Churillo, C-h-u-r-i-l-l-o and I'm from Wheaton,

Illinois. I also agree with the expanded hunting opportunity. And I agree there is not that many places to hunt. You need to probably expand more of the current public lands into more hunting, current wetlands, forest preserve lands. The airport opportunities are good.

The nuisance goose season, as a personal note, I would like to see you change the date from September 1, if you can make it a couple days earlier. Dove season in Illinois is a very popular sport, in fact the most popular sport in Illinois, there are more doves killed than anything, also September 1, and it is always a conflict. And you can find more dove property to hunt than you can find goose property to hunt in this area.

But to recap, I would like to see some expanded hunting opportunities, more on public lands, whether they are federal or state lands, and possibly change the opening day a little, thanks.

MR. CASE: Thank you, number 15?

BRIAN HERNER: My name is Brian Herner, H-e-r-n-e-r. I'm from the Prairie Woods Audubon

Society and I live here in Palatine.

I just want to say that I'm disappointed that it seems to me that the Fish and Wildlife Service took the easy way out by choosing Option F. If they really believe that lethal methods of control are necessary, they should have just gone ahead and chosen that option. They abrogated their responsibility and gave it to the state and in fact I don't trust the state of Illinois do this correctly. I wish that they had more closely looked at an option that would have made lethal control the last resort, thank you.

MR. CASE: Thank you. Number 16?

FRED NOUR: My name is Fred Nour, N-o-u-r, I am from Wheaton. And I'm here to represent the Illinois State Medical Society, I'm a physician.

First, I'm interested that we do support Alternative F, however we feel it might not be enough.

Number two, we want to make you aware of a resolution that the Illinois State Medical Society has passed on April 28, 01, at

the annual meeting of delegation. I will read you the resolution. The subject is, Health concerns related to non-migratory Canadian geese:

"Whereas the Canadian goose is technically a migratory bird protected by international treaties and protection acts; and

Whereas, these geese have capably adapted to life in suburban, metropolitan areas where they are relatively free from natural predators while enjoying the abundant food supplies, short grasses and open waters common around subdivisions, offices, parks, golf courses, et cetera;

Whereas, hospitable habitat has transformed many of the Canadian geese from migratory waterfowl into a resident or non-migratory population; and

Whereas, resident Canadian geese, with their aggressive nature and prolific fecal droppings are increasingly posing health hazards to humans; and

Whereas, human health hazards may

include injuries resulting from pecks or falls while attempting to escape the territorial birds, auto accidents resulting from birds in the roadways, aviation accidents occurring when planes encounter birds in flight, and possible bacterial infections from contact with the abundant fecal matter in goose feeding areas; thereby be it

Resolved, that the Illinois State Medical Society recognizes the potential human health hazards posed by the rapidly increasing resident Canadian goose populations in many developed areas of the state; and be it further

Resolved, that the Illinois State Medical Society support and encourage efforts to control resident Canadian goose populations and remove them from areas where their excessive numbers pose human health hazards."

Then number two, I want to make you aware of a letter that was sent to the Chicago Tribune on Wednesday, March 8, 2000, Section 1, page 20, it is signed by 50 medical doctors, entitled, "Airborne Threat."

And it reads: "We are a group of

suburban Chicago physicians who are very concerned about the health risk to the general public, our families, and ourselves posed by the exposure to Canada geese droppings.

In a recent issue of the Annals of Allergy, Asthma and Immunology, an article by the Chairman of the Department of Allergy and Immunology at Northwestern University Medical School documented that exposure to Canada geese droppings can cause a serious lung disease known as hypersensitivity pneumonitis, popularly known as bird fanciers' disease. We are concerned about evidence that geese droppings enter building ventilation systems, circulate in the air and are inhaled by everyone inside.

We are also concerned about the large numbers of suburban residents who work or live in buildings near ponds or parks inhabited by ever-increasing numbers of Canada geese, and alarmed by the fact that 40 percent of all these people will form antibodies against Canada geese droppings.

Approximately 10 to 20 percent of the people exposed to Canada geese droppings

could develop hypersensitivity pneumonitis.

We are even more concerned about a number of people who will not develop any symptoms until many years later when they develop a permanent and irreversible lung fibrosis.

Canada geese droppings also could be the cause for undiagnosed lung diseases in many other patients. We noted that many of our "sick buildings" are located in areas rich in Canada geese droppings.

We are unable to advise our patients to avoid the cause of their allergy because Canada geese droppings are everywhere in suburbia. We are unaware of any location where we can send our patients that is environment free from Canada geese droppings. The problem will get much worse with the Canada geese population growing exponentially.

We ask our elected officials at all levels to protect our citizens as well as they protect the Canada geese. We believe that prevention is always much better than cures." And signed by 50 MD's.

And as for you we hope you will act, and you will be decisive and don't repeat the disaster that what would be the Snow geese where the congress had to act to force you to reduce the number. At that time, according to the law that was passed by the Congress in 1999, one-third of the turtles completely destroyed, one-third was an event of almost total complete destruction and the remaining one-third was over grazed. We hope you will not wait until one-third of our population is dead, one-third is very sick and the other third is in danger, thank you.

MR. CASE: Could we get copies of those, that you read, if could leave that. Number 17?

CINDY DUDA: Hello, good evening. My name is Cindy Duda, D-u-d-a. I live in Palatine here. I'm just representing myself as a citizen. I was at the public hearing a couple years ago for the development of the draft EIS and I am thrilled to hear of the Rockford Park District here represented tonight explaining this plan that they have put together for non-lethal control. Of course I recognize

this gentleman back here I think from Lisle, and there were quite a few of us here that spoke in regards to trying to implement non-lethal means first.

I'm not necessarily opposed to the Alternative F, but I would like to see where the states are encouraged to maybe equally use some habitat alteration or modification techniques along with allowing hunting or other, you know, the egg shaking and nest destruction. I would like to see a balance of that because I think it can be done successfully in many of these communities. And many of us know that we created the problem. We have created these open lawn areas, open water and it would be very easy to modify their habitat, thanks.

MR. CASE: Thank you. Number 18?

Is there anyone else that didn't have a chance to speak that would like to speak?

Okay, with that I would like to thank you for attending the meeting. We will be here for a while you have specific questions or comments that you would like to provide. Ron

can certainly answer those. We would encourage you if you have additional comments to make, that you have the card with the e-mail address or the mailing address on it and we encourage you to do that.

Again, thanks for taking the time and thanks for your concern about Canada geese, thank you.

(Whereupon the public meeting concluded.)

STATE OF ILLINOIS)
)
COUNTY OF L A K E)

I, Carla P. Letellier, a Certified Shorthand Reporter of the State of Illinois, CSR No. 084-003315, do hereby certify that I reported in shorthand the proceedings had in the aforesaid matter, and that the foregoing is a true, complete and correct transcript of the proceedings had as appears from my stenographic notes so taken to the best of my ability.

CERTIFIED SHORTHAND REPORTER

U.S. FISH AND WILDLIFE SERVICE PUBLIC MEETING ON RESIDENT CANADA GEESE POPULATIONS

DATE: April 24, 2002

TIME: 7:00 p.m.

PLACE: Waupun High School
801 East Lincoln
Waupun, Wisconsin 53963

COURT REPORTER: Lisa L. Bassette, RPR

Brown & Jones Reporting, Inc.
312 East Wisconsin Avenue, Suite 608
Milwaukee, Wisconsin 53202

TRANSCRIPT OF PROCEEDINGS

MR. CASE: I think we'll go ahead and get started. My name is Dave Case. I'm the facilitator for the meeting tonight. As you know, the purpose of the meeting here is to get public comment on the Draft Environmental Impact Statement that has been prepared by the U.S. Fish and Wildlife Service on resident Canada goose overabundance. I'd like to thank you for taking the time out of your schedules to come and make comments.

This is the third meeting of eleven. We had a meeting last night in Palatine, Illinois. We had a meeting the previous week in Dallas. The meetings that are remaining include Franklin, Tennessee; Bloomington, Minnesota; Brookings, South Dakota; Richmond, Virginia; Danbury, Connecticut, North Brunswick, New Jersey; Denver, Colorado; and Bellevue, Washington. The last meeting is on May 30th.

The process we're going to go through is pretty straightforward, and I'll cover that in just a second. First, I'd like to thank a few people, and note a few people that are here tonight. The

facility here, Waupun High School, is obviously a great facility as you see. The AV and everything is great. I'd like to thank John Forsythe, Gretchen Feeney, and Dave Burchart for helping out with the facility, and Brian O'Donavon from the Waupun Police Department. A couple of other people that are here tonight that may not make comments but I want to note that they're here, Melissa Cook from Congressman Petry's office in Oshkosh; Chris Gallo from Congressman Sensenbrenner's office in Brookfield; Scott Beckerman with the USDA Wildlife Services from the Waupun office here in town; Jeff Pritzl and Ricky Lien from the Wisconsin Department of Natural Resources are also here. And finally, Patty Myers, the manager of Horicon National Wildlife Refuge for the U.S. Fish and Wildlife Service is here.

With that -- the process we're going to follow is pretty straightforward. As you came in, we handed out cards. Ron Kokel, a wildlife biologist with the U.S. Fish and Wildlife Service, is going to give a brief presentation on the draft Environmental Impact Statement and the preferred alternatives that the Service is recommending.

Following that I'll just ask for folks to

come up within the order that you all came in and got a card. If you don't want to make comment tonight, there's a mailing address and an e-mail address on the back. I would encourage you if you can to send it via e-mail. As you may know, mail gets to the Washington, D.C., area very slowly because it is irradiated, and so I would encourage you to send an e-mail if you can to make sure it gets in by the deadline.

When you come up, if you could come up front, we've got a microphone here. If you can come up here for two reasons, so that everyone can hear you, and secondly, so that Lisa is able to see you and she can read lips as well as listen so she can make sure that she's getting comments correctly. If you could give us your name, spell your last name so that we get this correctly because there will be a public record of the comments that are made tonight and we want to make sure we get your spelling correct. If you represent an organization officially, let us know what that is. I'm going to pass around sign-up sheets. If you want to receive a copy of the final Environmental Impact Statement, then make sure you sign up. If you received a copy

of the first one, the draft, then go ahead and sign up again and just note -- there's a little box you can check that you received the first one. That's just so we don't duplicate and send you two copies of it. If you didn't receive a copy the first time and want to receive one, then sign up. There's a check mark to note that as well. Also, if you're going to read a written statement, it would be great if you could give the written statement to Lisa so she can make sure that she checks that and includes that in the record. I do apologize in advance. I don't think it will be any problem at all, but if in the event that anybody goes too long and takes up too much time, I might ask you to hurry along so we get a chance for everyone to make comments tonight.

With that I'd like to introduce Ron Kokel. He's a wildlife biologist with the U.S. Fish and Wildlife Service and he's responsible for putting together the Environmental Impact Statement. Ron?

MR. KOKEL: Thanks, Dave, and good evening, everybody. Again, I'm Ron Kokel. I'm a biologist with the U.S. Fish and Wildlife Service in the Division of Migratory Bird Management, and

I'm stationed in Arlington, Virginia, and on behalf of our director, Steve Williams, I'd like to welcome everybody that's here tonight.

As Dave indicated, this is the third of eleven public meetings. They're going to be held across the country for the purpose of inviting public participation and input in the process of developing an Environmental Impact Statement for resident Canada goose management. This Draft Environmental Impact Statement was developed in full cooperation with the U.S. Department of Agriculture's Wildlife services. If I could get the first slide and the lights.

Why are we here? Well, we're here to explain a Draft Environmental Impact Statement, its proposed action, and to listen to your comments. The draft EIS considers a range of management alternatives for addressing expanding populations of locally-breeding resident Canada geese. As such, we're here to listen to you and invite your comments for the Service's preferred management of these birds.

First, a brief explanation of the National Environmental Policy Act, or NEPA. NEPA

requires completion of an EIS to analyze environmental and socioeconomic impacts associated with significant actions. NEPA also requires public involvement, which is why we're here tonight, including a scoping period for the Draft Environmental Impact Statement and a comment period after the draft.

We began this process in August of 1999 when we published the Federal Register notice that announced our intent to prepare this draft. Then in February of 2000 we held nine public scoping meetings which were designed to seek public input into this process. Scoping ended in March of 2000. In response to scoping, we received over 3,000 written comments and over 1,250 people attended the nine public scoping meetings.

Scoping found that the top issues of concern were property damage and conflicts caused by resident Canada geese, methods of conflict abatement, sport hunting opportunities, economic impacts of resident Canada geese, human health and safety concerns, and the impacts to the geese.

NEPA outlines a specific format for an Environmental Impact Statement. There's a purpose and need, an alternatives section, an affected

environment section, and an environmental consequences section, and I'll go over each one of those tonight.

But first, what exactly are resident Canada geese? Well, we consider resident Canada geese as those geese which nest within the lower 48 states in the months of March, April, May, or June, or reside within the lower 48 states in the months of April, May, June or July or August.

Purpose and need. The purpose of the EIS is to evaluate alternative strategies to reduce, manage, and control resident Canada geese populations in the United States. Secondly, it's to provide a regulatory mechanism that would allow states and local agencies or other federal agencies and groups and individuals to respond to damage complaints or management. Third, it's to guide and direct resident Canada goose population management activities in the United States.

The need for the EIS is increasing resident Canada goose populations, coupled with growing conflicts, damages, and socioeconomic impacts that they cause, has resulted in a re-examination of the Service's resident Canada goose management.

The draft EIS examined seven management alternatives. Alternative A, no action; alternative B, nonlethal control and management which includes nonpermitted activities; alternative C, nonlethal control and management which includes permitted activities.

Alternative D, expanded hunting methods and opportunities; alternative E, integrated depredation order management; alternative F, which is the state empowerment; and alternative G, the general depredation order.

Under the no action alternative, no additional regulatory methods or strategies will be authorized. We will continue to use the special hunting seasons, the issuance of depredation permits, and the issuance of special Canada goose permits.

Under alternative B, nonlethal management which would only be those nonpermitted activities, we would cease all lethal control of resident Canada geese and their eggs. Only nonlethal harassment techniques would be allowed, no permits would be issued, and special hunting seasons would be discontinued.

Under the third alternative, nonlethal management which would include permitted activities, we would cease all permitted lethal control of resident Canada geese. We would promote nonlethal harassment techniques, no depredation or special Canada goose permits would be issued, egg addling would be allowed with permit, and special hunting seasons would be continued.

Under the fourth alternative, increased hunting methods and opportunities, we would provide new regulatory options to increase the harvest of resident Canada geese. We would authorize additional hunting methods such as electronic calls, unplugged guns, and expanded shooting hours. These would be operational during September 1 to 15 seasons, they could be experimental during September 16 to 30 seasons, and they would have to be conducted outside of any other open season.

The fifth alternative was integrated depredation order management. This alternative consists of an airport depredation order, a nest and egg depredation order, an agricultural depredation order, and a public health depredation order. Implementation would be up to the state wildlife agency, special hunting seasons would be

continued, and the issuance of depredation permits and special Canada geese permits would also be continued.

The airport depredation order would authorize airports to establish and implement a program which would include either direct or indirect population control strategies. The intent of the program would be to significantly reduce goose populations at airports. Management actions would have to occur on the premises.

The nest and egg depredation order would allow the destruction of resident Canada goose nests and eggs without a permit. An intent of the program would be to stabilize breeding populations.

The agricultural depredation order would authorize land observers, operators, and tenants actively engaged in commercial agriculture to conduct indirect and/or direct control strategies on geese depredating agricultural crops. Management actions would also have to occur on the premises.

The last depredation order in this alternative is the public health and depredation order which would authorize state, county, municipal, or local public health officials to

conduct indirect and/or direct control strategies on geese when recommended by health officials if there's a potential public health threat. Management activities would also have to occur on the premises where there was a threat.

The sixth alternative is our proposed action termed state empowerment. Under this alternative we would establish a new regulation which authorizes state wildlife agencies or their authorized agents to conduct or allow management activities on resident goose populations. The intent of this alternative is to allow state wildlife management agencies sufficient flexibility to deal with problems caused by resident geese in their respective state.

We would authorize indirect and/or direct control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping and culling programs, and we would allow implementation of any of the specific depredation orders that I went over under alternative E.

During existing special hunting seasons we would expand the methods of take to increase hunter harvest like I explained under alternative A. It would authorize additional hunting methods such

as electronic calls, unplugged guns, and expanded shooting hours. Again, it would be operational during September 1 and 15 seasons, they could be experimental during September 16 to 30 seasons, and they would have to be conducted outside of any other open season.

In addition, we would provide a conservation order which would provide special expanded hunting opportunities during a portion of the Migratory Bird Treaty closed period, that is August 1 to 31, or the open period of September 1 to 15. This would authorize additional hunting methods such as electronic calls, unplugged guns, expanded shooting hours, and liberalized bag limits, and it would have to be conducted outside of any other open season.

The service would annually assess the impacts and the effectiveness of the program and there would be a provision for possible suspension of these regulations, that is, the conservation order and/or the regular Canada goose season changes when the need is no longer present.

We would continue all special and regular hunting seasons. We would continue the issuance of all depredation and special Canada goose permits.

The only state requirements would be to annually monitor the spring breeding population and to annually report take under any unauthorized activities.

The last alternative is a general depredation order which would allow any authorized person to conduct management activities on resident geese either posing a threat to health and human safety or causing damage. It would be available between April 1 and August 31. It would provide expanded hunting opportunities like that under alternative D. We would continue to use the special and regular hunting seasons and the issuance of depredation and special Canada goose permits and the authorization for all management activities would come directly from the Service.

Under the affected environment we listed two things, the biological environment and the socioeconomic environment. Under the biological environment we looked at resident Canada goose populations, water quality and wetlands, vegetation and soils, wildlife habitat, and federally-listed threatened and endangered species. Under the socioeconomic environment we looked at migratory bird program management which includes the sport

hunting program and migratory bird permit program, social values and considerations, economic considerations such as property damages and the agricultural crop damages, human health and safety, and the program cost.

The environmental consequences section forms the scientific and analytic basis for the comparison of the alternatives. It analyzes the environmental impacts of each alternative in relation to its resource categories I just went over.

The no action alternative provides the baseline for all of this analysis. Under the no action we expect populations to continue the growth we've experienced. The Atlantic Flyway we expect to approach about 1.6 million within ten years; Mississippi Flyway, 2 million in ten years; Central Flyway, 1.3 million in ten years; and the Pacific Flyway, about 450,000 in ten years. We would also expect continued and expanded goose distribution problems and conflicts, increased workloads, and continued impacts to property safety and health.

Under our preferred alternative we would expect a reduction in Canada goose populations, especially in those specific problem areas that the

state would identify. We would also expect increased hunting opportunities, significant reduction in other conflicts, decreased impacts to property, safety, and health. While there would be an initial workload increase, we think that long term the workload would decrease and that this alternative would also maintain viable resident Canada goose populations throughout the four flyways.

Some of the recent modeling that has been done has suggested that to reduce the four flyways' populations from current levels of about 3.5 million to the flyways' goal of 2.1 million, it would require for ten years the harvest of an additional 480,000 geese annually, the take of an additional 852,000 goslings annually, the nest removal of 528,000 nests annually, or the combination of an additional harvest of 240,000 resident Canada geese annually and take of 320,000 goslings annually, and each one of these would have to occur each year for ten years.

Thus, we believe the only way to properly attain these kinds of numbers is to give states the flexibility to address problems within their respective state, to address population reductions

on a wide number of available fronts, and since states are the most informed and knowledgeable local authorities on wildlife conflicts in their area, the primary responsibilities and decisions of the program should probably be placed with them.

What comes next? Well, first is the development of a new regulation to carry out this proposed action. This should be forthcoming in May. Second, the public comment period on this Draft Environmental Impact Statement ends May 30th. Third would be the publication of a final Environmental Impact Statement which would take into account all the comments we received, a record of decision, a final rule with the implementation of a proposed alternative, and we anticipate that for this fall.

As I stated, the public comment period ends May 30th, and Dave has already gone over various ways that you can comment. These include any oral or written comments that you submit tonight or any that you may subsequently send in. The address is printed on the back of the card that you received when you came in. Additionally, we've set up an electronic site where you can send in e-mail comments which Dave already alluded to, and

you can access not only the EIS but any other information pertinent to the process. And on behalf of the Fish and Wildlife Service I'd like to thank all of you for coming and especially those who submit comments. And that concludes my presentation.

MR. CASE: Thank you, Ron. As I mentioned, I'll just reiterate the process we're going to go through. As you came in, you got a card. I'm just going to call those numbers in that order. If you could come down front and speak in the microphone, we'd sure appreciate it. State your name and spell your last name, and mention if you represent an organization officially. If you have a written copy of any statements, that would be great if you can pass that on to Lisa. Again, I apologize in advance if anybody runs a little too long and I have to hurry you along. And again, the sign-up sheet should be going around. If you haven't signed up and you'd like to receive a copy of the Environmental Impact Statement, please sign up on that sheet. With that, number one? Two? Okay, number one, go ahead. If you don't jump up, I'll just keep going, so go ahead. Right down here would be good. Just be careful and watch the

stairs.

MR. MIESCKE: Robert Miescke. I live in Horicon, Wisconsin. I have 40 geese right now from here to the corner of the house. They're on -- on somebody else's property but I cannot control them because I cannot move them. They come and shit on my lawn and they shit 28 times a day so I don't want them on my lawn, and in order to move them off I have to walk across somebody's property and they're trying to get me for trespassing. Last year we only had one goose for the Horicon Zone. I think it was a disaster that we only could have one goose and the other people could have more geese than we could and one goose is not enough for controlling population around here. I think I better quit.

MR. CASE: Thank you. Number two?

MR. BERGQUIST: Good evening, Mr. Case, and thank you. My name is Jon Bergquist. I'm a certified wildlife biologist with the Wildlife Society --

MR. CASE: Be sure to speak into the mike there.

MR. BERGQUIST: -- and recently retired with nearly 30 years of service with the state

agency charged with managing wildlife populations. The last 13 years with that agency I served as the state's migratory game bird ecologist and was the state's representative to the Mississippi Flyway's technical section. I hold a B.S. degree and an M.S. degree in wildlife management, and I'm here today speaking on my own behalf as a private citizen of Wisconsin.

First, I would like to compliment Ron and the other authors of the EIS, two and a half years of labor in working it. It's an excellent document, a very detailed document. There are some shortcomings to it but I am very, very pleased that it's finally published. Again, I just want to compliment the Service on that. And the USDA's Wildlife Service. One concern, and this is not in the written statement that I gave you, was the definition of resident geese and that is birds that reside in the states, the lower 48, during April. If that definition holds, not nests, but resides, virtually the entire population of the Mississippi Valley population of Canada geese and the Tall Grass populations would be considered resident geese because a good share of them are here in Wisconsin in early April.

Alternatives -- let me address the alternatives. Alternative A, B, and C are not acceptable to me because they do not allow management agencies to address the problems they face today -- would in fact result in increased conflicts between human and resident Canada geese as stated in the document.

Alternative D would allow for some decrease in problem populations but it does not offer management agencies or individuals the array of management actions that alternative F does to address the problems that overabundance of resident Canada geese in some areas have created. The management options offered to address the problems associated with overabundance of resident Canada geese are inadequate and too restrictive.

Alternative E offers states and affected parties additional options to control resident populations and address human and resource conflicts, but it would be more difficult to implement while ensuring the basic welfare of the population of Canada geese to the degree that alternative F does. Further, this alternative is unacceptable to me because it is ambiguous who applicable parties are. Like alternative G, this

alternative does not ensure adequate controls and safeguards to ensure that resident populations of Canada geese are maintained at desired levels and could have negative impacts on migrant populations of Canada geese. The controls offered by alternative F are not present.

Alternative G is also unacceptable because it allows any authorized person to conduct damage management activities directed at resident Canada geese without adequate controls and safeguards to ensure that populations are maintained at desired levels. The controls offered by alternative F are not present.

Alternative F does provide states the greatest flexibility to deal with the problem of overabundant numbers of resident Canada geese. As indicated above, I prefer this alternative to the other alternatives listed. However, it does have a shortcoming in that it shifts the workload and financial burdens of managing resident Canada goose problems to the states without providing any funding to carry out that mandate, and I hope both Congressman Sensenbrenner and Congressman Petry's aides recognize that because it will shift a substantial financial burden onto state wildlife

agencies. The Fish and Wildlife Service indicated that its workload would decrease under this alternative and I agree. It should. However, the Environmental Impact Statement underestimates the increased workload and financial commitment that will be shifted to the states.

In wrapping up let me address two biological statements found in the EIS. On page three dash five in the section on molt migration it stated that in molt migration areas, and we're talking about resident geese that molt migrate to Canada, are often separated from areas occupied by successful breeding geese, the migrant birds, which reduce competition with the more dominant families. I would suggest, Ron, you go back and take a look at the information. Molt migrants are found on the same coastal habitats where large numbers of migrant broods are reared and they probably -- if that population grows, they're going to start competing with our migrant bird broods.

The second one is I disagree that there is sound scientific evidence that demonstrates that cumulative harvest on migrant geese that

traditionally wintered in the south has lowered their survival rates, and this is stated on page three dash six. This may be speculative by some, but I am not aware of any scientific evidence that proves this and I request that the specific reference be included or that statement be removed. Further, on page three dash seventeen you state that very few migrant geese winter in the southernmost portion of the Atlantic Flyway, and that the increase in numbers wintering in the mid-Atlantic portion of the flyway are the result of increasing resident populations. This seems to contradict your previous statement and I think the first statement's inadequate.

Again, I'd like to compliment the Service. I think you've done an excellent job. I think there's some room for some improvement and thank you for the opportunity to appear this evening.

MR. CASE: Thank you. Number three? Four?

MR. PRITZL: Good evening. My name is Jeff Pritzl, P-R-I-T-Z-L, and I'm the acting migratory game bird specialist for Wisconsin DNR.

And again, overall we feel this is an excellent and well-thought-out EIS and it clearly does spell out the problems that the Fish and Wildlife Service and the states face in managing resident Canada geese and lists the number of alternative management approaches that could address the situation. We would like to compliment the Service and USDA Wildlife Services on their analysis of the problems associated with managing overabundant populations of resident Canada geese and the possible alternatives to address current problems.

We intend to support proposed Alternative F as it provides the most complete set of integrated management actions for the concerned agencies and individuals to address problems, while still protecting this valuable resource. However, we are concerned that this proposal will shift a significant and growing workload from the federal government to the states without providing funding to support this workload. Without appropriate funds it will not be possible for states to take full advantage of many of the options made available in the preferred alternative, and we would also like to see an increase in funding research on abating urban goose problems addressed

in the management plan. And we will submit our official response in writing before May 30th.

MR. CASE: Thank you. Number five?

MR. NEUBURG: Lambert Neuburg, N-E-U-B-U-R-G, Washington County Park System, Washington County Golf Course, and Hartford Country Club. The problem we have is with all the geese that inhabit these places and their droppings and I guess our department does not want to get a lot of bad publicity by having them killed, so we're looking at receiving some kind of help from U.S. Fish and Wildlife Service, the Department of Natural Resources, and some funding from them to maybe remove these geese, and plus, to eliminate the possibility of any health hazards coming from all the goose droppings.

We tried a program this spring. We took our dogs out there before the geese could nest and chased them. Well, they got used to that. They would -- when my dog would swim after them, they would fly up, go so far, come down. Well, finally my dog figured out well, I'm not going to keep doing this. Then I got a screamer pistol. That always worked. We were able to chase them away but, you know, we did it for a month and so I guess

it worked for the month but -- but anyway -- okay. That's my comments.

As a sportsman, I want to make a couple comments. Couldn't that early season for the resident geese be held between Christmas and New Year's? Now, I've read where Michigan did that in some parts. This is a number of years ago because when the season is in September, the birds do not fly around very much, especially if it's hot. It's a really -- it's a downer. Okay. That's my comment on that.

The other comment is last year my friends and I received two tags for the Horicon Zone. The year before we received six. We would have been more than happy to receive three tags each of the years instead of one year you get -- you know, all of a sudden you get eight or six and then the next year you get one or two, you know. That -- it really just -- increases the interest. That's -- that's my comment. We'd sooner be happy with just, you know, like three tags and not so many in one year. Just spread it out. We'd be happy, my friends and I anyway. That's about 800 that go with me.

MR. CASE: Thank you. Number six?

MR. CHRISTIE: Don Christie, Brownsville C-H-R-I-S-T-I-E. Last year I received one goose tag for the Horicon Zone. I'm just wondering why other states can shoot one a day and leave us sitting with just one tag? That's the only comment I got.

MR. CASE: Okay. Thank you. Seven? Eight? Nine? Ten?

MR. BRUSIUS: Hello. My name is Rod Brusius, B-R-U-S-I-U-S. I'm from the City of Oshkosh Parks Department and I also represent the Fox Valley Goose Task Force which is a number of communities between Oshkosh and Kaukauna on the Fox River Valley. We had a meeting today, just happened to be the same day, and didn't have a real good chance to go over, you know, what you got. I got kind of an e-mail that we tried to go over a little bit, but we made a resolution that we would support simplifying permits. It really didn't kind of coincide with all these things you were mentioning, but -- and we would be, you know, very much okay with the Wisconsin DNR overseeing the regulations, and we're also in support of an expanded season for hunting and the City of Oshkosh would also take any help we can to reduce the

resident geese populations in our parks.

MR. CASE: Thank you. Number 11?

MR. NEITZEL: Steve Neitzel, N-E-I-T-Z-E-L. I'm a resident that does have a goose problem. This spring probably had anywheres from 150 to 200 geese nesting on our property and the neighbors up and down the street. Again, nothing seems to take care of moving them on. You can shoo them. They go in the water. As soon as you leave, they're back up. I'm also a newly elected official to the City of Horicon and appointed to the Urban Goose Management Committee for that. We've been offered very few alternatives in the past, the fencing, the wires, the shocking, the dogs. We've tried everything that's ever been allowed for a city to do. The last few years we have basically done the netting, trapping, and relocation program which I feel you may as well just throw the money in the river because you're not doing anything. The alternatives that we've been offered in the past to try to control this is just not helping.

From what I've seen tonight, I've not seen the document other than the general outline

tonight, but alternative F looks like the best for us. It basically now shifts the responsibility from the federal to the state, but we still have no idea what the state is going to do. We need this process to move along as quickly as possible. This shows me that if this changes, it shifts everything to the state, but we still don't know when the state is going to do anything. That could be two or three years down the road before we get any effective alternative to managing the geese with this process. We need to know that this would move as quickly as possible.

And the biggest thing I still don't see through this is what there is to control the urban population. I believe that's really where the whole problem is, is why most people I believe are probably here tonight. We don't want to wipe out the Canadian goose population. We need to find alternative ways to keep them in the wild areas. Some of the alternative hunting programs, yes, may knock some numbers down, but they appear to be as smart as other animals and they know where to go, where they're safe, and it's in the cities, the parks, the golf courses, and we need to find reasonable ways to control or move the geese out of

these areas permanently, and just that the alternatives we've had so far are doing nothing for that. That's all I've got.

MR. CASE: Thank you. Number 12?

MR. MAURER: Ray Maurer, last name is spelled M-A-U-R-E-R. I'm representing the City of West Allis/Cedarburg. Like many other communities in the state we've tried numerous control measures in the last number of years, spent thousands of dollars because of limited resources from the state and from the national -- or the U.S. government, and I'll even take that a step further because people are saying the state won't be getting funding from the government, but I'm looking at local shares of the municipalities not getting their share. I think the state if they do take it over may not be able to support a lot of municipalities, that that cost is not going to be passed any further than just to the state level.

Alternative F to us also seems as if it's the most logical proposal. Anything other than alternative F or prior to alternative F would be a step backwards and obviously increase numbers and problems that we're facing, and I guess just getting the control back in -- or into the state

agency would be obviously a simplifying matter, speed up the process, and the DNR and the USDA staff that we work with here are very knowledgeable on the local communities and the issues that we're facing, whether it's health and safety issues or just the numbers of geese that we're facing in each municipality.

As you might be aware, the City of Whitewater has conducted a harvest program for over a decade. This program has been enhanced by the increase in the number of counties that are now included in the early season hunting program. The harvest program would be improved if a spring season were allowed, culling birds before they breed or during the molting season when they cannot fly. It sounds mean, but we really aren't promoting a sport, we are developing a management program. Please forward this input to the appropriate contact person. Thank you.

MR. CASE: Thank you. Number 12? Number 13, 14, 15?

MR. HOFMAN: My name is Phil Hofman, H-O-F-M-A-N, and I represent the Town of Chester and outlying area of the Horicon Marsh. I do agree with the fella, I think it was number 11 or 12, who

said we have to try to coax these animals back into their habitat which is the wild areas. I think this area has a terrific Horicon Marsh, although I do question sometimes the management of that marsh. I think we've turned this whole area into a duck haven rather than into a place where some geese can hatch their young, and being concerned about some of the areas, the outlying areas the marsh, the water levels seem to be rising and I do feel in the future we're going to be concerned that our agricultural land will be nonfarmable, and also if we don't get this water level under control, I think there are going to be some problems in the future. Thank you.

MR. CASE: Thank you. Number 16? 17? 18? Anybody that has not had a chance to make a comment that would like to? Okay. If not, then again, I would like to thank you for taking the time out of your evening to provide comments and for your concern for geese. Ron will be here if you have questions, and obviously the number of other folks in the audience, I encourage you to ask questions. With that, I'd again like to thank you and I'll adjourn the meeting. Thank you.

STATE OF WISCONSIN)
) SS:
COUNTY OF MILWAUKEE)

I, LISA L. BASSETTE, a Registered Professional Reporter and Notary Public in and for the State of Wisconsin, do hereby certify that the above PUBLIC MEETING was recorded by me on the 24th day of April, 2002, and reduced to writing under my personal direction.

In witness whereof I have hereunder set my hand and affixed my seal of office at Milwaukee, Wisconsin, this 2nd day of May, 2002.

_____
Notary Public
In and for the State of Wisconsin

My Commission Expires: July 24, 2005.

U.S. FISH AND WILDLIFE SERVICE

PUBLIC HEARINGS TO DISCUSS EIS
ON RESIDENT CANADA GOOSE MANAGEMENT

May 7, 2002

Franklin Cool Springs Marriott
Conference Center
700 Cool Springs Blvd.
Franklin, Tennessee 37076

APPEARANCES:

Mr. David J. Case
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MR. CASE: We'll go ahead and get started. Although there's not a normal sequence, we'll go through the motions to make sure everything is on the up and up.

My name is Dave Case. I'm the consultant here for tonight's meeting. As you know, the purpose is to take comments on the Draft Environmental Impact Statement that the U.S. Fish and Wildlife Service has prepared in relation to resident Canada geese.

Ron Kokel is going to do a presentation on the Environmental Impact Statement and on some of the background on it. Then you got cards when you came in. We'll just have you come up to the microphone, and you can make comments.

Vicki is our court reporter. She'll be capturing everything, so there will be a formal record. And if you could, when you come up, spell your last name. Give us your name and spell your last name so we get it correct; and if you represent an organization officially, then let us know that as well.

On the Environmental Impact Statement, if you want a copy of the final Environmental Impact Statement, go ahead and

sign up on that. If you do not want to be a recipient, check that off there so we don't duplicate your name. If you haven't received a copy before, just check the other one.

So with that done, I think we'll go ahead and get started. I'd like to introduce Ron Kokel of the U.S. Fish and Wildlife. Ron?

MR. KOKEL:

Thank you, Dave, and good evening, everybody. Again, I'm Ron Kokel. I'm with the U.S. Fish and Wildlife Service, the Division of Migratory Bird Management; and I'm stationed in Arlington, Virginia. And on behalf of our esteemed director, Steve Williams, I'd like to welcome everybody here.

This is the fourth of eleven public meetings being held across the country for the purpose of inviting public participation into our process of developing an Environmental Impact Statement for resident Canada geese management. The DEIS was developed in full cooperation with the U.S. Department of Agriculture's Wildlife Services.

Why are we here? Well, we're here to explain the DEIS's proposed action and to

listen to your comments. This draft EIS considered a range of management alternatives for addressing expanding populations of locally breeding Canada geese. And as such, we're here to listen to you and invite your comments on recommended actions.

First, a brief explanation of the National Environmental Policy Act, which governs the whole process. The National Environmental Policy Act or NEPA requires the completion of an EIS to analyze environmental and socioeconomic impacts that are associated with federal significant actions.

NEPA also requires public involvement, which includes a scoping period before the draft can be completed, and a comment period after the draft.

We began this process in August of 1999 when we published a Federal Registry notice and announced our intent to prepare this draft. Then in February of 2000, we held nine public scoping meetings, one of which was held in Nashville. It was designed to seek public input into this process. Scoping ended in March of 2000. In response to scoping, we received over

3000 comments, and we had about 1250 people attend the nine pubic scoping meetings.

While in scoping, we found that the top issues of concern were the property damage and conflicts caused by resident Canada geese; methods of conflict abatement; sport hunting opportunities on resident Canada Geese; economic impacts; human health and safety concerns associated with geese; and the impact to the geese themselves.

NEPA also outlines the specific format of an EIS. There's a purpose and need section, an alternative section, a safe environment section, and environmental consequences section.

In the EIS, we define resident Canada geese as those geese which nest within the lower 48 states in the months of March, April, May, or June, or reside within the lower 48 states in the months of April, May, June, July, or August.

The purpose of the EIS was, one, to evaluate alternative strategies to reduce, manage, and control resident Canada goose populations in the U.S; two, to provide a

regulatory mechanism that would allow state and local agencies or other federal agencies and groups of individuals to respond to Canada geese damage complaints; and third, to guide and direct resident Canada goose population management activities in the U.S.

The need for the EIS was twofold: One, increasing resident goose populations coupled with growing conflicts, damages, and the socioeconomic impacts; and for a re-examination of the Service's resident goose management.

We looked at seven management alternatives. Alternative A, no action, which is the baseline; Alternative B, nonlethal control or management, which would only be those federally nonpermitted activities; Alternative C, a nonlethal control and management, which would include federally permitted activities; Alternative D, expanded hunting methods and opportunities; Alternative E, integrative depredation order management; Alternative F, state empowerment, which is the proposed action; and Alternative G, which is the general depredation order.

Under the no action alternative,

there would be no additional regulatory methods or strategies authorized. We would continue to use the special hunting season, the issuance of depredation permits, and the issuance of special resident Canada geese permits.

Under the second alternative, the nonlethal management, which would include nonfederally permitted activity, we would seek all legal control of resident Canada geese and their eggs. Only nonlethal harassment techniques would be allowed; no permits would be issued; and all special hunting seasons would be discontinued.

Under the third alternative, nonlethal control or management, which would include federally permitted activities, we would cease all permitted lethal control of adult resident Canada geese. We would promote nonlethal harassment techniques. No depredation of special Canada goose permits would be issued; and special hunting seasons would be discontinued.

The fourth alternative is expanded hunting methods and opportunities. Under this alternative, we would authorize

additional hunting methods to increase the harvest of resident Canada geese. Such method could include electronic calls, unplugged guns, and expanded shooting hours. These seasons could be operational during September 1 and 15 seasons. They could be experimental during September 16 to 30 seasons; and they can't be conducted outside of any other open seasons.

The fifth alternative, we termed integrative depredation order management. This alternative consists of an airport depredation order, a egg and nest depredation order, an agricultural depredation order, and a public health depredation order. Implemention would be up to the individual state's wildlife agencies. Special hunting seasons would be continued; and the issuance of depredation permitting for special Canada goose permits would also be continued.

The airport depredation order would authorize airports to establish and implement a program which could include indirect or direct population control activities. The intent of this program would be to significantly reduce goose populations at airports.

Management actions would have to occur on the premises.

The nest and egg depredation order would allow the destruction of resident Canada goose nest and eggs without a federal permit. The intent of the program would be to stabilize the breeding populations.

The agricultural depredation order would authorize landowners, operators, or tenants to actively engage in commercial agriculture to conduct direct or indirect control activities on the geese depredation on agriculture crops. Management actions would also have to occur on the premises.

And lastly, the public health depredation order would authorize states, counties, and municipal or local public health officials to conduct direct or indirect control strategies on geese when recommended by health officials, if there was a public health threat. Management actions would also have to occur on the premises.

Our proposed action was the sixth alternative, which we term "state empowerment." Under this alternative, we would establish the

new regulations, which would authorize the states' wildlife agencies or their authorized agents to conduct or allow management activities on resident goose populations. The intent of this alternative would be to allow state wildlife management agencies sufficient flexibility to deal with the problems caused by resident geese within their state. It would authorize indirect or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping programs; and would allow implementation of any of the specific depredation orders that were identified in Alternative E.

During existing special hunting seasons, we would expand methods of taking to include hunter harvests like I talked about under Alternative D. Such additional hunting methods could include electronic calls, unplugged guns, and expanded shooting hours. Again, these seasons would be operational during September 1 to 15. They could be experimental from September 16 to 30; and they would have to be conducted outside of any other open seasons.

In addition, we would establish a conservation order, which would provide special expanded hunting opportunities during a portion of the treated closed period, August 1 to 31; and the open period, September 1 to 15. Additional hunting methods could be used such as electronic calls, unplugged guns, expanded shooting hours, and liberalized bag limits. Again, these would have to be conducted outside of other open seasons.

The U.S. Fish and Wildlife Service would annually inspect the impact and effectiveness of the overall program; and there would be a provision for possible suspension of the hunting regulations under the conservation order for the regular season changes as far as methods when the need was no longer present.

We would also continue all special and regular hunting seasons. We would continue the issuance of depredation of special Canada goose permits. The only state requirement would be to annually monitor the spring breeding population, and to annually report takes under authorized activities.

The last alternative is the

general depredation order. This alternative would allow any authorized person to conduct management activities on resident geese, which were posing a threat to health and human safety or causing property damage. It would be available between April 1 and August 31. It would also provide expanded hunting opportunities such as that under Alternative D. We would continue to use the special and regular hunting seasons, and the issuance of depredation of special Canada goose permits. And the authorization for all management activities would come directly from the Service.

Under the impacts to the environment, we looked at two subparts. One is the biological environment. Under the biological environment, we looked at the resident Canada goose populations, water quality in wetlands, vegetation and soils, wildlife habitat, and federally listed threatened and endangered species.

Under the socioeconomic environment, we looked at the Migratory Bird Program, which would include the sport hunting program, and the permit program; social values

and considerations; economic considerations such as property damage and agricultural crop damage caused by resident geese; human health and safety issues; and the program costs.

The environmental consequences section forms the scientific and analytic basis for a comparison of the different alternatives. It analyzes the environmental impacts of each alternative in relation to the resource categories. And as I said earlier, the no action alternative provides the baseline for this analysis.

Under the no action alternative, we expect several things: One, populations for resident Canada geese would continue to grow. In the Atlantic Flyway, we estimate there'd be about 1.6 million in ten years; in the Mississippi Flyway, two million in ten years; the Central Flyway, 1.3 million in ten years; and the Pacific Flyway, about 450,000 in ten years. We also would expect continued and expanded goose distribution problems and conflicts; increased workload both on state, federal, and local levels; and continued impacts of the resident Canada geese to property,

safety, and health.

Under our proposed action, we would expect a reduction in goose populations, especially in specific problem areas. There would be increased hunting opportunities. There would be a significant reduction in conflict; decreased impacts to property, safety, and health. While there would be an initial workload increase, we believe that long term, there would be a workload decrease. And above all, it would maintain viable resident Canada goose populations.

Some of the recent modeling that's been done suggests that to reduce four flyway populations from the current level from about three and a half million down to the flyway established goal of 2.1 million would require annually for ten years, the harvest of an additional 480,000 geese; or take an additional 852,000 goslings annually, or the nest removal of 528,000 nests annually, or the combination of an additional harvest of 240,000 geese, and the take of 320,000 goslings annually. All these would have to be on top of what is already occurring.

Thus we believe this is the only way to possibly attain these kind of numbers, and to give states the flexibility to address the problems within their respective state. We also believe that the population reduction should be addressed on a wide number of available fronts. And since states are the most informed and knowledgeable local authorities on wildlife conflicts, the primary responsibilities and decisions of the program should be placed with them.

Well, what comes next? First is the development of a new regulation to carry out this proposed action. This should be forthcoming this month. Second, the public comment period on the draft ends May the 30th. And third, the publication of a final EIS, a record of decision, and a final rule which we anticipate for this fall.

As I just stated, the public comment period is open until May the 30th; and Dave has outlined the various methods that you can use to submit your comments. These include any oral or written comments that you submit tonight, and any that you may subsequently send

in to us. The address is printed on the back of the card that you received when you came in. Also we've set up an electronic site where you can e-mail comments, and all the other information that's pertinent to the EIS process is there including the EIS. And on behalf of the Service, I'd like to everybody here for attending.

MR. CASE: Thanks, Ron. As I mentioned, we're going to take comments from people in the order that you came in. Again, if you could give us your name. Spell your last name for us, and if you could, speak into the microphone so everybody in the back can hear you and so Martha can hear you. So No. 1.

MR. BANKSTON: My name is Ray Bankston, B-a-n-k-s-t-o-n, and I'm a goose hunter. I have been for about 60 years.

My one comment is that I believe the state empowerment part of this is the way to go. There's no doubt about that. But the one word that's missing in there, I think you're going to have to address. To get geese out of protected areas to where the hunters can shoot

them is to bait them. We've got -- I'm speaking of the local areas -- we've got many, many, many areas that we can identify that geese are on and are never shot. They never leave these residential areas, the park areas, or whatever. And to get them to leave, you're going to have to bait them. How this could be done, I don't know. I would say it would have to be site specific and person specific, a permit for a person at a site during a time frame. Other than that, I think the other part of it will work. But the unplugged gun and the calls aren't going to help you if the geese -- they're just not going to come to that general area at all. That's my only comment I'll make.

MR. CASE: Thank you. Number 2?

NUMBER 2: I pass.

MR. CASE: Number 3?

NUMBER 3: I pass.

MR. CASE: Number 4?

NUMBER 4: I pass.

MR. CASE: Number 5?

NUMBER 5: I pass.

MR. CASE: I'd like to congratulate you on the shortest resident Canada

goose meeting, and the most pleasant Canada goose meeting that we've had in the past two years. If there are no other comments, then we'll adjourn the meeting. Thank you.

* * * * * * * * *

I hereby certify the aforegoing to be a true and accurate transcript of the proceedings.

_____

VICKI S. GANNO, RPR
Court Reporter

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U.S. FISH AND WILDLIFE SERVICE

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In the Matter of the U.S. Fish and Wildlife Public Hearing to Discuss Draft Environmental Impact Statement on Resident Canada Goose Management.

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PUBLIC MEETING

TAKEN ON 5/14/02

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TRANSCRIPT OF PROCEEDINGS, taken in connection with the above-captioned matter on the 14th day of May, 2002, at Minnesota Valley National Wildlife Visitors Center, 3815 East 80th Street, Bloomington, Minnesota, before Dale R. Neumann, Professional Freelance Reporter and Ramsey County Notary Public, and commencing at 7:09 p.m.

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WHEREUPON, the following proceedings transpired:

MR. SENG: Good evening. I'd like to welcome all of you to tonight's meeting on resident Canada goose management. My name is Phil Seng. I'll be the facilitator for tonight's meeting. The purpose of the meeting is to take public input on the draft Environmental Impact Statement that the U.S. Fish and Wildlife Service has prepared on Canada goose overabundance. I'd like to thank each of you for taking time out on this beautiful evening to come and give your comments.

Tonight's meeting is the fifth of eleven meetings to be held on this issue around the country. We started out on April 1st down in Dallas, and from there we went to Palatine, Illinois, then Waupun, Wisconsin. We were in Franklin, Tennessee, last week, here in Bloomington tonight. Tomorrow we head to Brookings, South Dakota, and then on to Richmond, Virginia; Danbury, Connecticut; North Brunswick, New Jersey; Denver, Colorado,

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and we end up in Bellevue, Washington, on May 30th.

Before we begin, I'd like to recognize a few people in the audience. First, Vicki Sherry with the Minnesota Valley National Wildlife Refuge. I'd like to thank you for making the facility available and helping us to put it all together. We appreciate that. We've hosted several meetings here, and it's a great facility to host at. So we appreciate her.

12 Tom Melius, Assistant Director
13
14
15 of Migratory
16 Birds and State Programs from Washington,
17 D.C.;
18 John Christian, Assistant Regional
19 Manager for Migratory Birds and State
20 Programs here in the regional office;
21 Steve Wild, chief of the migratory bird
22 program here in the regional office; and
23 Tim Breneger with the Minnesota Department
24 of Natural Resources.
25 We appreciate you folks joining us

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1 this evening.
2 The process is very straightforward.
3 There will be a brief slide presentation
4 by Ron Kokel with Fish and Wildlife
5 Service, and then we'll jump right into
6 receiving your comments on the draft
7 Environmental Impact Statement.
8 When you came in, you should have
9 gotten one of these cards with a number on
10 it. We will take comments in that order.
11 It's one through however many were given
12 out this evening. And if you elect to
13 make comments, Patty, who has handed out
14 the cards, will be taking a mike around to
15 each of you, and we ask that you do use
16 the mike for a couple of reasons, first of
17 all so that all of us have a chance to
18 hear what you have to say, and also so
19 that Dale, our court reporter, can get
20 down your comments verbatim and make sure
21 we don't misinterpret what you have to
22 say.
23 If you don't elect to make verbal
24 comments but you'd like to make written
25 comments, on the back of that card is a

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1 regular mail address and an e-mail
2 address. And I would recommend that if
3 you have Internet access that you use the
4 e-mail address, because these comments
5 will go to the D.C. office, and, as most
6 of you know, because of the anthrax scare,
7 a lot of that mail has to go through a
8 special irradiation process. So, in order
9 to make sure that you get your comments in
10 on time, I would encourage you to use
11 e-mail if you have it.
12 When you make comments, if you would
13 state your name and spell your name,
14 unless it's immediately obvious how to

spell it. Again, we want to make sure that we know who you are and we get it spelled correctly. Also, if you're representing an organization, please state what the organization is and tell us where you're from.

In just a second I'll be passing around a sign-up sheet, and, if you would, sign up so we know who attended. And there are two check boxes below where you put your name, and that will tell us

whether you're already on the mailing list or not. So if you have received in the mail a copy of the draft Environmental Impact Statement, then you're on the mailing list and you will receive a copy of the final EIS when it becomes available. So you can check that box if you have received it already.

If you're not on the list, if you did not receive a copy in the mail but you'd like to receive a copy of the final in the mail, there's a box for that too. If you did not receive a copy of the draft and you don't want a copy of the final, then just make a note to that effect, just "don't send a copy" or something like that, and we'll be happy to honor that request.

I'd just like to point out that the format of tonight's meeting is not a debate or a discussion format. It's for us to take your comments. So just keep that in mind when you make comments. If you have questions of clarification over what Ron has to say in his presentation,

then he may elect to take those questions, depending on the nature of them, but keep in mind that it's not a debate format.

And, finally, my job as facilitator is to make sure that everybody has a chance to say their piece tonight, and so I apologize in advance; if someone tries to dominate or control the meeting, I'll ask them to please finish up, or if a segment goes too long, I may ask you to finish up. And I apologize for that, but I just want to make sure that everyone has a chance to speak.

So, with that, I'd like to introduce Ron Kokel with the Fish and Wildlife Service to give a brief presentation on the draft Environmental Impact Statement.

18 Ron?
19 MR. KOKEL: Thanks, Phil. Again, good
20 evening, everybody. My name is Ron
21 Kokel. I'm with the U.S. Fish and
22 Wildlife Service and the Division of
23 Migratory Bird Management, stationed
24 currently in Arlington, Virginia. On
25 behalf of our director, Steve Williams,

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1 I'd like to welcome everyone here tonight.
2 Now, if I can get the slides -- and the
3 lights. Okay.
4 As Phil pointed out, this is the fifth
5 of eleven public meetings that are being
6 held across the country for the purpose of
7 inviting public participation and input
8 into our process of developing an
9 Environmental Impact Statement on resident
10 Canada goose management. The DEIS was
11 developed in full cooperation with the
12 U.S. Department of Agriculture, Wildlife
13 Services.
14 Why are we here tonight? Well, we're
15 here tonight to explain the draft
16 Environmental Impact Statement, its
17 proposed action, and to listen to your
18 comments. The draft EIS considers a range
19 of plans and alternatives for addressing
20 expanding populations of resident Canada
21 geese, and, as such, we're really here to
22 listen to you, and we'd like your comments
23 on the Service's recommended management.
24 First, a little bit of a brief
25 explanation about the National

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1 Environmental Policy Act which governs
2 this whole process. NEPA requires the
3 completion of an Environmental Impact
4 Statement to analyze environmental and
5 socioeconomic impacts that are associated
6 with any federal significant action. NEPA
7 also requires public input, including a
8 scoping period before the draft and a
9 comment period after the draft. That's
10 why we're here tonight.
11 We began this process in August of
12 1999 when we published in the Federal
13 Register a notice that announced our
14 intent to prepare this draft. Then in
15 February of 2000 we held nine public
16 scoping meetings which were designed to
17 seek public input into the process.
18 Scoping ended in March of 2000. In
19 response to the scoping, we received over
20 3,000 comments, and over 1,250 people

21 attended the nine public meetings.
22 What did we find out with scoping?
23 Well, with scoping we found the top issues
24 of concern were property damage and
25 conflicts caused by resident Canada geese,

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1 the method of conflict abatement, the
2 sport hunting opportunities on resident
3 geese, the economic impact of resident
4 geese, human health and safety concerns,
5 and the impact to the geese themselves.
6 NEPA also outlines a specific format
7 for an EIS. There's a "Purpose and Need"
8 section, an "Alternatives" section, an
9 "Effect on Environment" section, and an
10 "Environmental Consequences" section.
11 First, what are resident Canada geese?
12 Resident Canada geese, as defined in the
13 EIS, are those geese which nest within the
14 lower 48 states in the months of March,
15 April, May or June, or reside within the
16 lower 48 states in the months of April,
17 May, June, July or August.
18 The purpose of the Environmental
19 Impact Statement was threefold. One was
20 to evaluate alternative strategies to
21 reduce, manage and control resident goose
22 populations in the U.S.; second, to
23 provide a regulatory mechanism that would
24 allow state and local agencies, other
25 federal agencies or groups and individuals

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1 to respond to damage complaints; and,
2 thirdly, to guide and direct resident
3 Canada geese population management
4 activities in the U.S.
5 The need for the EIS was twofold. One
6 was that increasing resident Canada goose
7 populations coupled with growing
8 conflicts, damages and socioeconomic
9 impacts that they cause resulted in a
10 reexamination of the Service's resident
11 Canada goose management.
12 Alternatives: The draft Environmental
13 Impact Statement examines seven management
14 alternatives. First was Alternative A, no
15 action. This is the base line; second,
16 Alternative B, nonlethal control and
17 management, which included only non-
18 federally-permitted activities;
19 Alternative C, nonlethal control in
20 management, including federally-permitted
21 activities; Alternative D, expanded
22 hunting methods and opportunities;
23 Alternative E, integrated depredation

24 order management; Alternative F, state
25 empowerment, which is our proposed action;

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1 and Alternative G, general depredation
2 order.
3 Under the "No Action" alternative,
4 Alternative A, no additional regulatory
5 methods or strategies would be authorized.
6 We'd continue to use special hunting
7 seasons, the issuance of individual
8 depredation permits and the issuance of
9 special Canada geese permits.
10 Under Alternative B, nonlethal control
11 and management, which included
12 nonfederally-permitted activities, we
13 would cease all lethal control of resident
14 Canada geese and their eggs, only
15 nonlethal harassment techniques would be
16 allowed, no permits would be issued, and
17 all special hunting seasons would be
18 discontinued.
19 Under the third alternative, "Non-
20 lethal Control and Management," which
21 includes federally-permitted activities,
22 we would cease all permitted lethal
23 controls of resident Canada geese, we
24 would promote nonlethal harassment
25 techniques, there would be no depredation

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1 or special Canada goose permits issued,
2 egg addling would be allowed with permits,
3 and special hunting seasons would be
4 continued.
5 Under the fourth alternative,
6 "Expanded Hunting Methods and
7 Opportunities," we would provide new
8 regulatory options to increase the harvest
9 of resident Canada geese; it would
10 authorize additional hunting methods, such
11 as electronic calls, unplugged guns and
12 expanded shooting hours; decisions would
13 be operational during existing September 1
14 to 15 seasons; they could be experimental
15 during September 16 to 30 season, and it
16 would have to be conducted outside of any
17 other open seasons.
18 Alternative E we term "Integrated
19 Depredation Order Management." This
20 alternative consists of an airport dep-
21 redation order, a nest and egg depredation
22 order, an agricultural depredation order,
23 and a public health depredation order;
24 implementation would be up to the state
25 wildlife agencies; special hunting seasons

would be continued; and the issuance of depredation permits and special Canada goose permits would also be continued.

The airport depredation order would authorize airports to establish and implement a program which would include indirect and/or direct population control strategies. The intent of the program would be to significantly reduce goose populations at airports. Management actions would have to occur on airport premises.

The nest and egg depredation order would allow the destruction of Canada goose nests and eggs without a permit. The intent of this program would be to stabilize existing breeding populations.

The agricultural depredation order would authorize landowners, operators and tenants actively engaged in commercial agriculture to conduct indirect and/or direct population control strategies on geese depredating on agricultural properties. And, again, the management action would have to occur on the

premises.

The public health depredation order would authorize state, county, municipal or local public health officials to conduct indirect and/or direct population control strategies on Canada geese when it was recommended by health officials that there was a public health threat. Again, the management action would have to occur on the premise where there was a threat.

Our proposed action is the sixth alternative. Under this alternative we would establish a new regulation which would authorize state wildlife agencies or their authorized agents to conduct or allow management activities on resident goose populations. The intent of this alternative is to allow state wildlife management agencies sufficient flexibility to deal with the problems caused by resident geese within their respective states.

Under this alternative we would authorize indirect and/or direct population control strategies, such as

aggressive harassment, nest and egg destruction, gosling and adult trapping

and culling programs. We would also allow implementation of any of the specific depredation orders which I talked about under Alternative E.

During existing special hunting seasons, we would expand the methods of taking and increase hunter harvest, as I talked about earlier under Alternative D. We would authorize additional hunting methods, such as electronic calls, unplugged guns, expanded shooting hours. The season would again be operational during September 1 to 15. They could be experimental during September 16 to 30, but, again, they would have to be conducted outside of other open seasons.

We would also implement a conservation order which would provide special expanded harvest opportunities during a portion of the Migratory Bird Treaty closed period that is August 1 to 31, and a portion of the open period, September 1 to 15. These would authorize additional hunting

methods, such as electronic calls, unplugged guns, expanded shooting hours, and liberalized bag limits. And, again, these would have to be conducted outside of any other open seasons.

Under this alternative the Service would annually assess the impact and effectiveness of the overall program, and there would be a provision for possible suspension of some of the regulations, that is, the conservation order and/or the regular hunting season changes when the need was no longer present.

We would also continue all special and regular hunting seasons, we would continue the issuance of depredation and special Canada goose permits. The only state requirements under the program would be to annually monitor the spring breeding population of resident Canada geese and to annually report the take under authorized activities.

The last alternative, Alternative G, General Depredation Order, would allow any authorized person to conduct management

activities on resident geese that either pose a threat to health or human safety or are causing damage. These would be available between April 1st and August 31. It would provide special expanded hunting

6 opportunities, such as that under
7 Alternative D. It would continue to use
8 the special and regular hunting season and
9 the issuance of depredation and special
10 Canada goose permits, and the authoriza-
11 tion for all management activities would
12 come directly from the U.S. Fish and
13 Wildlife Service.
14 We look to two things under the
15 affected environment. One is the
16 biological environment, the second is the
17 socioeconomic environment. Under the
18 biological environment, we look at
19 resident Canada goose populations, water
20 quality of wetlands, vegetation and soils,
21 wildlife habitat, and any impacts on
22 federally-listed threatened and endangered
23 species.
24 Under the "Socioeconomic environment,"
25 we looked at the migratory bird program,

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1 which includes the sport hunting program
2 and the migratory bird permit program,
3 social values and considerations, economic
4 considerations such as property damages
5 caused by resident geese, and agricultural
6 crop damages, human health and safety
7 issues, and the program cost.
8 The "Environmental Consequences"
9 section forms the scientific and the
10 analytic basis for a comparison of
11 different alternatives. It analyzes the
12 environmental impact of each alternative
13 in relation to the resource categories
14 that I just went over. And, again, the
15 "No Action" alternative provides a base
16 line for all analysis.
17 Under the "No Action" alternative,
18 what we would expect to happen is that
19 populations of resident geese would
20 continue to grow. In the Atlantic
21 Flyway, we would expect about 1.6 million
22 within ten years; in the Mississippi
23 Flyway, the population would approach 2
24 million within ten years; the Central
25 Flyway, 1.3 million in ten years; and the

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1 Pacific Flyway, around 450,000 within
2 ten years. We would expect continued and
3 expanded goose distribution problems and
4 conflicts, we would expect increased
5 workloads, and we also would expect
6 continued impacts to property, safety and
7 health.
8 Under the proposed action, we expect

there to be a reduction in resident Canada goose populations, especially in specific problems areas. We would expect increased hunting opportunities, significant reduction in conflicts, decreased impacts to property, safety and health. While there would be initial workload increases, we think that in the long term the workload would decrease as the populations decreased. And, lastly, it would maintain viable resident Canada geese populations in all areas.

Some recent modeling that's been done suggests that to reduce the four flyway populations from current levels of about 3.5 million down to the flyways' established objective of about 2.1 million

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would require annually for ten years the harvest of an additional 480,000 geese annually or the take of an additional 852,000 goslings annually, the nest removal of 528,000 nests annually, or a combination of additional harvest of 240,000 geese annually and the take of 320,000 goslings annually. All this would have to occur each year annually for ten years over what is already occurring.

Thus, we believe the only way to possibly obtain these kinds of numbers is to give states the flexibility to address populations within their respective states; secondly, to address population reductions on a wide number of available fronts; and since states are the most informed and knowledgeable local authorities on wildlife conflicts, primary responsibilities and decisions of the program should be placed with them.

What comes next? Well, first is the development of a new regulation to carry out the proposed action. This should be forthcoming this month. Second, public

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commentary on the draft, which Phil already indicated closes on May 30th. And third would be the publication of a final Environmental Impact Statement, the Service's record of decision, and any final rules which we anticipate for this fall.

As I stated, the public commentary is over May 30, and Phil has already indicated the various methods that you can use to submit your comments. These

include any oral or written comments that you submit tonight and any that you may subsequently send in to us. Again, the address is printed on the back of the card that you received.

Additionally, we have set up an electronic site that not only can you send your comments, but you can access the draft Environmental Impact Statement, the news releases, and any other pertinent information.

On behalf of the Fish and Wildlife Service, I'd like to thank all of you that are here tonight, and especially those who

are going to provide comments.

MR. SENG: Thanks, Ron. And now for the important part of the meeting: to hear what you have to say. I'd just like to mention a couple of things, first of all, when I call your number, if you don't choose to make comments, please just say you pass so we can move right along. If you do want to make comments, please raise your hand so that Patty can find you with the mike. She's going to do her best Phil Donohue impersonation and bring the mike to everyone when they speak.

Again, state and spell your name unless it's immediately obvious how to spell it, and your organization, if you're representing one, and where you're from. With that, card number one.

MR. JOHN MOLKENBUR: Right here. My name is John Molkenbur, M-O-L-K-E-N-B-U-R. I'm president of the Minnesota Duck and Goose Callers Association, a chapter of the Minnesota Waterfowl Association. Great info tonight. We were here two years ago, and it was a great meeting

then, and I'm glad you guys are here again for us. I like some of the ideas that you have here, and I believe in what you're saying, and I think it should work out great.

A lot of the goose population is our fault. A lot of it has to do with because we belong to groups that believe in conservation -- Ducks Unlimited, Minnesota Waterfowl, Delta Waterfowl. These are the ones that got the geese the way they are. In 1969 I had to travel all the way to Manitoba just to see a goose, and now they're outside my yard every day and all

over. And, to be honest with you, I love it. I think it's the greatest thing ever. But just like your backyard is full of dandelions and they're beautiful dandelions, when you get too many of them, they ruin your grass. And it's the same with geese.

The last time we were here, they had people that had really some, to me, strange ideas. Some wanted to shoot them with artificial inseminators, some wanted

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just to take every other egg out of their nest, and strange ideas. The only solution I think, for us, is actually hunting them. And, to us, the hunting part of it is difficult, because most of these geese in the early season, they come within the city limits and stuff.

But one thing a lot of you are forgetting is that this year a guy by the name of L. P. Breszney came up with a shotgun -- I can see some of you people going, "Oh, no," I'm sure, but that thing is so quiet that it actually will be allowed to go on the golf courses. We will be allowed to go in areas where you couldn't go before, because it won't sound like a drive-by or something like that. It will just be a quiet gun, and it's actually there to control the population.

And sometimes the way you're headed up there, to me, a goose, I just love them. How can you shoot something like that that you love? Well, like I said before, you get too many of them and you have to control them, and how you control them is

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the hard thing. That's our right to hunt, and we love it. To us it's a thing that you pass down through tradition, and it's getting harder and harder to hunt these geese in the metro area.

That's just one of the ideas that I think we should do. I appreciate you guys giving it to the state, because the state has a lot of problems on this, and I think the state knows best how to handle it. Thank you.

MR. SENG: Thank you. Card number 2.

MR. KERMIT MOLKENBUR: My name is Kermit, K-E-R-M-I-T, Molkenbur, and the last name is spelled M-O-L-K-E-N-B-U-R. I'm 67 years old, and who cares, right? In 1973 we had a flock of 7,300 honkers,

the Greater Basin honker, coming from Oak Point, Manitoba down to Rochester, Minnesota. This is probably the greatest conservation story in my lifetime, and probably everybody else's lifetime that is sitting in this room. To cohabitate with public, with golf courses, wherever it is, they take hold, and they're doing a

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tremendous job.

I don't know, and I don't think anybody knows, the answer to correcting this problem. Everybody's got a different idea, such as sterilization and all these different things, taking the goslings out of the nests and whatever. Mother Nature probably will take care of the problem for us. Maybe we'll have botulism. Who knows? Okay? I would hate to look back someday when you are in the same duck blind that you were 35 years or 40 years ago and said, "Oh, I see a goose."

Today we are just overjoyed with the amount of geese that we see and also can hunt. I would be for the Regulation A. I would also be in support of increasing the bag limits. I thank you for the oppor-tunity to talk about this, and, hopefully, everything will come out in the right place. Thanks again.

MR. SENG: Thank you. Card 3.

MR. PETERSON: My name is Tim Peterson, and I'm with Delta Waterfowl, Minnesota Waterfowl, Minnesota Duck and

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Goose Callers Association. Just about any conservation organization that seems to come along with a good plan, I manage to find my way into it.

What I really see is -- and I think you're beginning to address it now with handing over some of the opportunities to manage the problem to the states, because, like he said, the local people should have a much better handle on how to handle their own particular problem. For instance, in Minnesota in the metropolitan area we've got a tremendous problem with just getting the geese into an area where you can legally hunt them during the special early hunting seasons.

In the month of September, the birds haven't really flocked together. They're not operating on any sort of schedule. As a hunter, typically what you want to do is

try and pattern the birds and find the fields that they're going to, secure permission to gain access to that property, and set your decoys out prior to the sun coming up, and then you catch the

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geese as they're coming in the field. However, this early in the year, the month of September, birds have rarely had an opportunity to establish any patterns. They're still pretty much operating with small flocks, which will be the family units. So the opportunity for that early season hunt -- this is my opinion, of course -- is that it's relatively limited. I think you could push limits to 20 birds a day, you could do the unplugged shotguns, you could do the electronic calls, and I think that the net effect would not be what you're looking for.

Personally, I would like to see the opportunity to do an expanded resident goose hunt the first five to seven days of October. Unfortunately, that's when our regular hunting season is in play, and if the regulations are stated that none of this can occur during open seasons for other waterfowl, I think that hunting as an option, certainly in the larger metropolitan areas, is not as strong an option unless people are allowed to hunt

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on golf courses, soccer fields, football fields, baseball fields, anyplace where you've got a big stand of short grass.

Anyway, as the other two fellows said, I'm real pleased to see some of this authority being handed over to the states. I think that the Minnesota DNR is a good management group. Ultimately, if they're given the opportunity to manage the problem, I think that they will come up with a viable solution. And, of course, I'm certainly in favor of sport hunting as one of the most effective tools to use to control the Canada goose population. Did I spell my last name for you? P-E-T-E-R-S-O-N. Thank you.

MR. SENG: Thank you. Card number 4.

MR. SCHWARZ: Good evening. First of all, I'd like to thank you for being here. My name is Tom Schwarz, S-C-H-W-A-R-Z. I personally feel that the right to manage this situation individually should be handed over to the states due to the fact

24 that they are in better control and
25 knowledge of what's going on in our area.

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1 Hunting has been a tradition in my
2 family for -- my father's deceased --
3 probably a hundred years or better. I'm a
4 member of the Duck and Goose Callers
5 Association, Delta Waterfowl, Ducks
6 Unlimited. For every goose that I get, I
7 would hate to say what I spent for it,
8 because I probably could buy some very
9 fine beef. But that isn't it. The thing
10 is is that we have an obligation to
11 control this in as gentle a way as
12 possible, because we don't know the retro
13 effects of this due to possible botulism
14 or whatever may come along, and then it
15 may be too late.
16 And if we use the hunter as a resource
17 to accomplish these goals, the individual
18 states can also monitor and control the
19 seasons. Besides that, they're taking
20 revenue in on licenses that can be used
21 also as either a detriment to increasing
22 the flock by whichever means they may see,
23 or produce more, whatever the case may be,
24 due to the population.
25 But, again, I'd like to thank you

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1 for the opportunity
2 of being here and able to express my
3 opinions.
4 MR. SENG: Thank you. Card 5.
5 MR. SCHROERS: My name is John
6 Schroers, S-C-H-R-O-E-R-S. I am the
7 legislative coordinator for the Minnesota
8 Outdoor Heritage Alliance, and I am a
9 member of Minnesota Waterfowl and the
10 Minnesota Goose Callers Association.
11 Thank you for the opportunity to speak on
12 behalf of the Minnesota Outdoor Heritage
13 Alliance, speaking for the many hunting,
14 fishing and conservation groups that are
15 in the state of Minnesota, on their
16 behalf.
17 Canada goose management is best
18 facilitated in the hands of our state
19 Department of Natural Resources. They
20 know the attitudes of the society, they
21 canvass the hunting conservation groups
22 and all the cities that are affected by
23 problem goose situations. Through them I
24 believe that expanded opportunities
25 provide a quality hunting experience to

Minnesotans of all ages, which is important, and through the Minnesota DNR, I believe that additional opportunities can be identified within the cities affected, providing more meaningful outdoor opportunities to Minnesotans of all ages.

On behalf of Minnesota Outdoor Heritage Alliance, we would endorse Option F. Thank you.

MR. SENG: Thank you. Card number 6.

MR. ENGLUND: My name is Paul Englund, E-N-G-L-U-N-D. I'm a member of the Minnesota Waterfowl Association, Minnesota Duck and Goose Callers Association, and various other waterfowl and conservation groups. I'm in favor of the Fish and Wildlife proposal, as John just stated. I think that the state has the best look at the problems that we have with the Canada geese, and I would hope that -- and I'm sure that this will come to pass if this proposal is the proposal that the Fish and Wildlife Service goes with, that they would allow the Duck and Goose Callers

Association, Minnesota Waterfowl, and any other organizations of hunters to have some input on how these problems are handled, and I would be looking forward to that. Thank you.

MR. SENG: Thank you. Card number 7.

MR. PETERSON: Thank you for this opportunity to speak. My name is Chase Peterson, S-O-N. I'm in favor of what you are proposing. I would also like to suggest that you take it one step further by having the states appoint a number of people to a committee per major metro area to control that particular goose population.

I'm only 18 years old, but I drive to school every day, and I see probably 50 geese just on the way to school. And I know that they're -- and I've heard from my friends who walk just to get something to eat, that they have been constantly harassed by geese, and it just kills them that they can't do anything about it. So that's my two cents. Thank you very much.

MR. SENG: Thank you. Card number 8.

MR. ROTTER: Good evening. My name is Ed Rotter, R-O-T-T-E-R. Unfortunately, I

don't belong to any organizations, but I've been hunting since I was 15, which is a long time now, and I've enjoyed watching the Canada geese population grow. When I was a kid, we never saw a Canada goose. Everybody had to go to Canada. Now they're all over the place.

And, unfortunately, the group of geese that are in this metro area right now are getting to such exorbitant numbers that it's undoubtedly going to happen that we're going to have a devastating time with these geese one of these days. It just can't be without. There has to be some kind of a natural disaster to come on. The only way to stop that is to -- as I see it, and apparently the way you people see it -- is to cut out, rather than to cull out, eliminate, this terrible, terrible population that we have right now.

I also like to play golf. Last year, the last day of the golfing season I had

0037

an opportunity to play golf at Goodrich Golf Course over on White Bear Avenue in Saint Paul, and if it wasn't for all of the goose feces, I might have finished the game, but it was impossible, and I kid you not. It was a mess.

And, now, this is not only bothersome, but it's got to have an effect on the health of the people and it's got to have an effect on the health of these geese. They're in villages. They're not just families anymore. You go to any golf course and you have a village. And they all have their droppings in the form of a village. So something has to be done, and I believe you people are on the right path.

I'm certainly glad to be here. I'm going to pass this word on to everybody I know. I think we're on the right track, and I do believe we have to allow our states to handle a good portion of this, because they know the geese, they know us, they know their population. Thank you.

MR. SENG: Thank you. Card number 9.

0038

MR. TIMM: Right here. Thank you. My name is Cliff Timm. That's T-I-M-M. I live in West Saint Paul, and I belong to the Westside Citizens Organization.

Now, I've been reading some of this

6 draft Environmental Impact Statement here.
7 I certainly agree with the gentleman that
8 just spoke here that there are just way
9 too many geese. Now, the reason that I
10 really started to fight the geese is
11 because I'm for clean water. I've been up
12 to the capitol the last couple years to
13 get this here phosphorous-free fertilizer
14 bill -- to help to get it passed. Well,
15 we succeeded, but the doggone goose comes
16 along, and there's a lot of phosphorous in
17 their droppings. It's .006 in every half
18 a pound of dropping, and they take on
19 three pounds of grass a day. So you can
20 imagine the amount of phosphorous.
21 I live over here close to the City
22 Hall in West Saint Paul, and last year in
23 the park you wouldn't be able to put your
24 finger down without touching it into goose
25 poop. Now, this here bacteria stays alive

0039
1 for four weeks or longer, according to an
2 article that I read from Great Britain.
3 They've had a lot of goose problems.
4 Now, I don't think you're going far
5 enough here. I agree that these hunters,
6 that's the cheapest way to get rid of
7 them. But you've either got to take the
8 geese to the hunter -- now, that's by
9 baiting an area. This book here says on
10 goose baiting here, they're against that
11 because it's confusing. Well, you can
12 iron out the confusion. Bring the geese
13 out to the area where they can hunt, or
14 bring the hunter into an area like the
15 cemetery out here at Lexington and 110.
16 I went over there and talked to this
17 fellow with the cemetery. I said, "People
18 don't like it when they go out here to the
19 cemetery and see all this goose droppings
20 here."
21 "Well," he says, "I don't like it
22 either."
23 I says, "Well, why can't you have a
24 hunt in the morning for a couple of
25 hours?"

0040
1 "Well," he says, "I'd love to."
2 So I went to City Hall over in
3 Mendota. I says to Mayor Mertensotto, I
4 says, "If people would come in here and
5 sign a petition or sign a petition and
6 bring it in here," I says, "wouldn't you
7 and the council people honor it?"
8 I didn't get a "yes" and I didn't get

a "no." Well, that's pretty good. I think, by golly, that they would allow it. They'd better.

And these schools, these poor kids that are rolling in that goose poop, well, that's ridiculous. And sooner or later somebody's going to get sick, because in this big book right here, on page 11181, it talks about the goose droppings getting into the livestock ponds. It actually is a salmonella. It can kill the cattle if they aren't treated.

Well, if it can kill a cow, what the hell is a little kid going to do when he gets into the droppings out in the park, he falls down and gets it -- well, you know he's going to get it in his mouth.

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It's just something that's bound to happen.

Now, when I was introduced by KSTP about Thompson Park, I didn't realize it was so bad. Well, some of it was caused because they were feeding the geese.

But, here, I told that Ron Rasmussen with KSTP, I says, "Look where I'm standing." I says, "Some people call this thing a park?" I says, "It's nothing but a barnyard." And then I says, "And then this beautiful path that Metzen's going to have, a million-dollar path or bridge over Highway 82, and I says, "You know where that path is going to end? Right here in the goose poop!"

Well, the next morning Barbara Carlson made a real funny over there. She really had a circus on this thing. And this Metzen, when I got ahold of him the next day, he sent a letter right into Washington, right here, and I've been taking this letter to different municipalities and tell them -- ask them to do the same thing, and they're doing it

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too.

So something is going to give. To me, there shouldn't be any closed season on these things. There should be an open season all the way around. And, you know, I made a hoop net here, 34 inches diameter, 34 inches deep, and as soon as I can use it without having to go to jail, I want the Pioneer Press out there to see me use it. Well, with some of the stories I've heard about the geese, maybe I'm in

for a surprise, because I understand they can get pretty nasty. Thank you.

MR. SENG: Thank you for your comments. Card number 10.

MR. TUCKER: My name is Michael Tucker. I'm with Wildlife Removal Services in Bloomington, Minnesota. We're a private wildlife control company. My company gets dozens and dozens of calls every year concerning human and goose conflicts, and my company supports Alternative F. That would give us the most flexibility in resolving our customers' problems.

I'm also a member of the National Wildlife Control Operators Association, which is a national trade organization that also supports Alternative F. Thank you.

MR. SENG: Thank you. Card 11.

MR. COOPER: Jim Cooper, C-O-O-P-E-R, professor emeritus, University of Minnesota. My comments will be limited to my support of Alternative F. I think here in Minnesota over the past 20 years, I think the first goose removal we did was experimental work in Lake of the Isles. This is perhaps the only metropolitan area in North America, outside of Anchorage, that has had a decline in the metro population over the last 15 years as a result of the leadership of the Department of Natural Resources and its innovative goose management program and support of University research.

The model developed here is one which I think has the elements of public input, involvement of the city councils, of the citizens who may love geese or may hate

them, who can come and express their desires on a local basis. The program developed in terms of research identified that, indeed, perhaps the only way to control urban geese is through an intensive removal program. We have now removed more than 70,000 Canada geese from the metropolitan Twin Cities. Perhaps more Canada geese were in the Mississippi Bayou when I started my career in 1968. So I'm very much supportive of Alternative F. I'm somewhat, as a scientist, skeptical that it will be adequate to control Canada goose populations outside

of metro areas. The issue of being able to kill enough geese is still in question, and I do hope that the Fish and Wildlife Service will provide research support to the states to pursue, essentially, the avenues that are still in question. Thank you.

MR. SENG: Thank you. Card 12.

MR. McDONALD: Right here. My name is John McDonald, and I'm with the Minnesota Waterfowl Association and the Duck and

0045

Goose Callers Association. I'm in complete support of controlling the goose population with hunting measures. However, as far as electronic call goes, I travel all across the country hunting, and we've seen the snow geese once we were allowed to use the electronic call. It worked for a short time, and it's starting to wear out now. We're now getting down to needing absolutely perfect conditions as far as limited visibility for the birds to come into a shootable range. And I think that's going to be the same thing that's going to end up happening if we allow it with Canadian geese. So I guess I'd be more supportive of a larger bag limit during the regular hunting season with traditional hunting measures. Thank you.

MR. SENG: Thank you. Lucky 13.

MS. HATFIELD: That's me. Good evening. My name is Linda Hatfield, and I'm representing myself. Hatfield, H-A-T-F-I-E-L-D. And I'm going to be the first voice for geese. All the previous

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12 before me want to kill them, and I don't want to see that happen. I'm opposed to the Fish and Wildlife plan to unleash hunters during the summer months in our parks and ponds. It is a poor way to solve the problem of too many geese. If I could quote that, I would do that, "too many geese."

This is a problem that Fish and Wildlife admits, and local game agencies, and as I heard from the first speaker this evening, the hunter over there said we also are part of the problem, that we created the number of geese that we have today. I also understand that Fish and Wildlife's choice alternative is F. I believe it deserves an F. As I see it,

and as most people would see it if they truly understood the agenda behind the program, it's nothing but a fund-raiser for local game state agencies, another desperate attempt of game agencies to expand the number of hunters -- of licensed hunters -- by creating more hunting opportunities on more animals to

hunt during the year at more places.

Yet, this notion of summer hunts in the parks jeopardizes safety of children and their parents who use these parks during their summer vacations. I assume that those parks will be closed during the summer. Here we are in mid May, and the weather's been really crappy. So now we're going to take away a possible warm month just so hunters can go in there and shoot and kill Canada geese because of goose poop?

Those who want Canada geese off the parks should take note: There is no evidence provided by Fish and Wildlife that urban and hunting will reduce goose poop in the parks. Again I will state, this plan is nothing but a fund-raiser at the expense of all citizens. Hunters should also be concerned that the game agencies are once again making them look foolish just to enhance their game agencies.

Fish and Wildlife has also shown that goose poop is not a health hazard. On the

other hand, Fish and Wildlife dismisses the real hazards of eating Canada geese. Studies at Cedarburg show that toxic contaminants such as dioxide from lawn chemicals are in Canada geese. The geese rounded up and slaughtered had to be taken to local landfills. So I need to ask the Service, how do we plan to inspect what hunters kill for toxic contaminants?

Fish and Wildlife also admits that the Migratory Bird Treaty Act does not allow hunting migratory birds during the month of August, yet proceeds to recommend that it be done. Fish and Wildlife overlooks the humane method to deal with these too many geese, information that has been repeatedly given to the Service and to the state game agencies and to local communities by many people around this state and around the nation, but that's

always overlooked. I will not take the time here this evening to present that information, unless you want me to.

In closing, I must say that I'm angry that once again dealing with a so-called

0049

overpopulation problem is being addressed through lethal means. Why? Because there's a constant complaint of goose poop, that there are too many geese. I also heard over 13 years ago in this same setting, that there's too many deer. My goodness, Canada geese and deer, game species. Now, go figure. Aren't they managed really well to keep those numbers up for those hunting interests?

Yet, there's another overpopulated species that inhabits this planet, but, in closing, I will say there is not a separate law for our own species. Thank you.

MR. SENG: Thank you. Card 14.

MR. GOLDMAN: Hi. My name is Howard Goldman, G-O-L-D-M-A-N, and I represent three organizations tonight, the Minnesota Humane Society, Friends of Animals and Their Environment and the Coalition for Animal Rights Education. I'd like to thank you for the opportunity to share our comments.

It seems the public attitudes are

0050

changing dramatically towards the treatment of wildlife. The public is increasingly demanding that wildlife be treated humanely and that that be considered when policies are established with regard to the treatment of wildlife. The evidence regarding this I think is surrounding two issues. One is hunting and the other is trapping. There's a lot of opposition to the use of metal traps, largely because of the pain and suffering inflicted on all wildlife. We own the wildlife. It's here in the state for the benefit of all of the people, not just hunters and trappers, I might add.

And, secondly, the issue of furs. There's a lot of opposition now to the wearing of furs, because millions of animals are killed simply to produce a product. The second is the issue of hunting, recreational killing of animals, sport hunting versus subsistence hunting. Sport hunting is under examination all

24 across the country. Many people now are
25 changing their views regarding the use of

0051

1 animals for recreational killing. Non-
2 consumptive uses of wildlife are
3 increasing, consumptive uses of wildlife
4 are decreasing, the number of trappers is
5 declining nationally as well as the number
6 of hunters nationally,
7 There was a recent article in the Wall
8 Street Journal which talked about a
9 chimpanzee, and the reason it was
10 highlighted is because, for the first
11 time, they were talking now about granting
12 chimpanzees legal standing, rights. There
13 were experiments that were being done on
14 chimpanzees, and there are now currently
15 Harvard and several other universities who
16 believe that they have rights and those
17 rights should be protected. This again is
18 just another indication of how attitudes
19 are changing in the society, and we
20 believe Fish and Wildlife must take those
21 into account before they issue a final
22 policy.
23 The principal reasons cited in the EIS
24 to support the changes are, one, property
25 damage -- golf courses, parks, lawns --

0052

1 and, second, the impact on human health
2 and safety. Before I address those, let
3 me just mention that the geese share our
4 world. We don't own this world. The
5 geese share it with us. There's ways to
6 resolve this issue, and we don't believe
7 it's by killing more geese. And we know
8 full well that's what will happen
9 ultimately. It's the last resort, not the
10 preferred choice. We strongly urge Fish
11 and Wildlife to develop a much more
12 tolerant attitude toward our fellow
13 creatures, which means less killing.
14 We cite as an example the black bear
15 in Minnesota. There was a time not so
16 long ago where the bear was considered of
17 no value, a worthless creature. In large
18 part due to the efforts of the Forest
19 Service, and particularly the Department
20 of Natural Resources, that attitude has
21 changed. People have been educated that
22 bears do indeed have value, that they play
23 an important role in our ecosystem. They
24 also provided people with basic informa-
25 tion on nonlethal ways to prevent damage.

That's changed attitudes dramatically throughout the state of Minnesota, and I think the same would be true with respect to the geese.

I was recently in the Boundary Waters Canoe Area last year. There was a high population of bears. We were on sort of a landing. There were notices all around, "Be careful. Bears are breaking into cars. You're supposed to keep your backpack out of reach," and so on. Everyone understood it. Everyone knows that we're sharing this land with the bears. You take precautions. We live together. Sometimes you've got problems. All these problems are manageable.

Now, the impact on human health which was cited in the EIS as a basis for a change. The EIS does conclude -- and I'm simply paraphrasing -- that all the states -- that not a single state, I should say, is able to substantiate that geese transmit disease to humans, not a single state. They've found no direct link thus far with disease in humans and fecal

matter of geese. I'm simply paraphrasing what was in the EIS.

With respect to property damage, the EIS does, I think, an extraordinarily good job of outlining all of the nonlethal alternatives, 17, both physical deterrents and habitat alterations, many of which have been used very, very effectively, and we urge the Fish and Wildlife Service to focus one more time on the nonlethal alternatives.

Human safety, you would say that's a critical feature in all of this. And geese do present a threat to aviation. We recognize that, and the last thing we would do is discourage the airports from having a goose control program. That we think should continue.

We believe, in conclusion, that we must find ways to coexist with the geese and with all the other creatures on this Earth. We have the expertise, the resources. It's only a matter of will. In conclusion, we recommend Alternative B, with one minor modification, that if

clearly there is an issue of health and safety for humans, then, and only then,

would we endorse a lethal program. Thank you.

MR. SENG: Thank you. Card 15.

MR. KOEN: Yes. I'm Christopher Koen, K-O-E-N. I think the main reason I'm opposed to this plan is that it will put the power to manage this particular issue back to the states, and then what we'll have is a helter-skelter approach in dealing with this, instead of a comprehensive way of dealing with the problem. And that is the big problem with the geese, because they move. So if you deal with the geese with one method in one area, you'll have geese move in from other areas, and we don't need to have a helter-skelter approach. We need to have one comprehensive plan. So let's not have each state come up with its own plan. That has not worked very well.

I'm disappointed in the plan because it says that you're trying to evaluate alternative strategies, and I don't think

you really did that seriously. I was disappointed with Alternative C, the nonlethal management, as well as the discussion about egg destruction. I think egg destruction is probably the most promising technique we could use to actually reduce the numbers of geese over the long term. If you do hunting, you're not going to be doing it everywhere, and geese are going to move back into problem areas. But if you do egg destruction comprehensively around the country, you're going to the reduce the populations over the long term. It's proven very effective. Your discussion of the egg destruction did not discuss any of the studies that are going on across the country. It's been used very effectively for years now in Virginia and Michigan.

I was lucky enough to be involved as a volunteer in Michigan in the Michigan egg replacement -- Canada geese egg replacement study. They removed 11,572 eggs over four years in a small-scale test study in three counties and a 100-square-

mile area. They used volunteers. They had no problem finding volunteers. The costs are fairly low. There was no discussion in this part of the report about the cost for this type of method.

6 And it's very successful. It's a type
7 of egg addling, but in this case it
8 replaces the eggs with a dummy egg. And
9 the comments that were made in here about
10 this method are not really realistic.
11 They said you can't find all the locations
12 for the eggs. Well, you don't need to.
13 You just need to find many of them or most
14 of them. You don't need to get every
15 single egg, you know, so you'll have a
16 reduction down to a zero number. You just
17 need to reduce the population growth as
18 much as possible.
19 Another criticism was that it's
20 difficult to find the eggs at the right
21 time, that the geese will come back and
22 lay a separate number of eggs. It's
23 really not that difficult at all. The
24 geese will come and lay their eggs at the
25 same time each year. In Michigan it's in

0058
1 mid April. So we go out and look through
2 the nests in mid April and we replace the
3 eggs with dummy eggs. We come back two
4 weeks later, and the geese do not usually
5 lay a separate group of eggs.
6 It's been terribly effective. So
7 let's discuss this alternative. It's
8 humane. It uses volunteers. And I think
9 we need to consider humane options here.
10 I think it's important.
11 Furthermore, there was a discussion by
12 one other speaker about the meat from the
13 geese, and that is a concern. It really
14 cannot be used for consumption. You never
15 want to use urban animals for consumption.
16 They've been contaminated with urban
17 runoff and other chemicals. There have
18 been a couple of studies that have shown
19 the geese to be contaminated with PCBs,
20 herbicide residues, tetrachlor and
21 dieldrin. These are carcinogens and
22 neurotoxins, so these geese should never
23 be eaten. So if you're going to be
24 killing these geese, you're not going to
25 be getting any food from it, or if you

0059
1 are, you'll be doing it irresponsibly.
2 Also, there's been some areas
3 around the country that have used
4 nonlethal options to explore. Put that
5 in the report -- in Rockford, Illinois;
6 Morristown, New Jersey; New York. In
7 Milwaukee County parks in Wisconsin,
8 they've used the addling, in Montgomery

County parks in Washington, D.C. In Rockford, Illinois, they used border collies to take care of a problem in one area.

We also need to have a public policy of not feeding geese. This was never discussed. That's one of the main problems we have in our parks. People feed the geese for fun, and it's contributing to the overpopulation of the geese, as is the creation of these perfect environments for the geese. That's why when you were young you didn't see the geese and now they're here. Why? Because we've created a human environment that's ideal for geese. They have perfect sight lines

by the water to get in and out of the water easily, and it's a perfect place for their nests. We need to create barriers, and it's very simple to do in landscape design. You throw in a few barriers and shrubs, shrub mounds and so forth, and it's part of a comprehensive method. One of the criticisms of egg destruction was that it's not good as a single method. Of course not. You're never going to use one single method. You're going to use several. Don't feed the geese, let's use egg destruction, let's use landscape -- alter the landscape, especially in new designs that are going in. Let's come up with a comprehensive plan here. Thank you.

MR. SENG: Thank you. Card 16.

MR. BRAMMER: My name is Paul Brammer, B-R-A-M-M-E-R. I'm a member of the Minnesota Duck and Goose Callers, Minnesota Waterfowl, DU, and most any other conservation organization, and I think that's the whole point is

conservation organizations. My funds are used for the conservation of these animals' habitats. I am also a 30-year-plus hunter, sportsman, however you want to use that term. Any taxes that I pay by the Robertson-Pitman Act on any clothing, sporting goods that I purchase, all goes towards conservation of wildlife in general, not just the goose. And I feel that your proposal is very good, and I support the proposal.

As far as offering alternative methods within that proposal, I know it's very important that you allow the state, that knows the local organizations, the local environment, local populations, and let them control it, let them manage it, to the point if there is a botulism outbreak, if there is something like this, that they can just cut it off, where they have that control without having to go through the whole government process bureaucracy along the way.

I think hunting is a viable means of reducing the population, but it has to --

as the geese smarten up, as previously said with electronic calling with the snow geese and so on like this, you have to keep other options open within this.

Your egg culling is fine, and working with volunteers is one thing, but the state has a ready list of volunteers in hunting licenses. I mean, any of those individuals, if they were given the opportunity, would be more than happy to help control a population of geese. It isn't just where you can do nonlethal methods and you have to coexist with the overbearing populations of wildlife. You have to understand that this is a renewable resource, and it will always be a renewable resource; and as long as the habitat environment permits, you're always going to have some sort of population control.

And I want to thank you very much for coming tonight and allowing me to speak. Thank you.

MR. SENG: Thank you. Card 17.

ATTENDEE: Pass.

MR. SENG: Eighteen.

ATTENDEE: Pass.

MR. SENG: Nineteen.

MR. BREMICKER: Good evening. My name is Tim Bremicker. Last name is spelled B-R-E-M-I-C-K-E-R. I'm the director of the Division of Wildlife, Minnesota DNR. First of all, I'd like to thank you for the opportunity to comment. We're here tonight because we think this is really a very important issue. It's an issue that we've been dealing with here in Minnesota for quite a few years. And, as noted or mentioned by a few other folks, we've

15 taken this problem very seriously, and I
16 think in many respects we've developed a
17 model approach to try to address it. And
18 in some respects I guess I would consider
19 that our efforts have been aggressive in
20 contrast to perhaps some of the other
21 states.
22 Despite that management perspective or
23 approach or effort, we still have a
24 growing resident Canada goose population
25 here in the state. And, as Dr. Cooper

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1 noted, we may be the first major
2 metropolitan area with a tremendous
3 habitat base and a strong population of
4 Canada geese and actually begin to see a
5 decline in the population.
6 I've got some written comments, and
7 I'd like to read a portion of it, but I
8 will leave the letter with you folks for
9 the written record. And, typically, I
10 don't do this, read into the record. I'd
11 attempt to paraphrase it. Because of the
12 significance of the issue and also because
13 I want to be absolutely clear regarding
14 our position, I will read it.
15 This letter is to Mr. John Andrew,
16 Chief, Division of Migratory Bird
17 Management. "First, thank you for the
18 opportunity to comment on the draft
19 Environmental Impact Statement on resident
20 Canada geese management, dated February
21 2002. The authors are to be commended for
22 their efforts, as those documents
23 consolidate a tremendous amount of
24 information on the biology and management
25 of Canada geese. Minnesota is one of the

0065
1 largest populations of resident Canada
2 geese in the United States. Despite
3 ranking either first or second in the
4 nation in Canada goose harvests since 1990
5 and having the harvest currently composed
6 of 75 percent resident Canada geese, our
7 resident Canada goose population continues
8 to grow in many areas, which has created
9 serious conflicts with humans in both
10 urban and rural settings.
11 "The 2001 Mississippi Flyway
12 population estimate for resident Canada
13 geese was 1,371,000, well above the
14 population objective of 1,169,000. Unless
15 effective steps are taken to reduce growth
16 of the population, the next flyway
17 population is estimated to be 1.7 million

in five years and 2 million in ten.
"The Minnesota Department of Natural Resources agrees with the need to reduce resident Canada goose populations and supports Alternative F, state empowerment, as the preferred approach. We believe that Alternatives A through E will not do enough to result in a significant

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reduction in our resident Canada goose population. One or two management techniques will not be effective in every situation. Under the state empowerment alternative, Minnesota and other states would have the flexibility to deal with resident Canada goose problems via a variety of strategies tailored to specific situations. We support the option of a conservation order (August 1 through 31) harvest, and additional hunting methods (September 1 through 15) as useful additional tools to help reduce populations in areas where other means have not been effective."

And then there's a series of more specific recommendations or comments relative to Strategy F that, in our opinion, would make the alternative more streamlined and more easy to apply in a critical situation for Canada geese and make it easier for the states to implement. And I won't belabor the comments. They can be entered into the written record when it's developed.

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Again, thank you very much for the opportunity to comment, and my comments here are being presented on behalf of the

Minnesota Department of Natural Resources.

MR. SENG: Thank you. Card number 20.

MR. JES: Thank you. My name is Tom Jes. The last name is spelled J-E-S. I'm a four-year member of the Minnesota Waterfowl Association. I currently serve on its board of directors. I'm a representative to the Fish and Wildlife Legislative Alliance and to the Coalition of Minnesota Conservation Organizations. I also serve as a volunteer field reporter for the website waterfowler.com. That all being said, I'm here on my own.

I support Proposal F because it provides the states with the most beneficial means to control the geese in

the areas where they need to be controlled, leaves them alone where they need to be left alone, and I think that the state Department of Natural Resources has the tools and is best qualified to

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manage the birds. Thank you.

MR. SENG: Thank you. Card 21.

ATTENDEE: Pass.

MR. SENG: Twenty-two.

MS. WARP: Hi. My name is Jean Warp. I'm from Crystal, Minnesota, and I live near Bassett Creek Park. Sine I've lived in my present residence, which is eight years, there have been numerous geese in Bassett Creek Park, flocks of them, which I have tremendously enjoyed. Last spring and this spring the goose population was practically zero. So if you're trying to eliminate geese, you're doing a good job in Crystal. The geese I see are usually two. The most I've ever seen in the park is five. I've seen one group of goslings this year; one.

The geese in Bassett Creek Park brought a special sense of joy to me. In our urban environment, I guess I may be in the minority on this, but I like having them there. Maybe it was because I was born and raised on a farm and now I'm a city dweller. I find that in the district

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everything that's life affirming and beautiful is destroyed. That goes for the people on Highway 100 and the geese in Bassett Creek Park. It's been a great loss to me.

I would like to talk a little bit about goose poop, which isn't the most wonderful thing in the world, but it is natural and it does affirm life. Recently I was diagnosed with leukemia, and I've gone through chemotherapy for over nine months. A shocking thing came to my mind while I was in the hospital. When you're on chemotherapy and ill and in the hospital, they use the same food system as the city does. It goes through the same sewage treatment plant, goes into the river, comes into the ground. The biggest polluters are not the geese poop. It's this kind of sewage system and also the factories throughout the state that are dumping tons of raw sewage into our lakes and rivers. As far as I'm concerned, as

many geese as want to can walk on my grass, and I don't care if they poop on

0070

it.

I would encourage you to find not only for the alternatives but especially for the nonlethal means. I liked the gentleman's comment about egg collection and putting false eggs in the nests. Our resources are shared by all of us, hunters and nonhunters alike. Hunters have the right to purchase licenses to kill geese and hunt them. As a nonhunter, I would like to be able to purchase a license and have the bird banded so it's protected, and if it's shot by a hunter, there should be a penalty for that. Somebody can have more money for the Fish and Wildlife Department.

Thank you. That's the end of my comments.

MR. SENG: Thank you. Is there anyone who did not get a card who would like to speak?

(No response.)

MR. SENG: Okay. Then I'd like to remind you that May 30 is the deadline for comments. If you think of something else

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after you leave tonight, please send it to the address or the e-mail on the back of the card. And if you didn't get a chance to sign the sign-up sheet and would like to receive a copy of the final EIS, it's on the table in the back, so feel free to sign up there.

Ron, anything else we need?

MR. KOKEL: No.

MR. SENG: With that, I want to thank you again for coming out on such a beautiful evening. Have a safe trip home. We stand adjourned. Thank you.

(Whereupon, at 8:28 p.m., the foregoing proceeding was terminated.)

STATE OF MINNESOTA)
COUNTY OF RAMSEY)

I hereby certify that I reported the foregoing public meeting on the 14th day of May, 2002, in Bloomington, Minnesota;

That the proceeding was transcribed under my direction and is true and correct to the best of my ability;

That I am not a relative or employee or attorney or counsel of any of the parties, or a relative or employee of such attorney or counsel;

That I am not financially interested in the action and have no contract with the parties, attorneys, or persons with an interest in the action that affects or has a substantial tendency to affect my impartiality;

WITNESS MY HAND AND SEAL this 24th day of May, 2002.

Dale R. Neumann

(Seal)

U.S. FISH & WILDLIFE SERVICE PUBLIC MEETING
ON RESIDENT CANADA GOOSE POPULATIONS
MAY 15, 2002
BROOKINGS, SOUTH DAKOTA

MR. SENG: Good evening. Welcome to tonight's meeting on resident Canada geese management. My name is Phil Seng. I'll be the facilitator for tonight's meeting. The purpose of the meeting is to take public input on the draft Environmental Impact Statement that the U.S. Fish & Wildlife Service has prepared on resident Canada goose overabundance. And I'd like to thank each of you for taking the time out of your schedules to come share your comments with us tonight, especially on such a beautiful evening.

Tonight is the sixth out of eleven meetings that will be held on this issue around the country. We started off on April 1st in Dallas, Texas. From there we went to Palatine, Illinois, which is a suburb of Chicago, then to Waupun, Wisconsin; Franklin, Tennessee. Last night we were in Bloomington, Minnesota. Tonight obviously here in Brookings. From here we go to Richmond, Virginia; Danbury, Connecticut; North Brunswick, New Jersey; Denver, Colorado; and then we finish up on May 30th in Bellevue, Washington.

Before we begin, I'd like to recognize a couple

people in the audience. First is Tom Melius. He's the assistant director for migratory birds and state programs with the U.S. Fish & Wildlife Service from the Washington D.C. office. We sure appreciate you being with us, Tom. And Spencer Vaa and George Vandel -- George is in the back -- with the South Dakota Game, Fish & Parks Department. So thanks a lot for being with us.

The process for the meeting tonight is very straightforward. First, we'll have Ron Kokel, who is a wildlife biologist from the Fish & Wildlife Service -- he will give a brief a slide presentation on the draft Environmental Impact Statement, and then we'll go right into taking your comments on the draft EIS.

When you came in, you should have gotten a numbered card, and for reasons I won't bore you with, the cards started at 151, so if you've got card 160 and you're afraid you've got to listen to 150 people before you, don't worry about it. It's not that many. We'll just go in order from 151 through however many we gave out. If you don't want to make a public statement but you do want to send comments in, there's a mail address and an e-mail address on the back of this card so if you choose not to come to the

mike tonight but you still want to send comments or you think of something after you leave tonight, feel free to send those in. The deadline for comments is May 30, and that's written on here as well. And I would encourage you if you have Internet access to send them by e-mail. As most of you I'm sure are aware, because of the Anthrax issue in Washington D.C., sometimes the regular mail going into D.C. has to go through a separate irradiation process. So it's not as timely as it might otherwise be. So if you have e-mail, you can make sure you get your comments in as soon as you send them.

If you do choose to make a public comment tonight, when I call your name, if you would please come to the mike in the center aisle here for a couple of reasons. First, we want to make sure that everyone has a chance to hear what you have to say; and second, we want to make sure that Maxine, our court reporter, can record everything you have to say verbatim. We don't want there to be any issues of us misinterpreting what you have to say. So please do come to the mike. When I call your number, if you don't want to make a public comment, please just say pass so we can move on.

When you do come to the mike, if you would state

your name and spell it, unless it's immediately obvious how your name is spelled, so we make sure we capture that correctly. If you're representing an organization with your comments, please state what the organization is and please tell us where you're from.

Very shortly I'll be sending around a sign-up sheet on a clipboard. If you would please sign it so we know who was here tonight. And there's a couple of check boxes underneath where you sign your name and address; and that is, if you were at the scoping meetings a couple years ago or if you got on our mailing list in some other way and you received a copy of the draft Environmental Impact Statement in the mail, then you're on our mailing list. And you will get a copy of the final one when it is made available. And so just check that box if you fall into that group to make sure we don't send you a duplicate mailing. If you're not on our mailing list and did not receive a copy of the draft EIS in the mail, check the other box and we'll be sure to send you a copy of the final EIS when it comes out.

I'd like to point out that the format for tonight's meeting is for us to take input from you. It's not a debate or discussion format so please keep that in mind when you make your comments. And finally,

my job as a facilitator is to make sure that everyone has a chance to make their comments and be heard, and so I don't think it will be a problem -- This group isn't that big -- but in case anyone goes too long, I may ask you to wrap up your comments. And I apologize in advance for doing that. I want to make sure that we give everyone a chance to speak.

So with that, I'll pass around the sign-up sheet and turn it over to Ron Kokel who will give us a brief overview of the draft Environmental Impact Statement.

Ron?

MR. KOKEL: Thank you, Phil. Good evening everybody. Again, my name's Ron Kokel. I'm with the U.S. Fish & Wildlife Service Division of Migratory Bird Management, and I'm currently stationed in Arlington, Virginia. And on behalf of our director, Steve Williams, I'd like to welcome all of you to this public meeting.

This meeting is the sixth, as Phil already pointed out, of eleven public meetings that are being held across the country for the purpose of inviting public participation and input into our process of developing the Environmental Impact Statement for resident Canada geese management. This draft Environmental Impact Statement was developed in full cooperation with the

U.S. Department of Agriculture Wildlife Services.

Why are we here? Well, we're here to explain what's in the draft, its proposed action, and to listen to your comments. The draft considers a range of management alternatives for addressing expanding populations of locally breeding resident Canada geese, and as such, we're really just here listening to you and invite your comments on what our recommended action is.

First, a brief explanation of the National Environmental Policy Act which governs this whole process, or NEPA. NEPA requires completion of an EIS to analyze environmental and socioeconomic impacts that are associated with any federal significant actions. NEPA also requires public involvement which includes a scoping period before the draft, which was when we were here a couple years ago, and a comment period after the draft. We began this process in August of 1999 when we published a notice that announced our intent to prepare this draft Environmental Impact Statement. Then in February of 2000, we held nine public scoping meetings which were designed to get public input into the process. We did hold one here at Brookings. Scoping ended in March of 2000. In response to the scoping, we received over 3,000 comments from the public and over

1,250 people attended the nine public meetings.

What did we find out with scoping? The top issues that were identified were property damage and conflicts caused by resident Canada geese, the methods of the conflict abatement, sport hunting opportunities on resident geese, the economic impacts caused by resident geese, human health and safety concerns, and the impacts to the Canada geese themselves.

NEPA's also very specific in that it outlines a specific format for an EIS. There's a purpose and needs section, an alternatives section, an affected environment section, and environmental consequences section.

In the EIS, we define resident Canada geese as those geese that nest within the lower 48 states in the months of March, April, May, or June or reside within the lower 48 states in the months of April, May, June, July, or August.

What's the purpose and the need for this document? The purpose of the EIS is to:

1. Evaluate alternative strategies to reduce, manage, and control resident goose populations in the U.S.;

2. To provide a regulatory mechanism that would allow state and local agencies, other federal agencies,

and groups and individuals to respond to damage complaints caused by resident Canada geese; and

3. To guide and direct resident Canada goose population management activities in the U.S.

The need for the EIS is two-fold. One is the increasing resident goose populations coupled with growing conflicts, damages, and the socioeconomic impacts that they cause has resulted in a reexamination of the Service's resident Canada goose management.

The draft looks at seven different management alternatives. The first alternative is Alternative A, which is no action, which everything is compared to. Alternative B is a nonlethal control and management alternative, which includes only nonfederally permitted activities. Alternative C is a nonlethal control and management, which includes federally permitted activities. Alternative D is expanded hunting methods and opportunities. Alternative E, integrated depredation order management. Alternative F, the proposed action, which we term state empowerment. And Alternative G, a general depredation order.

Alternative A would result in no additional regulatory methods or strategies that would be authorized. We would continue the use of all special hunting seasons, the issuance of depredation permits,

and the issuance of special Canada goose permits.

Alternative B, nonlethal management, which includes only nonfederally permitted activities, we would cease all lethal control of all resident Canada geese and their eggs. Only nonlethal harassment techniques would be allowed, no permits would be issued, and all special hunting seasons would be discontinued.

Alternative C is a nonlethal management, which includes federally permitted activities. And under this alternative, we would cease all permitted lethal control of resident Canada geese. We would promote nonlethal harassment techniques, there would be no depredation or special Canada goose permits issued, egg addling would be allowed with a permit, and special hunting seasons would be continued.

Alternative D, increased hunting. Under this alternative, we would provide new regulatory options to increase the harvest of resident Canada geese. These could include additional hunting methods such as electronic calls, unplugged shotguns, expanded shooting hours. These seasons could be operational during September 1 to 15, they could be experimental during September 16 to 30, and they would have to be conducted outside of other open seasons.

Alternative E which we termed integrated depredation order management really consists of four different depredation orders. There's an airport depredation order, a nest and egg depredation order, an agricultural depredation order, and a public health depredation order. Implementation of each of these would be up to the individual state wildlife agency, special hunting seasons would be continued, and we would also continue the issuance of depredation permits and special Canada goose permits.

The airport depredation order would authorize airports to establish and implement a program which could include direct and/or indirect population control strategies. The intent of the program would be to significantly reduce goose populations at airports. The management actions would have to occur on airport premises.

The nest and egg depredation order would allow the destruction of resident Canada goose nests and eggs without federal permits. The intent of this program would be to stabilize current breeding populations.

The agricultural depredation order would authorize landowners, operators, or tenants which are actively engaged in commercial agriculture to conduct either indirect or direct control strategies on geese

depredating on agricultural crops. Management actions would also have to occur on the premises.

The last depredation order was the public health depredation order, which would authorize state, county, municipal, or local health officials to conduct indirect and/or direct population control strategies on resident geese when it's recommended by health officials that there's a potential public health threat. Again, management actions would have to occur on the premises.

Our proposed action we term state empowerment. Under this alternative, we would establish a new regulation which would authorize state wildlife agencies or their authorized agents to conduct or allow management activities on resident goose populations. The intent of this program would be to allow state wildlife agencies sufficient flexibility to deal with problems caused by resident geese within their state. It would authorize indirect or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping, and culling programs. It would allow the state to choose implementation of any of the specific depredation orders which were under Alternative E. It would also -- during existing special hunting seasons, it

would expand the methods of take to increase hunter harvest -- and I went over Alternative D -- such as additional hunting methods such as electronic calls, unplugged guns, expanded shooting hours. Again, these would be operational during September 1 to 15, they could be experimental from September 16 to 30, and they would have to be conducted outside of other open seasons.

Additionally, there would be a conservation order provision under this alternative which would provide special expanded hunter opportunities during the portion of the Migratory Bird Treaty closed period -- that is, August 1 to 31 -- and also during the open period of September 1 to 15. It would authorize those additional methods such as electronic calls, unplugged guns, expanded shooting hours, and liberalized bag limits. And again, these would have to be conducted outside of other open seasons.

Under this alternative, the Service would annually assess the impact and the effectiveness of the program, and there would be a provision for the possible suspension of the regulations -- that is, the conservation order and the regular hunting season changes -- when the need was no longer present. We would also continue all special and regular hunting

seasons. We would continue the issuance of depredation and special Canada goose permits. The only state requirements of the program would be to annually monitor spring breeding populations and annually report the take under any authorized activities.

The last alternative we term the general depredation order. Under this alternative, we would allow any authorized person to conduct management activities on resident geese that are either posing a threat to health and human safety or causing damage. These would be available between April 1st and August 31 and would also provide expanded special hunting opportunities like I went over in Alternative D. We would continue the use of special and regular hunting seasons and the issuance of depredation and special Canada goose permits. Authorization for all management activities under this alternative would come directly from the U.S. Fish & Wildlife Service.

Under the affected environment, we looked at two different things. We looked at biological environment and socioeconomic environment. Under the biological environment, we looked at the resident Canada goose population, water quality and wetlands, vegetation and soils, wildlife habitat, and federally listed threatened and endangered species. Under the

socioeconomic environment, we looked at the migratory bird program, which includes a sport hunting program and a migratory bird permit program; social values and considerations; the economic considerations such as property damages and agricultural crop damages; human health and safety; and the program cost.

The environmental consequences forms the scientific and the analytic basis for the comparison of all the different alternatives. It analyzes the environmental impacts of each alternative in relation to the resource categories that I just went over. And again, the no action alternative or Alternative A provides a baseline for all of these analyses.

Under the no action alternative, what we would expect to happen is that populations of resident Canada geese would continue to grow. In the Atlantic Flyway we would expect about 1.6 million within 10 years; in the Mississippi Flyway, upwards of 2 million in 10 years; here in the Central Flyway, around 1.3 million within 10 years; and the Pacific Flyway, about 450,000 within 10 years. We would expect that there would be continued and expanded goose distribution problems and conflicts caused by resident geese. There would be increased work loads, and there would be a continued impact to property, safety, and health.

Under our proposed action, what we would expect is reduction in populations, especially in specific problem areas. We would expect some increased hunting opportunities; significant reductions in conflicts; decreased impacts to property, safety, and health; initial work load increases, but we do expect that there would be long-term work load decreases as these populations decrease; and the alternative would maintain viable resident Canada goose populations.

Some of the recent modeling that's been done suggests that in order to reduce the four flyway populations from the current levels of about three and a half million down to the flyway-established objectives of about 2.1 million would require each year for 10 years: One, the harvest of an additional 480,000 geese annually over what's occurring now; or the take of an additional 852,000 goslings annually; third, the nest removal of 528,000 nests annually; or four, the combination of an additional harvest of 240,000 geese and the take of 320,000 goslings annually. Each one of these would have to occur for ten years each year.

Thus when you look at those numbers, we believe the only way to possibly obtain this is to give states the flexibility to address problems within their

respective state. We believe that the population reduction should be addressed on a wide number of available fronts, and since states are the most informed and knowledgeable local authorities on wildlife conflicts, the primary responsibilities and decisions of the program should probably be placed with them.

What comes next? First is development of a new regulation to carry out the proposed action. This should be forthcoming in May. Second, a public comment period which Phil already talked about on this draft Environmental Impact Statement ends on May the 30th, and third would be the publication of a final report, a a record of decision, and a final rule which we anticipate for this fall.

As I already went over and Phil already went over, the comment period ends May 30, and he's outlined some of the various methods that you can use to send in your comments. These include any oral or written comments that you give us tonight, and any that you may subsequently send.

Additionally, we have set up an electronic site which is printed on the back of the card, which you can access all of the information pertinent to the EIS process. This includes both the draft, the news

release, some questions and answers, the federal register notices.

And on behalf of the Service, I'd like to thank all of you for being here tonight and especially those of you that will provide comments. Thanks.

MR. SENG: Thank you, Ron. Now for the important part of the meeting -- to hear what you have to say. I would just like to state once again, when you come to the mike in the center, please state your name and spell it unless it's immediately obvious, tell us what organization you represent if any, and where you're from. So without further ado, card 151.

MR. JERRY PETERSON: My name is Jerry Peterson. The spelling is obvious. I want to thank you men for coming here and giving us an opportunity to respond to your proposals. I don't really know what you men are looking for but what we want is solutions. I'm a farmer, and I lose 20 to 30 acres of crop each year to the public game. And that comes right out of my pocket. It would be nice to have some reimbursement.

As far as control measures go, I like the presentation, I like the idea that you put it back into the state and local hands. I think that's appropriate, and they're the only ones that know best how to deal with the problem. But I thought you maybe omitted one

possible means of control and that would be biological. And I think if you would tap into the resources of our various state university wildlife departments doing research, et cetera, I think you could look at hormonal control and maybe an olfactory agent we could spray to keep them out of our crops. And it's just a short time frame there. And a certain number of crops you don't want them in; some they can go in. I think this would be things to look at.

The bottom line is, we all like to see a few of those geese around. We like them. We helped propagate them when they got started. It's tough to control them by hunting. They hear one shot and they get real smart. They'll leave the county. They've tried it here, different counties. They'll go to the next one. They're a very intelligent bird. They're not a real palatable food bird, you know, for the table. So we really don't have the number of hunters that we should according to our population, what I've seen.

My lands, I've given everybody that asks permission to hunt them and still the numbers multiply. Control with hunting I don't think will be successful unless there were a spring hunt, and of course, that would be up to the state and local people. And as far as the farmers being able to control the population

themselves, I think that's essential. Somehow we need to get a handle on this problem. They've just done very well, and I think there are a lot of different avenues to approach this.

You have talked about gosling reduction, egg reduction, more hunting and so forth. I would like to see the research done on it in our universities and see if we can't come up with a better idea. There's a lot of talent out there. There's a lot of information, and I'm just wondering if we couldn't maybe somehow hormonally control egg production, et cetera, or you know, sterilize males somehow. I'm sure there's an opportunity there. That's all I want to say. Thank you.

MR. SENG: Thank you. Card 152.

MR. JEFF ALBRECHT: Jeff Albrecht, A-L-B-R-E-C-H-T, representing Brookings Wildlife Federation. My compliments to the U.S. Fish & Wildlife Service. Apparently you listened to the first round of discussion. It's pretty obvious through your Alternate F. I can sympathize with these landowners, but what happens when their wetlands dry up? It could very easily happen this spring. So anyways, just my compliments to the U.S. Fish & Wildlife Service for the job they've done here.

MR. SENG: Thank you. 153?

CARD 153: Pass.

MR. SENG: 54?

MR. JEFF RUD: My name is Jeff Rud. That's R-U-D. I just would like to say like I said at the last meeting that the hunters in South Dakota, they want to be part of the solution not part of the problem, so we stand ready to help the farmers reduce the population of geese. And it may not seem effective, but it has to help. I feel that various populations over the course of history were quoted as being hunted out of existence, and now with the resident Canada geese, it seems like that's not quite possible. So these proposed alternatives with expanded hunting opportunities I think is good. And again, there's -- the guys I hang around with, they're all looking for places to hunt geese. And they got the equipment and they're ready to do it at a moment's notice. So I just would make a general comment in support of hunting as a tool to use in the resident Canada goose population control.

MR. SENG: Thank you. 55?

MR. JIM BROWN: My name is Jim Brown. I'm from Madison, South Dakota. I agree with the gentleman back here in talking about the wetlands drying up. I've

lived in this state a long time and I've seen a lot of drought. I've seen, you know, 10, 15 years where there was no water at all. So what happens to these birds when that happens? Do they go further north to Canada? Wherever, I don't know. Wherever they nest at. But I'm not in favor of electronic calling. I don't believe in that. I don't believe in some of the things they're proposing. Unplugged shotguns, what difference is that going to make? You know, I can't believe that's going to make a difference.

It's one of these things that when they started this thing, we shut them down for five years. We lost five years of hunting Canada geese. And all of a sudden, boom. Now we want to kill the geese off so -- but there are sprays out there and they use them in some states. You guys probably know more about it than I do. It smells like bubble gum, and geese will not go near it. I know guys that have tried it and they're spraying it around their fields and that's as far as the geese go. And I think it's something that you should check into. I know a guy that -- a friend of mine that's going to try it next year, and I think it will work. They won't go any further than that spray. And then by the time that wears off, the geese are big enough when they fly past it, you know, and the greens

are big enough they won't even want them. That's my comment. Thank you.

MR. SENG: Thank you. 56?

MR. RON REED: My name is Ron Reed. I farm with my son about 40 miles west of Brookings at a little town called Oldham. A week ago today early in the morning, we got 5 inches of rain in 20 minutes. We ended up the next day -- or a week ago today, we ended up getting another inch and 65 hundredths. We ended up with 7.3 inches of rain. Every little pothole, every slough -- you know what 5 inches of rain in 20 minutes will do to washing? And we have a mess over there.

I'm not worrying about these lakes all going dry because we got a lot of lakes around me. And I farmed in that area for 53 years, and we've never had lakes go dry where there wasn't water within flying distance for the geese.

I've been with the Department of Agriculture in South Dakota for, oh, between 30 and 35 years in different -- well, different jobs if you want to use that terminology. I'm now on the state weed and pest commission. And one thing these Canadian geese do, they cause a weed problem. When these sloughs and lakes go down, why they catch the different weeds, whether it was Canadian thistle or whatever it might be

on their feet, and there will be new patches coming up all the time.

Right now I have two cannons going. We've had real good cooperation with our game department, with the conservation officers. They're right there if you say something. But we put a cannon in on the wheat field, and they've already got about 20 acres of that wheat field gone. Sixty-five geese walked out of there the other night. Even with the cannon going -- I'm sure you're all aware of it -- the geese do get -- they're smart birds. They steal green like that and they get -- and they need some help. They'll be right back there again.

I would like to invite some of you people if you got time to come out to my property tomorrow and I'll show you the damage they have done. It's cost me between 10 and 15, $20,000 every year for the damage that these Canadian geese have done.

There are just too many geese, and there are getting to be more each year. Something has to be done. Either turn this thing over to the wildlife people if they want to and then go ahead and subsidize us farmers a hundred percent through the meal box. And we just get these crops in because it's not that -- I realize you're here for geese, but we've got the same

problem with deer in our area. It's a mess. And I tell you, I'm here representing a lot of my neighbors because they're busy trying to get back into the fields and get some beans in the ground and finish planting corn. I could go on and on and say many other things. But you have a standing invitation to come out to my land and take a look and see what these geese are doing right now. Thank you.

MR. SENG: Thank you. 57?

CARD 157: Pass.

MR. SENG: 58?

CARD 158: Pass.

MR. SENG: 59?

CARD 159: Pass.

MR. SENG: 60?

MR. MARK WILLADSEN: My name is Mark Willadsen, W-I-L-L-A-D-S-E-N, and I'm from Sioux Falls. I, too, would like to add comments that I believe that hunting is a viable alternative to help reduce the populations, and I would like to see the hunting opportunities, you know, available to everyone on an equal basis. I also favor the proposed plan. It seems like it's the one that makes the most sense to me, and it takes into account, you know, a lot of different ways to help solve the problem. And I think we should take a look

at it and give it time to work and keep an eye on it so it doesn't go the other direction too. We went from -- it used to be a rare sight to see a Canada goose to now they're all over everywhere in a relatively short period of time. And I think we need to, you know, keep an eye on that and make sure that we don't go back the other direction too. Thanks.

MR. SENG: Thank you. 161?

CARD 161: Pass.

MR. SENG: 62?

MR. CHUCK ROKUSEK: My name is Chuck Rokusek. I'll spell my last name for you. R-O-K-U-S-E-K. I'm president of the South Dakota Wildlife Federation, and I'm here tonight to thank the Fish & Wildlife Service for giving us the opportunity. I think after listening to what you had to say tonight, I think it's best if we put this in the control of state where the state can work with the landowners and the sportsmen to come up with the ideas and programs that are going to be successful for South Dakota, including access for hunting, ways to control the geese. And I like the idea of maybe opening it up earlier in August. If we have to have a conservation order, it might add additional days. Maybe the 15th of August, whatever. But I think our people in South Dakota, the people that

work in game and fish, can do a good job of that.

MR. SENG: Thank you. 163?

CARD 163: Pass.

MR. SENG: 64?

MR. DICK BROWN: Good evening. I'm State Representative Dick Brown, and I'm from Sioux Falls, District 14. A couple things I wanted to mention. I think Alternative F is an outstanding one. It's the one that gives us the most flexibility. We've done a lot in the state of South Dakota to bring together the landowners, the sportsmen, and the Game, Fish and Parks to work in a unified way. And I think even the landowners will recognize that vital assistance.

It's not a concern, but I want to raise the issue that if you turn it over to the states, which I think is a good idea, that you not necessarily abandon the ongoing supportive services, which you hopefully will do. And there may be ways that the Fish and Wildlife and the Agriculture Department can be of assistance to Game, Fish and Parks and some of the states that may need additional assistance financially or otherwise to help supplement control of the program. So in other words, moving control over should not be hopefully abandonment but yet sort of a continuing good working relationship, which I'm sure does exist.

There is a part two on that early August. As a hunter who does a lot of hunting and has taken advantage in the Salem area and those places, the August -- a lot of times when we're out there, the geese have already done a great deal of damage, particularly the beans in that early spot, by the time we get to September 1. And the biologists will have to take a look at that. The early part of the season, I think the analysts can look at it and examine. And then you need to -- coming from a major metropolitan area to a small part of the state, that the flexibility of the local things that the Game, Fish and Parks are working on the airports and those kinds of things are really vital. So I think you've done an excellent job on Alternative F, and we just need to continue our working together with you at the local and state level. Thank you.

MR. SENG: Thank you. 165?

CARD 165: Pass.

MR. SENG: 66?

CARD 166: Pass.

MR. SENG: 67?

CARD 167: Pass.

MR. SENG: 68?

CARD 168: Pass.

MR. SENG: 69?

CARD 169: Pass.

MR. SENG: 70? No 70? 71?

CARD 171: Pass.

MR. SENG: Anyone in the 70’s?

MR. SENG: Anybody in the 80s?

MR. KENT EVERSON: Yeah. Right here. 88.

MR. SENG: 88.

MR. KENT EVERSON: My name is Kent Everson, E-V-E-R-S-O-N, and I'm a member of the Hayti Township Board just 45 miles northwest from Brookings here. And I'd say virtually every farmer in our township, if not the county, has at least one instance of geese. I know I have land I farm in several of the neighboring townships, just, you know, little pieces scattered around here and there, and I have problems in every township that I have land in. And I applaud the Fish & Wildlife Service for working on this project and realizing that we do have a problem. And I think you have a good solution, and at least it's a good beginning to solving the problem. And I really -- I hope that the state -- if this goes through, I hope that the State Game, Fish and Parks Department is equipped to handle it and work with the local governments, the county and township governments, and individual landowners to help with the problem. I believe some -- the depredation permits and, you know, getting permission to individual landowners to help control in isolated areas needs to be a process that's

easy. And you know, we don't have to want to jump through oodles of hoops to get this done. And like I say, I feel like you've got -- this is the first exposure I've had to the proposal and haven't had a chance to study it, but if the proposal works like your presentation here is leading us to think, I think you're going in the right direction. So thank you.

MR. SENG: Thank you. 89?

CARD 189: Pass.

MR. SENG: Anyone in the 90s?

MR. LEE MCMANUS: Yeah. 91.

MR. SENG: Okay. 91.

MR. LEE MCMANUS: My name's Lee McManus, M-C-M-A-N-U-S. I'm from Sioux Falls. I'm a hunter. I first of all applaud you guys for the great work you've done. I mean it's obvious you put a lot of time in this. Speaking just for myself, I'm strongly in favor of turning the issue over to the state and letting the state handle it. I am not in favor of an August opening. I think a lot of these birds are probably hitting the ditch already in September. It's unfortunate. Also on a personal level, I'm not in favor of anything electronic in water fowling.

But I think -- I understand these farmers really need help, and I really think us hunters can do it. I'd like to see Game, Fish and Parks come up with some kind of mechanism to merge hunters with farmers who really need it. But if you really want to help reduce these numbers, you've got to do something about this possession limit. A two-day possession limit is ridiculous if you want to reduce these geese.

Your first season is Labor Day weekend. We go up and we shoot two days. We run into this all the time. With duck hunting, we take the first two weeks in November to hunt ducks. After two days, we're eating ducks until they're coming out of our ears. We're giving them to everybody we can find who will take them. You can't do that with a 14-pound goose. So you need to address that. The guys -- you know, double the possession limit, whatever you want to do. But if you want us to damage some birds, I think a lot of us are talented enough and honored to do it. But we've got to be able to harvest them. Thank you.

MR. SENG: Thank you. Others in the 90s? 94.

MR. STEVE BIERLE: I'm Steve Bierle from Canton, South Dakota. B-I-E-R-L-E. And again, thanks for the opportunity to comment. I appreciate the time that's gone into this.

No question. I'm supporting the proposed F where we give control to the state. I have a lot of confidence in our State Game, Fish and Parks to be able to address the problem.

From a biological standpoint, the only thing I would ask is that we would continue to have this type of forum when it comes to a state decision-making process so that sportsmen, landowners, municipalities can all have the ability to voice their opinions.

Obviously, I'm a hunter. There's no question when we harvest 50,000 Canada geese in a year in South Dakota that we are having an impact on the population. I agree a hundred percent with Lee McManus in that if you don't get rid of the possession limit, it's awful hard for a guy who just wants to hunt should be able to do that and do it legally, which is obviously a primary concern.

So I would appreciate the opportunity I guess to have a voice with the Game, Fish and Parks so that all the different factions that are involved in this can have an impact on it and have equal voice and be able to influence the decision-making process of the local authorities as well. Thanks.

MR. SENG: Thank you. 95?

CARD 195: Pass.

MR. SENG: 96?

CARD 196: Pass.

MR. SENG: 97? That will teach you to sit in the back.

MR. GARY MILLER: Gary Miller. I farm over here south of Arlington, and I agree with the guys that farm. They do a lot of depredation, and we do not get reimbursed for our losses. And I'm for the hunters. Let them have their fun and stuff, but still, I haven't found anybody that really likes to pay to hunt, by the time they give the money for the licenses and stuff. And a lot of guys that come to my place and want to hunt are college kids and don't have an extra 20, 30 bucks to give. And we just get stuck feeding them all because the U.S. Fish and Wildlife land is all into grass. I don't see too many Canadian geese living out there and feeding. They're all out in the crop ground feeding. And I just don't think the farmers get reimbursed for their losses. And we're in the business of making a living, and that's all we're trying to do. We're not trying to kill off any wildlife species or anything like that, but we've got to live with them and with control. Thank you.

MR. SENG: Thank you. 98?

CARD 198: Pass.

MR. SENG: 99?

CARD 199: Pass.

MR. SENG: 200?

MR. STEVE LESNAR: My name is Steve Lesnar from Roslyn, South Dakota, and I just have a couple quick comments.

MR. SENG: Can you spell your last name, please?

MR. STEVE LESNAR: Lesnar, L-E-S-N-A-R.

MR. SENG: Thank you.

MR. STEVE LESNAR: I can remember when I was a kid, these things that we're talking about tonight, the greater Canadian goose was on the endangered species list. We've done one hell of a job of bringing them back because we're stuck with them now. And I think one thing in our area -- and this is Day County. I'm talking further north of here. I don't know if Brookings County has got the problem we've got, but I think eventually what we're going to be looking at whether we want to or not is a spring goose season. They've used it, implemented it on the snow geese now. I don't know what kind of impact it's had, but when you see sloughs up there, it's little puddles that's got four, five pair in them. Years ago there was no way you'd ever see more than one pair in a slough. And if we don't get on it soon -- and I look forward to

working with the state if it goes that way so that they can help us out at least in regional areas if not statewide. Thank you.

MR. SENG: 201?

CARD 201: Pass.

MR. SENG: Two?

MR. DAN HUBBARD: Dan Hubbard, just like Old Mother, H-U-B-B-A-R-D. I'm representing myself. I'd like to compliment you on the draft EIS. It's a good job. I'd like to reiterate the comments on the possession limits. Those hunters that are the best at it and want to stay legal really can't kill very many because they're stuck with the possession limit. Other than that, I think I'd like to see in the final Environmental Impact Statement the issue of going past March 10, which a gentleman just before me talked about a spring season. I know there are issues with the Migratory Bird Treaty Act, but we've got around that with the snow geese issue. And I just -- it's probably doable again with the Canada goose issue.

The problem with hunting season in the fall is you're not shooting the same birds that are causing the problems. I mean most of the agricultural depredation is a point specific problem. A specific landowner is losing 20, 30 acres of beans because those birds that

are there that spring with their broods are walking out and eating the beans. And they're not the ones that are necessarily getting shot the following fall. So I think if you really want to pinpoint the problem, keep the population as large as possible. But to alleviate the problems, you need to shoot the birds that are doing the problems. And the only way really to do that is to shoot them where they're eating, and that's right there in the spring.

MR. SENG: Thank you. 203 to 210?

MR. CHUCK DIETER: My name's Chuck Dieter, D-I-E-T-E-R. I'm representing the South Dakota Water Fowlers Association and myself as well. I'd like to just point out a few things. I agree a hundred percent with your choice F, the states. I think it's a good decision. And I agree with Steve Bierle that there should be input meetings like this for the state. But

I do want you to remember what -- even something that Mr. Lesnar said. When I grew up, if you saw a Canada goose, that was a big thing. And when I was a kid, I never shot a Canada goose. And I tell you, it's better to have too many geese than not enough. The wildlife biologists, which I'm one of, we know how to take care of populations that are down but we're not sure -- a lot of times, we've always tried to manage populations that are down. But the ones that are up are causing the problems. And so we need to remember that there's a lot of people that enjoy Canada geese out there. As far as Canada geese spreading thistles and things like that, that's not true. They don't spread thistles.

MR. RON REED: I'll disagree with that. I'm on the state weed commission and I know.

MR. SENG: Sir? Let the gentleman speak.

MR. CHUCK DIETER: Okay. I'm just saying I've done a lot of water fowl research, and there's no evidence of that stuff. But I will agree with the landowners. I'm a landowner and have a lot of friends that are landowners. I think the state is doing a heck of a job with the depredation. Every one of the hunters in here pays $5 per license for the depredation program which the state is running right now. And so I think the landowners -- the only way to really keep

things going is to pay them somehow. We need to do a farm bill or something like he said to reimburse them some way for the damage. I think that's -- in the long run, we're going to get complaints that there's one or two Canada geese out there -- because we need to reimburse the farmers for their losses. That's the bottom line in my opinion or else there's always going to be complaints.

As far as spring goose seasons, the problem with that is we get a lot of different subspecies of Canada geese migrating through here in the spring. If we open it in the spring, we're not just going to be shooting our local Canada geese, we're going to be shooting a lot of migrators, which the population in northern Canada is hurting. And so that's not a real good option either. It seems to make sense if we could just target the ones that are causing the problems. But it's something that we need to consider. We have to look at it on both sides here. But I think the State Game and Fish Department will do a heck of a job in this state. There's no doubt in my mind. And I think they'll be willing to listen to the farmers. And I think you made a good option there so thank you.

MR. SENG: Thank you. 207?

MR. GEORGE VANDEL: George Vandel, V-A-N-D-E-L,

and I'm with the South Dakota Department of Game, Fish and Parks in Pierre, South Dakota. I want to indicate my support of course for Alternative F. I think the Service has done an outstanding job in putting together all the information, going through all the hoops. You came here and you listened to us, and I think that you've incorporated those into your draft EIS. And I want to applaud you. I certainly hope that you're able to take it through the rest of the process, that we can avoid a few court hearings and so forth. And the sooner we get some of these additional tools, I think the sooner we'll be on our way to at least attempting to try to solve this problem. I don't think I'm going to guarantee anybody here that we're going to be able to render completely the problems with giant Canada geese. When you have a bird that's that big and that abundant, there are going to be some issues. But I do think Alternative F does provide us with a lot of additional tools that we can put to work.

I'm not going to ask the folks to stand up in here, but I notice there's a pretty good segment of Game and Fish people that are here because they're real interested in this subject. They get beat up a lot sitting at their home territories from people who have too many geese, and at the same time if they go too

far, they get beat up by people who have about -- who want more geese. I guess I'm starting to wonder why we're preferring Alternative F and turning it all over to the states.

So we made a decision a long time ago that we were largely responsible for bringing these goose populations back, and so we take our responsibilities very seriously. We could have easily pushed this off on USDA APHIS and the Fish & Wildlife Service, and we chose not to. We expanded a lot of staff time, a lot of money. We got additional funding through that $5 surcharge, which half of that goes to wildlife depredation. And we put on additional manpower, we put on additional seasonal employees, we purchased some equipment. We got a lot of folks in this room who work very hard and will continue to work very hard. But I think those additional tools will give us the additional flexibility. You've got to have the flexibility because every situation's unique. In some cases, some things work; and some cases, others don't. And by having all those tools, I think it will be very helpful.

The final thing I'd like to say is I don't think people need to worry about us decimating the goose population. We consider that to be a very valuable

resource. We want it managed more in I guess where our citizens want it to be managed. But on the other hand, we worked so hard to bring them into this state, and we recognize the value that they have -- not only from a consumptive use but also a nonconsumptive use -- that we're certainly going to manage them wisely. We are going to do it by a public forum. We're going to aggressively take a look once the final EI comes out and start picking apart which one of those we can use. We'll go to our commissions and we'll go back to the public and let them know what we're going to do and involve them in that process.

So once again, thank you very much for coming here, and I appreciate your support for Alternative F.

MR. SENG: Thank you. 208?

MR. LIEBERMAN: My name's Josh Lieberman, L-I-E-B-E-R-M-A-N. My Grandpa's Stan Lieberman so I grew up hunting for a lot of years. And I just now started living in Brookings, and I started hunting in Day County here in the last four years. And when I go up there throughout the summer -- I mean we got more geese up there than we know what to do with. And I hunt every possible weekend. And the possession limit, it's a killer. I mean you can't give enough birds away. I mean if I go up there with all my buddies and

hunt with five, six guys every day during the weekend, and we'll be out of the field by 10:00 with our birds. And you can only do that for so many days, and you've got to get rid of them. That's one big hurt right there.

The spring thing, it's not really -- I don't know if it's such a good idea. If you want to kill the birds and if you just want to -- if you want to actually hurt the population and bring it down, yeah, you can go ahead. And I mean you can snow goose hunt all day and put a thousand rags out and you'll have 500 Canadians drop in on you all day. I mean if you want to take your plugs out and you want to kill the geese, you can go out there with five, ten guys and kill two, 300 geese in a day if you want to, but I don't really know if that's the solution either. I think -- I don't know if it's more of a problem that -- I don't know.

We're putting a lot of funding into the pockets of like, say, Ducks Unlimited and stuff. You know. I mean we're putting all this money in towards these private organizations which is supposed to benefit something good. Well, it's going -- I think that the money that's going towards our licenses should be directly deposited for the loss of farmers, because if our money's going to programs that are supposed to be

helping the habitat and the production of Canadian geese, it's not working right now. And I think we just need to reimburse the farmers because they're the ones getting hurt.

My father-in-law, he farms. He's got a dairy farm right out by north of Clark, and they probably lose, oh, 40 to 60 acres every year. And that's a lot of money. I mean these people aren't planting crops for nothing you know. So I mean I do my best. But when you got laws in the way, and you can only possess only so many birds, I think that's one of the biggest things. I heard some comments about plugs not helping. I find -- I totally disagree. I think if you were to get four or five guys, which I usually take out every weekend or try to every weekend, you take your plugs out and you up your daily limit to five, eight birds; eight to ten birds; whatever. You can take care of them. Thanks.

MR. SENG: Thank you. 209?

CARD 209: Pass.

MR. SENG: 210?

MR. TONY BAKER: My name's Tony Baker from Watertown, South Dakota. I'm a hard core water fowler. And I mean give the power to the state, sure. I mean you're right. They're probably the best people to have

it. But this early hunting season, this isn't going to be a good deal at all, the proposals you guys are putting forth.

Earlier you put some numbers up of what you expect the geese to be, and basically what you did there was try to predict the weather for the next ten years. And the weatherman can't even predict what the weather's going to be the next day. So I think that was a mighty task you guys put forth to do there. I don't believe -- I don't believe the numbers will probably be met. It's easy to overstate when you're living in boom times. But I tell you what, the way for those numbers to be met is if we implement this early hunting season with the proposed leniencies. Because as the first person stated -- I can't remember his name -- geese are smart. And they get smart and they get smarter. And pretty soon, they're going to be just unhuntable. They're going to be like snow geese are today. We have electronic calls, all those things that you guys are proposing. I believe there's many, many different means that could be taken here.

Personally, you know, a lot of the farmers said today that they give permission all the time. I haven't seen it. Opening early season this year, we asked 34 farmers; 32 declined us. I mean it's hard to

kill geese if you don't got land to do it. We did most of our killing on public land, and if we were able to get private land, I can't imagine the decimation we could have caused.

But I would also like to say that I am for getting rid of possession limits because I did run into that many times as I'm sure some of the other hunters did here this last season. I'd also maybe like to throw out a suggestion: To get a list of farmers together that are having these problems and that would allow hunters to hunt their land and maybe give that to the Game, Fish and Parks, you know, for guys like me that are having these permission problems and such. That's all I have today.

MR. SENG: Thank you. 211?

MR. CHARLES PETERSON: I'm Charles Peterson from Brookings. I was surprised that a spring season was not included in the list of alternatives. I believe it demonstrates a lack of imagination by those people preparing the list of alternatives. I believe that a significant reduction can be accomplished by a spring season more or less concurrent with the light geese season. Individual limits do not have to be as large as they do for snow geese so I think that should be considered. And I believe the people in South Dakota

would respond very well to that. I had some Canada geese fly over me while snow goose hunting. Would have been glad to do my part if I would have been permitted to do so. Thank you.

MR. SENG: Thank you. 212? That's all the cards we gave out. Is there anyone who hasn't spoken who would still like to?

MR. JOHN POLLMANN: My name is John Pollmann. I'm from Brookings. I just want to echo some of the things that have already been said tonight. I wasn't quite sure what I was going to say before. Like Lee, Steve, and many others said, I support the giving control to the state. I think that's where it needs to be. We know best here in South Dakota how to handle our own problems.

I don't support the August opening. The birds can hardly fly it seems during that time. And some of the things that haven't been said, you know, even in September when you shoot them, they're hard enough to pick. Imagine shooting them in August when they still have all the pin feathers. Electronic calls I'm not in support of. I think it takes away from the sport. Part of being a water fowl hunter is knowing how to call and using the decoys and trying to outsmart them. I just think you'd run into problems. Not necessarily

problems but you're turning it into something that it shouldn't be by using electronic calls.

You know there's a problem. Obviously, there are landowners that are losing money, they are losing crops. But when we shoot these geese I'm going to assume in September, the damage has already been done, and so we need to find a way to alleviate those problems when it's occurring. I don't know if that means, you know, mass destruction, egg destruction, the ganders and goslings. I don't really want to see that. As a fan of waterfowl, the last thing I want to think about is, you know, those geese being killed when they're young. That means less geese we see in the fall. If there's a way to even keep the geese off the ground through certain sprays, whatever, that would be wonderful. That way we're keeping them off the ground but we're not killing them. I think that's about all I have. P-O-L-L-M-A-N-N.

MR. SENG: We have another over here?

MR. TREVOR MANTEUFEL: My name's Trevor Manteufel, M-A-N-T-E-U-F-E-L. I'm from Brookings; originally from Minot, North Dakota. I moved here to Brookings about two and a half years ago so I've kind of seen how these geese have just kind of been stock piling all the way through the upper Midwest here.

And just to highlight on a few things. As far as getting permission from landowners, this year this past season was definitely the best hunting season I've ever had in my life. I took the whole fall off of work and basically hunted all fall. So I saved all my money in the fall from summer just so I could hunt, and that worked out pretty good for me. I did most of my hunting the early season up at Day County and Deuel County north of here. And the landowners that I talked to -- I did my scoping in August. And I just met these guys and just went up to their doors, and the opening weekend, Labor Day weekend, camped out in the farmer's front yard. We pitched a couple tents. And they were more than happy to let us hunt in their stock dam right behind their house.

So I don't think -- you know, if you do your homework, you can find a lot of farmers. There's a lot of farmers in this room here that are willing to let people go out and shoot as many geese as they want just as long as it's up to the limit you know.

As far as the unplugged gun rule, I'm for it. A lot of people -- you know, there's a lot of good callers in this room, get the geese real close. A couple guys can just take out a whole family. The more geese on the ground, that's less smart birds that are

getting away. It's all about the education I would think.

I also worked for North Dakota Game and Fish a few years ago, and as far as using the propane boomers, we did some depredation projects up there, and like a few other people said, the geese just get smart. They know what a shotgun does in the fall, but you know, you don't see anybody sitting out in the field with a propane boomer scaring them away. So that's all I have.

MR. SENG: Thank you.

MR. ERIN MCMANUS: My name is Erin McManus, E-R-I-N, M-C-M-A-N-U-S. I'm from Sioux Falls here, and I'm a hunter. And I agree with a lot of the things that have been said tonight and disagree with a lot of them, too, I guess. I'm sympathetic to the landowners. I understand. I mean I'm not a farmer so I don't completely understand; just like many landowners probably don't understand the birds like some of us hunters do. I think there should be some kind of reimbursement. One thing that was mentioned to me was maybe something for landowners that allow hunting because there are a lot of landowners that don't -- I mean personally, I'm not going to pay to hunt. It's not really -- I don't know. I've lived in this state

my whole life and I've never had to pay to hunt anywhere. And I enjoy the sport a lot, but I'm just -- I don't know. I guess I had some traditions from my family and I understand the problem but I'm not going to -- I pay a lot of money to hunt all year-round you know. Some people come here and hunt one weekend and may drop a couple thousand dollars. That's great, but you know, we spend money every trip on gas and motels and food and all that.

I'm in favor of a lot of the hunting issues as far as limits. Possession limits, of course, I think need to be changed if you want to really effectively handle this. Electronic calls I won't use even if it's legal. As far as opening season in August, there's no way. First of all, it's still -- the early season last year we had 70 plus degrees. The birds are -- they're very young. I mean if you're going to do that you might as well look at something prior to that as far as the nesting eggs type situation.

I think there's a lot that we can do. As far as the state goes, if it comes down to what's proposed, I agree with that, letting the state handle the issue. I do also think it's a great idea to have more public meetings like this as far as where we can get to meet

with landowners that are having the problems, meet with hunters that want to help them take care of the problems. We're not against any landowners. We're not trying to keep these geese around to damage your fields or anything like that. We'd love to help you out. Trust me, there's a lot of guys that will sign up on a list for you to call them. If you have problems, they'll be right there to help you out with it. Thank you all.

MR. SENG: Thank you. Anyone else who has not had a chance to speak who would still like to?

MR. SPENCER VAA: Spencer Vaa, V-A-A, and I'm the state waterfowl biologist here in South Dakota for Game, Fish and Parks. And I just want to just take a minute here just to let the public here know what South Dakota Game, Fish and Parks is doing for the Canada goose damage management right now. We were the first state in the Central Flyway back in 1996 to implement a Canada goose depredation program. So if you're a farmer out there in South Dakota who's having a problem with too many geese on your place, if you call a Game, Fish and Parks employee -- and most likely, you'll probably call your local conservation officer -- tell them you got a problem with your geese going into your soybeans, corn, whatever. We can help you. We may

recommend an electric fence. We put out literally hundreds of them. A lot of times that single strand of electric fence will stop those birds from going in that soybean field.

We may recommend what we call a foraging site, i.e., a food plot. We'll pay you local rental, county rental rates, to plant a 66 feet wide, a hundred foot wide strip of wheat or oats or something like that so the geese have something to eat, and you'll get paid for it. We have different programs like that. And if you just give us a call, we'll try and help you out.

We've got a very active hunting program. South Dakota was again the first state in the Central Flyway to implement September Canada goose hunting seasons, and in fact, that was since 1996. And in fact, last year we harvested over approximately 50,000 Canada geese during that September season. So I think hunting is a very, very vital part of this overall program, and the hunters that responded in this state last year -- like I say, our hunter's survey said that 50,000 Canada geese were harvested during September. And we also know from the wing bee when the hunters send in their goose tails, we know that those are resident Canada geese. They're not the small ones coming down from Canada. We're targeting the birds that are

causing the problems. We have guys sitting in this room in the summertime all summer long that work out there with their tractors and mowers and go on state game production areas and federal water fowl production areas and take out a little bit of that grass and mow it so it looks like a golf course. And we even throw down a little shelled corn to get those geese off the private property and onto the public land where we don't care if they eat the grass. That's what that land is purchased for.

So there's a lot of different programs that we have in place right now in South Dakota that if you're a landowner that has a problem, call us and we'll do the best we can. Like George said, we have people hired in the summertime. All they do is go out and take goose complaints. And we're trying our best and I think we responded pretty well.

And that leads to the next thing that Alternative F, the state taking over the management. Because, hey, let's face it, the Fish and Wildlife Service has got one guy living in Pierre. What's going to happen if they handle goose complaints? What's going to happen when the guy with the soybean problem is going to call one guy in Pierre and expect some action? It's not going to happen. You've got to go to

the agency that's got personnel. And like George said, the $5 out of your pocket when you buy a hunting license now, half goes for depredation and half goes for hunting access.

We have made some strides in our state I think, and we've got some experience. We've got a lot of people out there with experience now how to deal with this. We have a program and I think it's working. I'm not saying it's going to solve everything. Our population goal is 50,000 Canada geese in the state. We're at 170,000 last year so we've got a ways to go. But the encouraging thing about last year, when the Fish and Wildlife took their survey in May, is the population, instead of going up, up, up, was leveling off. So like some of the guys talked about drought, we get some dry years, and there's hunting activities and other programs, I think we've got a good chance that maybe we can get it under control. And I'm pretty sure the state is the best way to handle it. Thank you.

MR. SENG: We had another back here?

MR. DERRICK JOHNSON: I'm Derrick Johnson. Spencer Vaa basically beat me to what I was going to say. I am one of those guys; I have worked with the state and handled goose problems before. The state does have a lot of programs to help out people, help

reimburse farmers. And from what I see, a lot of farmers just don't realize that. They want some kind of reimbursement, but they don't sign up for these programs either because they don't know about it, they didn't take the time to read the letter that was sent to them, or a lot of farmers just don't want handouts. So I don't believe that's -- I don't think straight reimbursement is where the emphasis needs to be put on handling the goose problem. Not only just because of that and I don't think the state agencies like South Dakota, North Dakota, places like that, they don't have the funds to put that kind of money towards just paying for geese. That would tap out all their funds for everything else. Thanks. Thank you.

MR. SENG: Anyone else that has not spoken who would like to?

UNKOWN SPEAKER: What is the recommendation of the state game manager regarding spring Canada goose season?

(Discussion between the group.)

MR. SENG: If you have questions about the state issues, talk to George or Spencer after the meeting. That would be appropriate.

Anyone else who wants to make a comment for the public record? Okay. Then I'd like to remind you that

May 30 is the deadline for comments. If you want to send something in or you think of something after you leave here tonight, take that card with you and send those comments in. Also, if you did not sign the sign-up sheet and you would like to receive a copy of the final EIS, the sign-up sheets are on the table in the back. Most of all, I thank you all for coming out tonight and giving us your comments. We really appreciate you taking the time. Thank you very much.

(End of meeting.)

C E R T I F I C A T E

STATE OF SOUTH DAKOTA)

: ss

COUNTY OF MINNEHAHA)

I, MAXINE J. RISTY, Court Reporter and Notary Public, do hereby certify the foregoing pages 1-56, inclusive, are a true and correct transcript of my stenotype notes.

In testimony whereof, I have hereto set my hand and official seal this _____day of _____, 2002.

MAXINE J. RISTY, RPR, CSR
Court Reporter and Notary Public
My Commission Expires: October 14, 2005

UNITED STATES FISH AND WILDLIFE SERVICE
DIVISION OF MIGRATORY BIRD MANAGEMENT,
DEPARTMENT OF INTERIOR
1849 C STREET NORTHWEST
WASHINGTON, D.C. 20240

IN RE: Public hearing to discuss draft EIS on resident Canada goose management.

Monday, May 20, 2002 7 p.m. Comfort Inn Conference Center; 3200 West Broad Street; Richmond, Virginia

APPREARANCES:

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MR. CASE: My name is Dave Case, I'd like to welcome you to the meeting here tonight. As you know, the purpose of this meeting is to take public input on the draft environmental impact statement that the U.S. Fish and Wildlife Service has developed in relation to the resident Canada goose overabundance. I'll describe in just a second the process we're going to go through.

First, I'd like to introduce a few people. Ron Kokel is with the Fish and Wildlife Service sitting up front and he will be giving a presentation here briefly; Scott Johnston, with the U.S. Fish and Wildlife Service of the Migratory Bird Management at the Regional Office in Massachusetts. Gary Costanza, and a number of people from the Virginia Department of Game and Inland Fisheries are here: Bob Ellis, David Norris, Tom Midrowski and Ken Perry.

With U.S.D.A. Wildlife Services, I'd like to introduce two people. Mark Lowry is the State Director here in Richmond and Dave Reinhold, of the Environmental Compliance Office in Washington.

The process we're to follow is pretty straightforward. As you first came in you all received a card that has a number on the back. There's information on the front that has a mailing address or an e-mail address if you'd like to make comments by e-mail or snail mail you can send those to that address. Be sure that you do that by May 30th because that's the closing date for comments. What we're going to do is there will be a brief presentation about the draft environmental impact statement and the background behind it by Ron, a slide presentation. Then we'll have folks come up who would like to make public comment. We'll set up a

microphone here in the front. We'd ask that you do come up to the microphone, first so that we can hear you and secondly so that you're close enough so that our court reporter, Mr. Howard, will be able to read your lips and make sure that he gets everything down correctly. When you come up, if you could state your name and spell your last name for us if you could so that we get it correct. If you represent an organization officially then let us know that and where you're from.

The way we've set up the meeting is a chance to get input from all of you. It's really not a forum for debate. And so if there are questions of clarification, we can try and handle those after the meeting. I do apologize in advance, there are a lot of people here tonight. We want to make sure that we give everyone an opportunity to be able to speak. So if anyone goes a little bit too long, I may kind of hurry you along, but in most cases it's not a problem. So, with that, I'd like to introduce Ron Kokel, Wildlife Biologist with U.S. Fish and Wildlife Service who is going to give a presentation on the draft environmental impact statement.

Before Ron starts talking, however, there is a sign-up sheet I'm going to pass around. If you would like to receive a copy of the final environmental impact statement via the mail then sign up on this. If you want to receive a copy, be sure to sign up. There are two places to check. If you have already received a copy of the first one, then note that, so that we don't send you two copies. If you've never received one, then note that on here. There's a place here to check either way. So I'll start these around, you just make sure that you pass it on after you signed up, we'd sure appreciate it, Ron.

MR. KOKEL: Thank you, Dave. Good evening everybody. Again, I'm Ron Kokel, I'm with the U.S. Fish and Wildlife Service, Division of Migratory Bird Management stationed in Arlington, Virginia. And, on behalf of our director, Steve Williams, I'd like to welcome all of you to this meeting tonight, and, if I could get the first slide and the lights.

This is the seventh of eleven public meetings that are being held across the country for the purpose of inviting public participation into our process of developing an environmental impact statement or an EIS for resident Canada goose management. This EIS was developed in full cooperation with Wildlife Services, which is in the Department of Agriculture.

Why are we here? We're here to explain the draft environmental impact statement, its proposed action and to listen to your comments. The draft considers a range of management alternatives for addressing expanding populations of resident Canada geese. And, as such, really what we're here to do is to listen to you and seek your comments on what our proposed action is.

First, a little bit about the National Environmental Policy Act, or NEPA. NEPA requires completion of an environmental impact statement to analyze environmental and socioeconomic impacts that are associated with any federal significant action. NEPA also requires public involvement, holding its scoping period before the draft is issued and a comment period after the draft is issued.

We began this process in August of 1999 when we published a

notice that announced our intent to prepare this draft. Then in February of 2000, we held nine public scoping meetings across the U.S., one of which was held here in Richmond, for the purpose of seeking public input into the process. Scoping ended in March of 2000. In response to the scoping we received over 3,000 public comments and over 1,250 people attending the nine public scoping meetings.

What did we find in scoping? Well scoping indicated that the top issues were: property damage and conflicts caused by resident Canada geese; the methods of conflict abatement; sport hunting opportunities on resident geese; the economic impacts caused by resident geese; human health and safety concerns; and, the impacts of the Canada geese themselves.

NEPA also outlines a specific format for environmental impact statements. There is a purpose and need section, an alternative section, the affected environment section, and environmental consequences.

Well, what are resident Canada geese? In the draft environmental impact statement, we define resident Canada geese as those geese that nest within the lower 48 states in the months of March, April, May or June, or reside within the lower 48 states in the months of April, May, June, July or August.

The purpose of the EIS is threefold. One is to evaluate alternative strategies to reduce, manage and control resident goose populations in the U.S. Secondly, to provide a regulatory mechanism that would allow states, local agencies, other Federal agencies, or groups or individuals to respond to Canada geese damage complaints or damages. And thirdly, is

to guide and direct resident Canada goose population management activities in the U.S.

The need is twofold. One, is increasing resident Canada goose populations, coupled with growing conflicts, damages, and socioeconomic impacts have caused a re-examination of the Service's resident Canada goose management.

The DEIS examines seven management alternatives. Alternative A, is no action; that's the baseline to which everything else is compared. Alternative B, is a non-lethal control and management, which includes only those non-federally permitted activities. Alternative C, is a non-lethal control and management alternative, which includes federally, permitted activities. Alternative D, is expanded hunting methods and opportunities. Alternative E, we term integrated degradation order management. Alternative F, is the proposed action, which we term state empowerment. And, alternative G, is a general degradation order.

Under the no action alternative, or alternative A, there would be no additional regulatory methods or strategies authorized. When we continue to use some all-special hunting seasons, the issuance of individual degradation permits, and the issuance of any special Canada goose permits.

On the second alternative, alternative B, non-lethal control and management, which is only those non-federally permitted activities, again, we would cease all lethal control of resident Canada geese and their eggs. Only non-lethal harassment techniques would be allowed. No permits would be issued. And all special hunting seasons for resident

geese would be discontinued.

Under alternative C, the third alternative, non-lethal control and management, which includes federally permitted activities, we would again cease all permitted lethal control of resident Canada geese with one exception. We would promote non-lethal harassment techniques. There'd be no depredation or special Canada goose permits issued, egg addling or nest removal would be allowed with a federal permit but special hunting seasons would also be continued.

The fourth alternative is expanding hunting methods and opportunities. Under this alternative we would provide new regulatory options to increase the harvest of resident geese. We would authorize additional hunting methods such as electronic calls, unplugged guns and expanded shooting hours, geese seasons could be operational during September 1 to 15. They could be experimental during September 16 to 30, but they would have to be conducted outside of any other open season.

Alternative E is termed integrated depredation order management. This alternative actually consists of four depredation orders. One is an airport depredation order, one is a nest and egg degradation order, there's an agricultural depredation order and a public health depredation order. Implementation of any of these orders would be up to the individual state law and agency. Special hunting seasons would be continued and the issuance of depredation permits and special handling goods permits would also be continued.

The airport depredation order would authorize airports to establish

and implement a program, which would include either indirect and/or direct population control strategies. The intent of the program would be to significantly reduce goose populations at airports. The management actions would have to occur on the premises.

The nest and egg depredation order would allow the destruction of resident Canada goose nests and eggs without a federal permit. The intent of the program here would be to stabilize Canada geese breeding populations.

The agricultural depredation order would authorize landowners, operators and tenants actively engaged in commercial agriculture to conduct indirect and/or direct population control strategies on geese, which are depredating on agricultural crops. Again, the management actions would have to occur on the depredation premises.

And the last depredation order would be a public health depredation order, which would authorize state, county, municipal or local public health officials to conduct indirect and/or direct control strategies on geese when recommend by health officials that there's a public health threat. Again, the management actions would have to occur on the premises.

The sixth alternative is our proposed action, termed state empowerment. Under this alternative, we would establish a new regulation, which would authorize state wildlife agencies or their authorized agents to conduct or allow management activities on resident goose populations. The intent of this program would be to allow state wildlife agencies sufficient flexibility to deal with problems caused by

resident geese within their respective state. We would authorize indirect and/or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping and culling programs. It would allow implementation of any of the specific depredation orders, which were talked about under alternative E.

In addition, during existing special hunting seasons, we would expand the methods of take to increase hunter harvest, as I explained under alternative D. These would include things like additional hunting methods, such as electronic calls, unplugged guns, expanded shooting hours. Again, they could be operational during September 1 to 15. They could be experimental during September 16 to 30, but they would have to be conducted outside of other open seasons.

In addition, we would establish a conservation order, which would provide special expanded hunting opportunities during the course of the treaty close period. That is, August 1 to 31 and a portion of the treaty open period, September 1 to 15. These would authorize additional hunting methods, again, such as electronic calls, unplugged guns, expanded shooting hours, liberalized bag limits, and they again would have to be conducted outside of other open seasons.

Under the program, the Service would annually assess the impact and the effectiveness of the program. And there would be a provision for possible suspension of the regulations, that is, the conservation order and/or the regular hunting season changes when the need is no longer present.

In addition, we would continue all special and regular hunting

seasons. We would continue the issuance of depredation and special Canada goose permits. The only state requirements under the program would be to annually monitor the spring population and to annually report take under authorized activities.

The last alternative is the general depredation order, alternative G. We'd allow any authorized person to conduct management activities on resident geese when posing a threat to health and human safety or causing damage. It would be available between April 1st and August 31. It would provide special expanded hunting opportunities like under alternative D. We would continue to use both special and regular hunting seasons and the issuance of depredation of special Canada goose permits.

In addition, the authorization for all management activities under this program would come directly from the U.S. Fish and Wildlife Service.

Under the affected environment, we looked at two things. We looked at biological environment; we looked at the socioeconomic environment. Under the biological environment, we looked at the resident Canada goose populations, we looked at water quality in wetlands, vegetation and soils, wildlife habitat and federally listed threatened and endangered species.

Under the socioeconomic environment, we looked at the migratory bird permit program and sport-hunting program. We looked at social values and considerations. We looked at economic considerations, which include property damages and agricultural crop damages, human health and safety issues and program costs.

The environmental consequence section forms the scientific and the analytical basis for a comparison for all of the different alternatives. They analyzed the environmental impacts for each alternative in relation to the resource categories that I just went over. And, again, the no action alternative is the baseline for all the analysis.

Thus, under no action, what we would expect to happen is that goose populations would continue to grow. In the Atlantic Flyway, we would expect the population to approach 1.6 million within ten years. In the Mississippi Flyway, 2 million in ten years; Central Flyway, 1.3 million within ten years; and the Pacific Flyway, 450 thousand in ten years. We would expect continued and expanded goose distribution problems and conflicts. We would expect workloads to increase and there'd be continued impacts for property safety and health by resident geese.

Under our proposed action state empowerment, we expect to see a reduction in populations, especially in specific problem areas. We would expect increased hunting opportunities, a significant reduction in goose conflicts, decreased impacts to property safety and health. While there would be some initial workload increases, we think that long term as the populations decrease, the workloads would also decrease. And lastly, it would maintain viable resident Canada goose populations within the states and within the flyways.

Some of the recent modeling that has been done suggests that in order to reduce the current four flyways population from about 3.5 million, where it is about now, to the flyway's established objectives of

2.1 million, would require, annually, for ten years: the harvest of an additional 480 thousand geese; the take of an additional 852 thousand goslings; the nest removal of 528 thousand nests and/or a combination of an additional harvest of 240 thousand geese; and a take of 320 thousand goslings annually. Each one of these would have to occur each year for ten years.

In conclusion, what we believe is the only way to possibly obtain these kind of numbers is to give states the flexibility to address the problems within their respective state, to address population reductions on a wide number of available fronts. And logically, since the states are the most informed and knowledgeable local authorities on wildlife conflicts in their states, primary responsibilities and decisions of the program should be placed with them.

What comes next? First is the development of a new regulation to carry out the proposed action. This should be forthcoming. Second is the public comment period on the draft environmental impact statement closes May 30th, which Dave already indicated. And third, is the publication of a final EIS, a record of decision and a final rule, which we anticipate for this fall.

Dave already outlined some of the various methods that you can use to comment. These include any comments that you submit tonight, and any subsequent written comments that you may send in. As he indicated, the address is printed on the back of the card that you got when you arrived. And additionally, we have an electronic site set up where you can access not only the draft environment impact statement but the

news release, the federal register notices, and you can submit comments to the site.

And on behalf of the Fish and Wildlife Service, I would like to thank everybody that came tonight and in particular those of you that might provide comments.

MR. CASE: Thanks, Ron. As I mentioned, we're going to go ahead and open it up for public comment. If you could come up to the microphone and state your name and spell your last name for us, where you are from and if you are officially representing an organization let us know that. And, again, I do apologize in advance if I have to ask anybody to hurry along. With that we'll just jump right in, number one?

MS. SMITH: My name is Claudia Smith. I reside at 18311 Possum Point Road, Dumfrees, which is in Prince William County. For nearly fifty years I've lived on White Oak Creek and for many, many years I enjoyed very much looking forward to the fall and seeing the geese come in and watching them during the winter. Now, they're not such a great picture coming in the fall because they've become really problematic for all of us that live there.

I would encourage you to go with alternative F, giving the states the option to do many more things then can be done now because I think the state's hands are tied. And I would hope that this would give the state a little more, by way of being able to rid us of some of these problems.

We have rural safety problems, we've seen school buses that had to stop and children being hurt when they had to, the bus had to stop for

geese. We've seen vehicles hit geese. We've seen them leave a lot of mess every place.

The defecation is unimaginable in areas by the docks and by the shores of the creek. And it's gotten to be more of a problem with each passing year. And in the last four or five years it's gotten to the point of being just unbearable. We'd like to get rid of some of them and hope that the state would allow us to be able to deal a little bit more. So, I would certainly appreciate to go with option F. Thank you.

MR. CASE: Thank you. Number two?

MS. BAGLEY: Good evening ladies and gentlemen. I am Beverly Bagley, the wife of Floyd Bagley who served as a delegate in the House of Delegates for ten years. We have resided in Dumfrees on Possum Point Road for over forty years. During the past few years, we as property owners, and taxpayers, seem to have no rights. We have been faced with the devastating and contaminating problems that officials seem not to be able to fix.

I would like to read a letter I wrote to Nancy Perry, Humane Society of America on March 7, 2000, which will sort of sum up my problem:

Dear Mrs. Perry,

Enclosed is a recent *Freelance Star* article entitled "Geese a Fine Feathered Mess." And number one, "Wildlife Pests in the Old Dominion." This article is most comprehensive and tells it as it is. Whether you believe it or not, it is very well written and very true. We along Possum Point Road have been shad upon for years.

Our docks and sidewalks are covered with goose droppings and our lawns are stripped of grass and covered with droppings.

Recent articles have mentioned that the goose brain is small and limited and geese are not very bright. They will sit on artificial eggs for a long time. Also, chase them out of your yard and they return in five minutes. In one of my many articles and letters you mentioned the beauty of these geese. In my judgement, they are most ugly creatures on earth. You also mentioned the music in their honking. Dear Lord, how can anyone enjoy such racket, you ought to try a bag full for a buck. Many areas are really suffering.

How would you like to engage in the sport on your only day off and then have to slip and slide through goose manure. Think about that. The beaches at Montclair, as well as other beaches, parks, the lakes, the rivers are being contaminated. It also creates other serious health problems, 300,000 in the state of Virginia are very damaging. Many other states have the same problem.

One of my friends reported taking a tour of the Northern Virginia Community College. On their return after walking the campus, all had to stop at the door to flush off their shoes with a water hose. Your decisions and court actions allow these ugly, dirty creatures more rights then we property owners, sick, sick, sick." And that's the end of the letter, "Very Sincerely, Beverly Bagley."

The Migratory Bird Treaty Act of 1918 must be amended or

modified. In 1918 there were no residential geese, only the word migratory is contained in the act. In my interpretation of this act, the residential goose problem absolutely does not apply. In closing, maybe we should corral a few hundred of these contaminating, useless creatures on Nancy Perry's front lawn. Would she still welcome them with open arms while slipping and sliding in their green droppings? Thank you very much you all for listening to my cries for help and relief. Good evening.

MR. CASE: Thank you. Number three, number four, oh I'm sorry. If you don't jump up, I'll just go on to the next number, so, I apologize for that.

MS. BARRETT: My name is Bonnie Barrett and I live in Colonial Heights, Virginia. I don't favor state empowerment. I've seen what often happens when the state gets involved, communities are not interested in being educated. They want the state officials to come in and give them power to kill. The case of Bucky the beaver is a perfect example. The West End Manor Civic Association had them come in, Bucky was gone. I favor non-lethal methods and I sympathize with these people, they have a problem, but I really think that you should try and resolve the issue with non-violence. Animals do have rights too. Thank you.

MR. CASE: Thank you, number four, five, seven, eight?

MR. ELLIS: My name is Robert Ellis, E-l-l-i-s. I'm the Assistant Director of the Wildlife Division. I represent the Virginia

Department of Game and Inland Fisheries. I will read some excerpts from our letter that will be sent in as written comments before May 30th.

"The Department appreciates the opportunity to comment on the draft environmental impact statement. We also agree that there is a need to identify and coordinate the strategies needed to manage resident goose populations. In addition, we believe the administrative process currently associated with permitting management actions is burdensome to the public and state wildlife agencies.

Given the nearly nationwide problem of overabundant resident geese, we believe a nationwide solution where the federal government serves in the lead roles is warranted. As such, we do not concur with the Service that alternative F, state empowerment, should be the preferred alternative. We recognize that alternative G, the general depredation order, with amendments and clarifications I'll outline in a minute, including, in addition of the conservation order, be implemented.

We believe this would be the most efficient, flexible alternative for managing resident Canada goose populations. Alternative G frames the issue on a nationwide scale and transfers authority for action directly to the affected agency or individual. In addition, alternative G still provides for state empowerment, since states can be more restrictive as they so desire and they will still have the option of taking special permit.

We recognize alternative G, as I said, with the following additions and comments. One, the requirement that a non-lethal harassment program certified by USDA Wildlife Services be implemented concurrently with the general depredation order is not acceptable. We're

not aware of any Wildlife Services certification program that is currently in place or how it would be implemented.

Secondly, the general depredation order is limited to the premises where the problem is occurring. We recommend that the scope of the general depredation order be expanded to include a case in properties as long as landowner permission is obtained.

Thirdly, we agree with the Service that expanded hunting opportunities are warranted to help reduce resident goose populations. The regulation changes proposed in alternative G do not go far enough, however. We recommend implementation of a conservation order for Canada geese be included in alternative G. Specifically, a conservation order to allow for the take of Canada geese from August 1 to September 15th with no bag limits, unplugged guns, use of electronic calls and expanded shooting hours.

In addition, we believe that consideration should be given to expanding the conservation order from March 11th to the end of September in areas with operational September seasons on an experimental basis, as long as minimal impacts to minor Canada goose populations can be demonstrated.

September seasons have proven to be very effective for harvesting resident geese and allowing take during March through May. This would allow for effective removal of nesting pairs and some adult flocks that can cause significant problems at that time of the year.

We’re also disappointed that baiting was eliminated from consideration in the draft EIS. We recommended methods of take

allowed under the conservation order to include the ability to hunt resident geese during the August 1 through September 15th period over manipulated agricultural crops as is currently legal for hunting doves.

And finally, we are concerned that reporting requirements under alternative G would either require a permit or be very difficult to enforce. We recommend that there be no reporting requirement for agencies or individuals who take action in accordance with the TTO but require only that records be kept for three years of any action that was taken.

Thank you for you consideration of our comments.

MR. CASE: Thank you, number nine, ten, eleven, twelve?

MR. HADIDIAN: Good evening. I'm John Hadidian, H-a-d-i-d-i-a-n, I'm representing the Humane Society of the United States. I'd like to applaud you for your effort in creating this draft environmental impact statement, something that's long overdue that a comprehensive overview and consideration be given to this issue. Had we done this back in 1985, perhaps it wouldn't, none of the conflict and controversy over this would be evident because goose populations would have been at a level where more of an INS strategies might have affected that.

We have concerns over this document and its proposed alternative, or its preferred alternative as well as the other alternatives that are proposed and we will do some commenting on those in detail which we will send in, submit to you in written form.

For the purposes of this meeting, I would simply wish to draw attention to some basic considerations that we feel are of primary

importance in regard to considering this document. We had submitted scoping comments, during which we had asked Fish and Wildlife Service to consider adding to the list of alternatives or strategies that would be employed a research effort and more information to be collected. We have great concerns over the information that is presented in this document. And I would simply note one example where we think that perhaps some superfluous information has been included which could be a problem for people trying to interpret the meaning of the documentation. And that would be the table that shows whooping crane distribution of sightings from 1943 to 1949. Things like that are perhaps not necessary in order to convey succinctly and clearly the information on resident Canada geese and the significance to the public.

We'd also ask for a bigger effort in public education. We do not see any cause in this documentation for further outreach to the public and further awareness and a greater effort to make the general public more knowledgeable about this issue. We think that it's very, very important and we think it's of critical importance that the public understands the magnitude of the legal controls that are being proposed as well as the demographic segments of the goose populations that are being targeted. We don't think the general public is ready to accept the death of 852,000 or however many goslings per year as a means of relieving the problem. We hope that people have more humane feelings than that.

And finally, we'd ask for, but did not see it in here, a closer look at what are emerging as very vital alternatives strategically. And those are community-based programs in which the communities themselves

undertake the effort that is required to comprehensively manage the Canada goose problems.

Sometimes, and we admit this, those programs will involve lethality, and we see and acknowledge that. We don't agree with it but we understand it because it is being promulgated. We have called in the past for programs where geese are being killed to be followed by concerted efforts to apply non lethal strategies as well as to use our augmenting programs and following of birds as ways to ensure that the future doesn't involve a current and repetitive cycle.

We have not seen this used anywhere in this country and we would hope to do so. The community-based programs, in fact, this is a good audience to be discussing this, have their strongest proponent and their strongest component here, in Virginia, the Northern Virginia based group. Geese Peace, which has a national presence now and is working towards comprehensive, integrated and we believe to be humane approaches and strategies to resolving conflicts between communities and Canada geese.

So those would be our principal concerns here, we thank you for the opportunity to comment and we look forward to far more substantive comments in our written material. Thank you.

MR. CASE: Thank you, number 13? Has everybody who wanted to sign up on the sign-up sheet to receive a copy, had a chance? Okay, if you haven't, raise your hand, I'll make sure you get a copy. Go ahead.

MR. FELD: I'm David Feld and it's F-e-l-d. I am

with Geese Peace and we're in Northern Virginia. A non-profit group interested in building better communities through humane non-lethal approach to solving wildlife problems. I'd like, also, to commend the U.S. Fish and Wildlife Service for taking on this very difficult problem of solving the Canada goose nuisance. And it is a problem in communities. It was a problem in my community several years ago. It's not a problem any more. But, I think that people will find that there are solutions that are community-building solutions as opposed to community-destruction solutions. I think your EIS needs to emphasize more the impact on communities, whether it's a small lake community or a larger community like in Northern Virginia's like we have, of lethal approaches that are done and that cause controversy in those communities. That controversy is debilitating to the community, even if the geese problem appears to be solved for one season, the season comes back and it never goes away.

There are ways to solve the Canada goose problems in communities. We have had several demonstration programs in Northern Virginia. We're doing demonstration programs in Delaware and New York State and in Boston and in North Carolina and all of them have been successful. What we need is an easier way to handle eggs. The permitting process needs to be reduced.

When we first began our program, we made an offer to the U.S. Fish and Wildlife Service to automate the permitting process free. That was turned down because we thought that would simplify the ability for people to get permits for the eggs and then also to report to the communities and also report back to the Division of Wildlife Service.

We think that you need to consider more the effect of molt migration. There have been studies done in New York State and in Michigan that when eggs are destroyed or nests destroyed, through natural oil, and they're done appropriately and with, after two weeks of being in the nest that in fact many of those birds actually go on a molt migration. They leave town, they leave town and into Canada and we need more study, more research on that.

Your EIS needs to also consider, as I said before, the impacts on communities and how that is debilitating to the community's health from a point of leadership and a point of being able to do other types of activities within that community because people stop talking to each other.

The fact that in order to do a round-up in communities is going to have a minimum impact on the numbers of birds that you are saying is a problem in this country. That impact on communities is far greater than any benefit you even think that you're going to get from doing those types of round-ups.

The fact that a round-up has to occur without public information, without people knowing about it, means that there's something happening that, if people did know about it, it would cause a problem in that community. So, we will be presenting other comments to you that will be more specific in terms of detail. But, I want to emphasize that we've got full confidence in our state wildlife agencies, not only in Virginia, but in other states that we've worked with to manage these programs. You should simplify, I emphasize again, the permitting

process and you should consider molt migration and also consider the impact on communities that the lethal solutions have in terms of them being able to contain the controversy that will develop in those communities. Thank you.

MR. CASE: Thank you. Number fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty?

MR. STEVENSON: Thank you for coming to Richmond. I'm Billy Stevenson, I live at 13, 18356 Hewlett Road; Beaverdam, Virginia. And I just would like to suggest that as part of alternative F, your proposed alternative, that you determine the cost of administering the program that you're delegating responsibility to the state and that you'll also provide funding. Thank you.

MR. CASE: Thank you. Twenty-one, twenty-two?

MR. DIONISI: Good evening. My name is Dennis Dionisi, it's D-i-o-n-i-s-i and I'm with a company called EBI Flight Control. And we are a manufacturer of the repellent for Canada geese. It's one of the non-lethal ways that you put together with an integrated program as David Feld has said. It's a whole, integrated approach where you have to do the egg, you have to do habitat modification. There's border collies and use of our product. And I've been out there for like a year and a half and I've seen so many great results when you do an integrated approach of non-lethal methods of controlling Canada geese and it works. So I just wanted to make that statement. Thank you.

MR. CASE: Thank you. Twenty-three, twenty-four?

MR. AMMON: How you doing? My name is Butch

Ammon, last name is A-m-m-o-n. I'm not really prepared, just want to just state my piece. I'm not affiliated, I guess, I'm retired from the Coast Guard, if that matters. But, uh, as far as all the things with the Canadian geese, I just wanted to kind of let it be known that I kind of prefer the option D, with the expanded efforts. Because, not only am I kind of interested with the hunting opportunities, I'm also a sportsman, I'm a golfer. I've come home with goose poop all over my golf shoes and a very angry wife. And I've had to confront geese on a regular basis, on a tee-off box and the goose wouldn't even let me tee-up the ball. I was standing there with a seven iron going "come on" trying to chase the goose off so I could continue my course and to play golf. So the geese are, I mean, you know, yeah, they're wonderful creatures, they're everywhere, they're everywhere. They're all over the golf courses and it's, you know. So I was just sitting there thinking. Well, just this year I got my Virginia hunting license and I'm thinking well, maybe I could try my hand, you know, and very selectively and ethically kind of weed out a certain, you know a certain Canada goose. So, I'm not just, only one, get the whole thing. I would just say I support your option D. Thank you.

MR. CASE: Thank you, twenty-five?

MR. SORENSEN: My name is Dr. Herb Sorenson, S-o-r-e-n-s-e-n and I'm from Midlothian, Virginia. First of all, I'd like to take this opportunity to thank the Service for sending me this draft. It was very well written and I must compliment the authors and the work that went into this. There's very good information there.

My concern with the resident Canada goose, not the migratory

Canada goose, I must say originally I'm from Canada, feel partly to blame for these darn resident Canada geese being here. But, it's a health problem that I'm concerned about. And on your slide there were the human health and safety concerns. In this booklet it describes that a well-fed resident Canada goose defecates every three to four minutes. That's a lot of feces. I've seen it on our lake, when the ice had frozen over and the geese were walking on the ice, there are just piles and piles of feces on the ice, which eventually went into the water. Again, my main concern is the health of the people of this state. Imagine salmonella on an increase of seventeen percent a year on the Canada goose population that we're going to see disease. Abdominal, intestinal problems become predominant in this state. I'm all for the alternative G. Thank you very much for your time.

MR. CASE: Thank you. Twenty-six.

MR. KUBALA: The only written thing I have is number twenty-six. I'm Norm K-u-b-a-l-a. I live in Ashland, Virginia and I'm an everyday goose hunter. I would definitely support your proposed action which I believe was amendment F. The State of Virginia has some excellent managing people, the folks behind me, Gary Constanzo and Bob Ellis are really high-quality, top-notched people. I did pick up the tone when Bob Ellis was up here a few minutes ago. I think reading between the lines kind of indicates that the state has some real financial restrictions and that might be why they appeared not to be advocating the state actions, state control.

As an everyday goose hunter, I hunt with several fellas. We, over

the last several years, have hunted really basically three counties in Virginia. That would be Hanover, Louisa, and Caroline. And as far as being able to control the goose population and resident geese in the area that we've hunt, we have done it. The last year or two, we're not doing hunts, every goose that we harvest is eaten by someone. We make a real effort to make sure that that happens. We have found though that in some of the places that three or four years ago we'd be started off hunting where there were just geese everywhere, very few now. We go in the early part of September, we have a couple of hunts there, and then hunt there later on during that September season and there are just not nearly the geese now that there were a couple of years ago.

One of the things that I'd like to see with the expanded hunting opportunities would be not the season in August, because obviously it's too blasted hot in Virginia in August to really enjoy any kind of goose hunting opportunities. I would like to see it after the season closes, which normally is February 15. Extend it, go beyond that period for the resident geese, I believe after the migratory birds are gone.

Another thing that I would like to see, and this may sound a little ridiculous, but I would come to these meetings for several years and some of the agricultural folks will get up here and they'll say that well, "the geese are just eating all our crops. We've got a tremendous control problem." But when it comes time to try to get permission to hunt these places, it isn't there. My phone number is area code 804-798-7200, and if folks have a problem with Canada geese around and it's legal hunting areas, call me, because we can travel. And, we are responsible, we're not

just a bunch of cowboys that shoot up the air. We just, we enjoy our goose hunting and we'd like to have expanded opportunities. Thank you.

CROWD COMMENT: What's that number again?

MR. KUBALA: 804-798-7200, and again, my name is Norm Kubala. And I hope some fellas coming after me say the same thing, thank you.

MR. CASE: Twenty-seven-

CROWD COMMENT: That was good.

MR. CASE: Twenty-eight.

MR. RAY: Well, I'm not too prepared either. My name is Nelson Ray, 8104 Cove Road; Richmond, Virginia. I've been hunting most of my life, back to the late sixties. I started hunting with Norm Years. I'm also very happy to say that I'm retired but at the same time, I think our Virginia Game Department has done a fantastic job on game control in the State of Virginia. I'd like to see the goose problem put back to the state so they can control it, along with the finances that's required to control it well. I don't think these boys have got enough personnel probably to do what needs to be done, I'm not sure the federal government does. I do know the people that's been up here calling for more studies. I think you can study something to death. I'm in a situation, I have a mother that's in her mid-eighties living down on Lake Gaston. I'm afraid that the geese might even kill her. Yaw'll can laugh if you want to. She gets upset because they come up in the yard, eat the grass, eats the flowers. She goes out there and tries to run them back into the lake, she slips in the goose poop. Now if she breaks a leg, you guys

going to be coming after me because I'm not one that's going to let this happen. And I would very much like to see this put back into the state's hands. They can control the localities, I believe, much better than the federal government can. They know the problem, but they also need finances. There again, my name's not Norm, but I hunt with him, we'll do what we can to help you.

MR. CASE: Thank you, twenty-nine, thirty, thirty-one.

MR. KRAMER: Charles Kramer, with a "K", Colonial Heights. I hope that if this is laid upon the Commonwealth to manage that Mr. Ellis and his associates give some special attention to the River James as it passes through the city. That is a health issue and it might examine the river further west to see if there are any hunting opportunities that might be expanded there.

MR. CASE: Thank you, thirty-one, thirty-two, thirty-three, thirty-four, thirty-five, thirty-six, anyone with a number under 40 that has not had a chance? Okay.

MR. WINSTON: - my name is Calvin Winston from Richmond and I own a piece of property on a lake and the geese have taken it over. They're past a hundred in number and they don't migrate, they just stay there the year around. And what rights do I have to get rid of 'em? And each year there's an increase. Can you give me an answer?

MR. CASE: Well, if we can talk afterwards, we can sure talk about what your options are individually.

MR. WINSTON: Anyway, it's a health problem, there's a

real problem with their droppings. It's a real problem. If you bring a hundred on there or more than a hundred, they leave their droppings so you can't use it. And I'd like to find out from you what rights I have to do something about it.

MR. CASE: Okay, come up afterwards and I can talk to you about that. Thank you.

MR. DURESQI: Jim Duresqi, D-u-r-e-s-q-i. I think the greatest need that we have is more education. We have so many young women, men bring their children to the lake and feed the geese, so the geese keep coming back. The need to be educated like the doctor said, about the health dangers to their children and to all of us from the geese droppings.

MR. CASE: Thank you.

MR. TROUTMAN: Thank you for coming to Richmond. My name is Cliff Troutman, T-r-o-u-t, like the fish, -m-a-n. I've lived at 4900 Riverside Drive for the last thirty-plus years. So, I've had the opportunity to observe first-hand in the immediate vicinities of River Ridge in Richmond and we have, I think, potentially, a health problem. I think we might have one now as well as I, just at wading in the river. Years ago, I used to drink out of it with no ill effects for twenty years, and I don't do that any more. So, I get spots on my body from wading in the river that I didn't used to get twenty plus years ago. And, of course, we don't have the degree of pollution that we've had expressed at Possum Point. But it is a national problem because I've heard some sayings in downtown Detroit, D.C. and St. Louis, Chattanooga, could go

on and on. You guys have a larger picture.

One thing we need to address is the urban areas where we can't go hunting. I know that hunting does a great job and we need to have more of that. But even deer will come into the city when the season opens. Usually they come in one day before the season opens and leave one day after the season closes. So, they learn, whether they're deer or geese, they learn and they learn fast. So we need to have some type of programs to address the urban areas, whether it's addling of the eggs or using nets or what-have-you to collect the geese. Also, for those that are concerned about all those dead geese out there, you have to remember what was presented earlier, we have the Virginia "Venison for the Hungry" deer hunters. As mentioned earlier about the turning over the geese to the people that need food. We have lots of people that need food and that's one use that the geese could be put to. But, most importantly, we have to look at it as a pest problem, like a bunch of cockroaches, use that kind of perspective, then I think we have success. Thank you.

MR. CASE: Thank you. Number forty, forty-one, forty-two?

MR. STEVENSON: I'm Brad Stevenson, I live in Deer End, Virginia. I'd like to say that I'm a geese hunter and I love the sport of hunting. I'd like to first say that all this non-lethal talk that includes oiling and addling of eggs, that's bull-crap to me. I mean you can oil or addle an egg, that's the same as killing a gosling as far as I'm concerned. There's no real difference between breaking an egg and shooting goose, it's dead either way. At least, then one got to live for another couple

months.

As far as legalizing electronic calls and some of these methods. These aren't snow geese, they're not destroying their habitat, just yet, I mean they are problems, but they're not that big of a problem. I don't wish to see the sport of waterfowl hunting or Canada geese hunting, taken to that level where the art of calling is lost for the easy, quick fix, easy electronic call. And, I really would like to see that removed from the possible options. As far as legalizing increased hunting opportunities in general. I'd only wish to see that legalized in the rural areas of Virginia because as the hunter from Ashland said, the place that I hunt, the geese are under control. They're game hunted and they're controlled. The geese that are out of control are the geese living where they can't be hunted or where landowners won't allow them to be hunted. And, by increasing the goose season, that's not going to affect those geese. Those geese go to their areas because they're not hunted and they're going to stay in those areas because they're not hunted. So, I think a separate plan, two separate plans need to be drawn up, for the rural geese and for other geese and they need to be kept separate. If you're going to oil or addle eggs, keep it in the cities, don't bring it out to the country. With that said, also, I'm a very honest waterfowl hunter, my phone number is 804-449-6343.

MR. CASE: Thank you, number forty-three.

UNIDENTIFIED: I just want to say that I don't think the automatic calls should be used yet. I think regular calling should be the way to go. I don't think someone who gets their hunting license should

just come out and set automatic calling and start shooting. I do say that they should make the time to kill the birds a little longer into the evening because birds aren't really flying until the evening anyway, because they're sitting on these reservations or places where they can't be hunted. And they don't start flying until late in the evening. And, like all of the other hunters said, most of the places that we hunt, they're fine. It's just the places that, you know, that you can't get to, or I think some of the farmers should be let known that maybe they should let hunters on their property during that time of year and it'll keep this stuff off. Because a flag just stuck in the field, they're not doing it. And that's pretty much what I have to say. I don't know about - I mean I would like to take it upon myself, but I just think we should just maybe run through season and hunting time during the day because you go out there in the day and four fifty eight you've gotta' pack up. And the birds are still flying. So, if we're worried about the residential birds, we should let us hunt a little longer, maybe until dark, you know, and stuff like that. And also, I do hunting for free, if you want me to hunt on your property.

CROWD COMMENT: Very glad to hear that, can we have your number?

MR. CASE: Thank you, forty-four.

MR. LONG: My name is Shawn Long, it's L-o-n-g. I've lived in Eastern Henrico all my life. Grew up on the James River. Back when we first started out on the river and everything, you didn't see a whole lot of birds. Now it's gotten to the point where if you're taking a boat down the river you gotta slow down, you've gotta' let the geese get

out of your way. I'll go along with what Adam said. I don't believe in using electronic calls because it takes all, you know, everything away from the avid hunter who wants to go out and call. You just get some Joe Blow out here with an electronic call and a twelve gauge or a ten gauge in its hands who's never done it before -- it kind of gets dangerous. You've got a lot of places that the geese retreat to. Places like [?] Island, places like that. I think they ought to have special permits. We can go out and do something with the geese. There's a lot of places down through Varina and Charles City that the geese populations have just exploded in the last few years and we just need to try to do something to get them under control. I don't believe in the addling of the eggs and everything like that. Like he said, a goose egg is still a goose. I'd like to see the expanded seasons. It's kind of like what happened with the snow geese population, how that flared up in no time. And now they still can't get that under control. With the numbers that are on the papers, 227,000-estimated, what's that going to turn into this year once all the goslings are around and they grow up?

I'd just like to see extended seasons and not doing the addling of the eggs. Thank you.

MR. CASE: Thank you, forty-six, forty-seven.

MR. LOHR: I'm Bob Lohr, I live in Midlothian, that's L-o-h-r. I've got a place on Lake Gaston and that is my problem. I have grandchildren and I cannot go out down there this year for the first time in twenty-some years because of the goose droppings. It was just horrendous. It took us two hours each day to shovel it up before we

could let the kids out. So, whatever yaw'll decide, I hope you give these individual homeowners, you know, of property, not just commercial farmers and all an opportunity to take care of this problem.

I think extending the late goose season, residential goose season would help because that's where I intend to take care of them this year. Thank you.

MR. CASE: Thank you, number forty-eight, forty-nine, fifty?

MR. NUCKOLS: I'm Troy Nuckols, N-u-c-k-o-l-s, Richmond, Virginia. I also agree with the gentleman who stood up here about the ethical hunting stuff. I also say that in January or February when all of the geese have gone, we should use electronic calls to try to lure them off the reservations in case you don't want to hunt there and use bait to try to get them off. That way we can try to get them off and we don't have to ask permission. And about getting a Virginia State hunting license, you have to take a class to train yourself before they issue it if you haven't done it before. That said, I've been hunting for years, and my boss can give you a good reference as to how careful I am. My number is 804-740-9661 if anybody wants to.

MR. CASE: Thank you. Fifty-one, fifty-two, fifty-three, fifty-four, fifty-five?

MR. MORTELL: Good evening, I'd like to thank you all for coming to Richmond to give us a chance to say what we need to say. My name is Mike Mortell from Midlothian, Virginia. My comments are twofold. As a resident of the county, I'm concerned with the geese in the

area. I live in the primary water supply for Chesterfield County -- Swift Creek Reservoir, located in-between Brandermill and Woodlake. There's a large population of resident geese that have been residing there for years and they've multiplied over the years to the point where they're almost out of control now. You can't walk anywhere on the public walking trails without stepping in goose droppings. You can't play on the local golf course without having problems with it. And something needs to be looked at as far as the urban areas and need to do something with the geese.

Also, as a hunter, I hunt mainly in the Hopewell, Colonial Heights area on the Appomattox River in close proximity to Fort Lee. I also hunt in Albemarle and Louisa and Chesterfield. The goose numbers that we see on a daily occasion and I hunt three days a week, mostly in the late season, December, January and February, we see between five-hundred to a thousand geese every single day. We don't get a chance to get a shot at 'em due to the restricted hunting times ending a half-hour before sunset. Most of the geese do not fly until after we've had to pack up, pick the decoys up and start heading back in the boat.

I'd also like to see the bag limit increase east of 95. I don't get many chances to go west of 95 where we have very liberal bag limits, four or five geese a day per person. East of 95 limits it to one. There's lots of days when we could harvest many more geese, but my partner and I, most mornings by 7:30, 8:00 we're having to each pack up and go home because we each have our goose limit, and the day's over. So, I'd like to see some liberalization done with that.

I'd also like to go along with this gentleman and stay away from electronic calls. I don't believe that's the way to go. Hunting has a lot to do with tradition and heritage and there is an art to calling and I don't think that electronic calls are the way to go. I think the liberal bag limits and getting more people involved in the sport is the way to deal with this problem.

MR. CASE: Thank you. Is there anyone who has not had a chance to speak this evening that would like to? I think we've gone through all of our numbers. Okay. Oh, no, there's fifty-six.

MS. HAMBRICK: My name is Linda Hambrick and I live at 8765 Riverside Drive on the James River inside the city limits. So, unfortunately, I can't call you. But, it is a very serious problem. Our property goes down to the James River. We'd like to use the front property to entertain, just to go down and watch the river. We like to canoe on the rocks. We used to go sit on the rocks, we can't do that anymore because there's so much defecation all over the rocks in the river, all over our front yard. And when they pull up the grass, they pull it up by the roots, so they kill the grass as well. So, I'd really like for something, quickly, to be done to help us, the urban property owners, so that we can deal with this problem.

MR. CASE: Thank you.

MR. WHITE: My name is Ralph White. I'm the Manager of the James River Park system in natural area along the James River, the seven miles of the fall line. My name is spelled W-h-i-t-e-. My concern is that we develop a strategy that is suitable for an urban

setting. Discharging firearms is not. I'm not opposed to it, it's just not appropriate for the area that I manage. We've begun to try other routes. We have engaged the services of the Department of Agriculture and addle eggs and we got fifty-five nests in one mile from Huguenot Bridge to the Pony Pasture Rapids, excluding the north shore and excluding the eastern tip of Williamson Island. So, we'd estimate somewhere between seventy-five and a hundred nests in one mile and we have seven miles. This is a very large population of geese and this is growing at a very rapid rate. We've tried habitat management to limit the amount of turf and we have begun to apply chemicals. All of this is labor intensive, it's expensive to buy chemicals and it is expensive in staff time as well as it involves a great deal of coordination of volunteer work. I think it's a good thing to do that, I believe in volunteers. But it is clearly a money problem for me as a manager of the park. And, I would like to suggest, although it might not be popular in this community, an urban management strategy that I don't believe was presented in your draft EIS. And that is to harvest the geese using licensed trappers during the summertime. Have them humanely killed and then sold only at the fanciest restaurants in downtown Richmond. This, then, creates a financial incentive. It becomes self-supporting. There need be no tax dollars to pay for trappers and it has a limited season. Obviously, this is only for resident geese and only for those that would be inside the urban area and the trapping would take place only at the crack of dawn when there are very few visitors in the park. And there are many isolated areas, we do this on purpose, there are many isolated areas that are difficult for

the general public to get to where geese do gather.

So, using the power of profits, using the power of capitalization which is what drives us as a community, as a nation, I think that we can affect control within the confines of an urban setting like Richmond. Thank you.

MR. CASE: Thank you. Any other people that did not have a chance to comment that would like to?

MR. LEWIS: My name is Greg Lewis, L-e-w-i-s. I live in Mathews County, it's on the Chesapeake Bay. I do not know the city, I do not come to a city except for meetings like this. I am an avid hunter. I would not come to a city to hunt, to kill birds. I'm sorry that you're slipping on the mess that they're leaving. I do think that you could put a dye or something like that in the waters that these birds are swimming through. Like an orange dye or something like that, if those birds should fly into Matthews County, I will, no doubt, aim for them first. I would be willing to come and mark your birds for you. My phone number is 804-725-7191.

MR. CASE: Thank you. Anybody else?

MR. THORNHILL: No more phone numbers, my name is Vince Thornhill, that's T-h-o-r-n-h-i-l-l. I live at 2701 Thirlough Drive in Richmond and its in Bon Air 23235. I would only like to add support to the, Bob Ellis and these guys on the state side of this thing in terms of the proposal. But, I would also like to see some studies done, particularly for the urban issues where they're dealing with birds in Northern Virginia that we talked about. I think a lot of those things are in ponds and lakes

around the communities surrounded where it's a logistical problem to go in hunting and some of these other issues. I've read up on what they're doing and I understand what they're doing and I can appreciate it because it is a difficult situation. What I would like to see added to the proposal is some kind of moratorium on feeding waterfowl, period. Be it duck, a goose, whatever. Because I do believe that in the winter months when the grasses have gone dormant- And some of these folks that are allowing the grass around the ponds to grow up and become less of a food source, that as the weather gets cold and the birds flock up you will have more movement if you do not have an artificial source of food. Thank you.

MR. CASE: Thank you. Are there any further comments from anybody that has not had a chance to comment? If not, then, on behalf of the U.S. Fish and Wildlife Service, I'd like to thank you for taking the time out of your evening and your concern for wildlife resources and we'll adjourn the meeting.

PROCEEDINGS CONCLUDED

U.S. FISH AND WILDLIFE SERVICE

PUBLIC HEARING TO DISCUSS EIS ON RESIDENT CANADA GOOSE MANAGEMENT

Held At:

Holiday Inn

80 Newtown Road

Danbury, Connecticut

May 21, 2002

7:00 O'CLOCK P.M.

MR. CASE: I think we'll go ahead and get started. Welcome, my name is Dave Case. I'm the facilitator for the meeting tonight. As you all know the purpose of this meeting is to take public comment on the draft environmental impact statement that the U.S. Fish and Wildlife Service has developed in relation to the overabundance of Canada geese.

The process we're going to go through is pretty simple tonight and I'll explain that in just one second. But first I just want to recognize a few people that are here also from the U.S. Fish and Wildlife Service. Ron Kokel is a wildlife biologist and he'll be giving a brief presentation here momentarily. Diane Pence (phonetic) is the Chief of the Division of Migratory Birds in the Hadley Massachusetts regional office of the Fish and Wildlife Service. Mark Gore is a bird biologist, in the Hadley office; and David Demais (phonetic) is

the branch chief for permits in the Hadley office.

The process we're going to follow tonight is very straightforward, and for those of you who may have been at the last meeting, it is very similar. Ron Kokel will give a presentation that summarizes the draft environmental impact statement and what the recommended alternative is. We'll then ask people to come up, and as you came in you received a card, we'll just go by the order of the number of the card, and have you come up front for two reasons; 1.) so everybody can hear you; and second so that we can make sure that we capture the recording for the transcript. There'll be a transcript of this meeting and all the others that will be part of the official record.

If you could state your name, spell your last name for us so we get that correct, where you're from and if you're officially representing an organization what that organization is.

I am going to pass around a

sign-up sheet, if you want to receive a copy of the final environmental impact statement, please sign up on this. If you received a copy before and you signed up then just note that here.

Check one of two things, either yes, I received one before and I want to receive another one; or no, I didn't receive it before. We just want to make sure we don't send you two copies because, as you know, -- if you saw the first one, it's pretty thick.

MR. CASE:

This is the eighth meeting of eleven meetings that we're holding around the country. The other meetings were held in Dallas, Texas; Chicago, Illinois; Waupun, Wisconsin; Franklin, Tennessee; the Minneapolis area of Minnesota; Brookings, South Dakota and last night in Richmond, Virginia. We have three remaining meetings after tonight. There'll be one tomorrow night in North Brunswick, New Jersey, and then in Denver, Colorado next week and,

finally, the last meeting is in Bellevue, Washington, which is a suburb of Seattle.

I'd next like to introduce Ron Kokel. Ron's a wildlife biologist with the U.S. Fish and Wildlife Service and is the primary author of the environmental impact statement, and he'll give us a brief summary of the statement. Ron.

MR. KOKEL: Thank you Dave. Good evening everybody. Again, I am Ron Kokel. I'm with the U.S. Fish and Wildlife Service’s Division of Migratory Bird Management. I'm stationed in Arlington, Virginia. And on behalf of our Director Steve Williams, I'd like to welcome all of you that are here tonight.

If I could get the lights.

As Dave indicated, this is the eighth of eleven public meetings that are being held across the country for the purpose of developing public participation and input into our process of developing an environmental impact statement on resident Canada geese.

The DEIS was developed in full

cooperation with the U.S. Department of Agriculture's Wildlife Services.

First, why are we here? Well, we're here to explain the environmental impact statement, it's proposed action, and to listen to your comments. The Draft Environmental Impact Statement considers a range of management alternatives for addressing expanding populations of resident geese. And, as such, our main purpose is to listen to you and to invite your comments on what our recommended actions are.

First, a brief explanation of the National Environmental Policy Act; or NEPA. NEPA requires completion of an EIS to analyze environmental and socioeconomic impacts that are associated with any Federal significant action.

Second, NEPA also requires public involvement including a scoping period before the draft is issued and a comment period after the draft.

We began this process in August of 1999 when we published a notice that announced our intent to prepare this

EIS. Then in February of 2000 we held nine public scoping meeting across the U.S., designed to seek public input into this process. Scoping ended in March of 2000. One meeting was held here in Danbury.

In response to scoping we received over 3000 comment and over 1250 people attended the nine public meetings.

What did we find out during scoping? During scoping we found that the top issues of concern were several things. One, the property damage of conflicts caused by resident geese. The methods of conflict abatement. Sport hunting opportunities on resident geese. The economic impacts caused by resident geese. Human health and safety concerns, and the impacts to the Canada geese themselves.

NEPA also outlines a specific format for an environmental impact statement. There's a purpose or needs section; an alternative section; an infected environment section and environmental consequences section.

What are we talking about when

we're talking about resident geese? In the EIS we define resident geese as those geese which nest within the lower 48 states in the months of March, April, May or June or reside within the lower 48 states in the months of April, May, June, July or August.

The purpose of the EIS was three-fold. One, was to evaluate alternative strategies to reduce, manage and control resident Canada goose populations in the U.S. Two; to provide a regulatory mechanism that would allow state and local agencies, other Federal agencies and groups or individuals to respond to damage complaints; and third, to guide and direct resident Canada goose population management activities in the U.S.

The need for the EIS was two-fold. First, increasing resident Canada goose populations coupled with growing conflicts, damages and socioeconomic impacts that they cause has resulted in a reexamination of the Service’s resident Canada goose management.

The draft environmental impact statement examines 7 management alternatives.

First alternative, alternative A, is no action. That's the baseline to which everything else is compared. Alternative B, is non lethal control and management which includes only non federally permitted activities. Alternative C, is non lethal control and management which includes some federally permitted activities. Alternative D, expanded hunting methods and opportunities. Alternative E, integrated depredation order management. Alternative F, the proposed action which we term State empowerment. Alternative G, the general depredation order.

Under the first alternative, the no action alternative, no additional regulatory methods or strategies would be authorized. We would continue the use of all special hunting seasons on resident geese. The issuance of depredation permits and the issuance of any special Canada goose permits.

Under the second alternative, the non lethal control and management which includes non federally permitted activity, we would cease all lethal control of resident

Canada geese and their eggs. Only non lethal harassment techniques would be allowed. No permits would be issued and all special hunting seasons would be discontinued.

The third alternative, the non lethal control and management which includes federally permitted activities, would cease all permitted lethal control of resident Canada geese with several exceptions. One, we would also promote non lethal harassment techniques. There would be no depredation or special Canada goose permits issued. Egg addling would be allowed with a Federal permit and special hunting seasons would be continued.

The fourth alternative, expanded hunting methods and opportunities. Under this alternative we would provide new regulatory options to increase the harvest of resident Canada geese. We would authorize additional hunting methods such as electronic calls, unplugged guns, and expanded shooting hours. The seasons could be operational during September 1 to 15. They could be experimental if approved during September 16

to 30 and they would have to be conducted outside of any other open season.

The fifth alternative we termed integrated depredation order management. This alternative actually consists of four different depredation orders. There's an airport depredation order; a nest and egg depredation order; an agricultural depredation order and a public health depredation order. Implementation of each of these orders would be up to the individual state wildlife agency. Special hunting seasons would be continued and the issuance of depredation permits and special Canada goose permits would also be continued.

Under the airport depredation order, we would authorize airports to establish a program which would include indirect and/or direct population control strategies. The intent of this program would be to significantly reduce resident goose populations at airports. Management actions would have to occur on the premises.

The second depredation order, the nest and egg depredation order, would

allow the destruction of resident Canada goose nest and eggs without a Federal permit. The intent of this program would be to stabilize existing resident goose breeding populations.

The agricultural depredation order would authorize land owners, operators and tenants actively engaged in commercial agriculture to conduct indirect and/or direct control strategies on resident geese depredating on agricultural crops. Again, the management actions would have to occur on the premises where the depredation was occurring.

The fourth depredation order, the public heath depredation order, would authorize state, county, municipal or local public health officials to conduct indirect and/or direct population control strategies on geese when recommended by health officials that there is a public health threat. Again, management actions would have to occur on premises.

The sixth alternative is our proposed action, state empowerment. Under

this alternative we would establish a new regulation which would authorize state wildlife agencies or their authorized agents to conduct or allow management activities on resident goose populations. The intent of this alternative would be to allow state wildlife management agencies sufficient flexibility to deal with the problems caused by resident geese within their respective state. Under this alternative we would authorize indirect and/or direct population control strategies such as aggressive harassment techniques, nest and egg destruction, gosling and adult trapping and culling programs; and we would allow implementation of any of the specific depredation orders identified in alternative E.

Additionally, during existing special hunting seasons we would expand the methods of take to increase our harvest, as I explained under alternative D, such as additional hunting methods, electronic calls, unplugged guns, expanded shooting hours, -- these seasons could be operational during

September 1 to 15, again they could be experimental during September 16 to 30 and they would have to be conducted outside of other open seasons.

Additionally, we would establish a conservation order which would provide special expanded hunter harvest opportunities during a portion of the migratory bird treaty closed period, that is August 1 to 31, and a portion of the treaty open period, September 1 to 15. Again, under the conservation order we would authorize additional hunting methods and these seasons would have to be conducted outside of any other open season.

Under the program the Service would annually assess the impact and the effectiveness of the program and there would be a provision for possible suspension of regulations, that is the conservation order and/or the hunting season changes, when the need was no longer present. We would also continue all special and regular hunting seasons. We would continue the issuance of depredation and special Canada goose permits.

The only state requirements under the program would be to annually monitor the spring breeding population of resident geese and annually report take under authorized activities.

The last alternative we termed a general depredation order. Under this alternative we would allow any authorized person to conduct management activities on resident geese that are either posing a threat to health and human safety or causing property damage. This action would be available between April 1 and August 31. It would also provide expanded hunting opportunities as identified under alternative D. We would have continued use of special and regular hunting seasons and the issuance of depredation and special Canada goose permits. Authorization for all management activities under this alternative would come directly from the U.S. Fish and Wildlife Service.

We looked at two things under the affected environment. We looked at the biological environment and the socioeconomic

environment. Under the biological environment we looked at the resident Canada goose populations, water quality in wetlands, vegetation and soils, wildlife habitat and federally listed threatened and endangered species.

Under the socioeconomic environment we looked at the migratory bird program which includes a sport hunting program and a migratory bird permit program, social values and considerations, economic considerations including property damages caused by resident geese, agricultural crop problems, human health and safety issues and the program cost.

The environmental consequences section forms the scientific and the analytic basis for comparison of all the different alternatives. It analyzes the environmental impacts of each alternative in relation to those resource categories that I just went over. And, again, the no action alternative provides a baseline for all the analysis.

Under the no action we expect Canada goose populations to continue the growth

that we are currently experiencing. In the Atlantic Flyway we expect the population to approach 1.6 million within 10 years. In the Mississippi Flyway, 2 million in 10 years. Central Flyway 1.3 million; and the Pacific Flyway 450,000 within 10 years. We would expect that there would be continued and expanded goose distribution problems and conflicts. There would be increased workloads and continued impacts to property safety and health.

Under our proposed action, we expect there to be a reduction in Canada goose populations, especially specific problem areas. We expect increased hunting opportunities; a significant reduction in conflicts; decreased impacts to property safety and health. While there would be some initial workload increases, as the populations decrease we believe that there would be long-term workload decreases, and above all the alternative would maintain viable resident Canada goose populations.

Some of the recent modeling that's been done suggests that in order to

reduce the 4 Flyways' populations from the current level of about 3 and a half million down to the Flyways' goals of 2.1 million would require for 10 years one of these options. Either the harvest of an additional 480,000 geese annually. The take of an additional 852,000 goslings annually. The nest removal of 528,000 nests annually or the combination of an additional harvest of 240,000 geese annually and the take of 320,000 goslings annually. One of these would have to occur each year for 10 years over what is occurring currently.

Thus, we believe the only way to possibly obtain these kind of numbers is to give states the flexibility to address the problems within their respective state. To address population reductions on the widest number of available fronts. Since states are the most informed and knowledgeable local authorities on wildlife conflicts, the primary responsibilities and decisions should be placed with them.

What comes next? First is the development of a new regulation to carry out the proposed action. This should be forthcoming soon. Second, is the public comment period on the draft environmental impact statement, and it ends May 30th; and, third, is publication of a final environmental impact statement. The Service's record of decision and a final rule which we anticipate for this fall.

As I just stated, the public comment period is open until May 30th and I think Dave has already outlined some of the various methods that you can use to submit your comments. These include any oral or written comments that you may submit tonight and any that you may subsequently send in to us. The address is printed on the back of the card that you received when you came here tonight.

Additionally, we've set up an electronic site where you can send e-mail comments and access all of the other pertinent information to the EIS process, including the draft environmental impact

statement. And on behalf of the Service, I'd like to thank all of you for attending the meeting, in particular those who will submit comments tonight.

Thank you.

MR. CASE: Thank you, Ron. As I mentioned that's where we're going to take public comment. When you come up if you could state your name, spell your last name for us, if you represent an organization let us know what that is. Please speak into the microphone so that we could record it properly. There's lots of microphones up there, the one with the little round ball on the end of it is the one to speak into. So with that I'd like to take number 1. If you don't jump up, I'll just go onto the next one. Okay?

A VOICE: (Inaudible).

MR. CASE: This one right here, I'm sorry.

A VOICE: (Inaudible).

MR. CASE: I'm sorry.

A VOICE: That's all right.

MR. HANLEY:

Good evening and thank you. May name is Ray Hanley (phonetic), Chairman of the Citizen's Advisory Council, which is a group of sportsmen’s organizations. We meet on a monthly basis up in Hartford and our task is to advise the Department of Environmental Protection on items that pertain to the sportsmen of Connecticut. It's approximately 24 organizations involved, comprising a little better than 2,000 people.

First of all, I'd like to thank the organization for putting this on today and giving the public an opportunity to address this forum. The fact that you are here points out the fact that we do have a problem with Canadian geese in Connecticut. No big secret. It's been for a while. What we're concerned about is the solution to the problem we have that would be beneficial to most people and certainly to wildlife population.

There was quite a bit of

information given us here this evening. I certainly hope we don't have to take a test on all of that because we wouldn't do too well I'm afraid. But in regard to proposal G, and I haven't quite honestly had a chance to review this with the entire council. I have spoken to some council members but we've just gotten this information last Tuesday evening, so the opportunity to present it to the complete board hasn't been available. But as I say, in speaking with the people that I have been able to deal with, it's been our feeling that proposal G would be most beneficial to the State of Connecticut. The broadening of some of the seasons and so forth are certainly something that we have to consider and welcome. However, I believe a letter has been issued from the DEP to your director in regard to some reclarifications about broadening the interpretations of some of those lines. I know we have those and for the sake of remedy I'm not going to go over each and everyone of those here tonight, but the Council feels that

proposal G would be the best interest on the State of Connecticut at this time, and I thank you for your time.

MR. CASE: Thank you.

All right. Number 2.

MS. FOGLER: My name is Mary Fogler (phonetic) and I'm a private homeowner and we live in Berlin on Silver Lake and I really haven't gotten to review all the different solutions but from listening to what you said today, I'm a little confused about giving all the authority to the State. What would that leave the private homeowner? What would their options be? Would our hands be tied or would we have some options to defend ourselves? And it's just a terrible problem and I realize now how massive it is. I hope that we can have a combined effort with the homeowners and I know that the airports -- I mean there are a lot of different areas that have groups of people concerned. But as a private homeowner I don't know if F would be the answer. I believe that was the one that gave all of the problem over to the state. I'm hoping that

it would -- G, but does that -- private homeowner and everybody else get the help we need because it looks to me like you would need professional help to solve some of these problems. I don't know how to go shake an egg and where we are the geese are on State property which surrounds our home, and at this point I think our hands are kind of tied. We're not hunters and plus,

our problem starts in April and we have geese that surround our home and they're very, very noisy all night long. I mean it's destroying our home environment and all our neighbors are in the same situation. So we're hoping to represent Silver Lake -- tonight, and -- I'm not sure what the solution is, but I hope that we can come up with some combined effort so that we also can take some steps to protect our homes and property.

MR. CASE: Thank you.

If you have some specific questions about what's possible or not possible you can

sure do that after the meeting.

Number 3.

Four.

Five.

MS. HUEBNER: Hi. Thanks. I'm Linda Huebner, H-u-e-b-n-e-r. I'm testifying here tonight on behalf of the -- over 84,000 members of the Humane Society of the United States who live in New England.

First of all, we want to thank you for having this hearing and allowing us to come and testify, and I'll be submitting written testimony as well either tonight or by mail, whichever you prefer.

Overall, we wanted to state that our members and constituents are very concerned about the conflict issues between humans and Canada geese as well. However, they're interested in humane, environmentally sound and lasting solutions such as hazing or egg addling.

We feel that the public expects the U.S. Fish and Wildlife Service to sort of take the lead in advocating responsible approaches to solving problems

and providing the sound base of data from which to make decisions, and we had hoped that the draft environmental impact statement would do that, and we feel that with some work it possibly could. But at this point we feel that it requires some substantial revisions. First of all, the requirements under NEPA -- we feel that it lacks the readability or the accessibility to the lay public that it's supposed to have. Particularly, that it fails to provide sound and understandable data from which people can make decisions and draw conclusions and inferences according to the different programs that are put out there. In particular, it fails to significantly address concerns for the animal welfare and protection communities which we have put out to the agency under other proposals under NEPA as well.

We also wanted to comment that exactly what occurs under the different lethal approaches in particular isn't detailed thoroughly in the current draft environmental impact statement, exclusive of

hunting. But specifically with respect to past programs that involved round up and slaughter operations or round up and gassing operations. The details of those types of things are not laid out in the document as it exists, so we feel that the public has an interest in knowing exactly what sorts of things might happen under each of these proposed plans.

Also, the stuff that you put up here tonight about the different things that would need to happen over a ten-year time period -- the magnitude of this is just unparalleled as far as we're concerned, and it has domestic and international implications that, in our opinion, are not adequately addressed in the current document. And as far as we're concerned there's also nothing to suggest that even if this level of lethal management were carried out, that the conflicts that people are experiencing with geese would necessarily be addressed. That, for example, hunting opportunities would assuage conflicts with geese in say residential areas or business parks, that

sort of thing.

And, finally, the DIS does not adequately describe the costs involved with these programs. What it would cost state agencies to administer these things or in the case of the round up and slaughter operations the economic costs of those as well. I think they seem sort of simpler than they actually are.

And it also fails to identify some other things that have been going on such as programs like Geese Peace where there have been long-term egg addling operations often done with the assistance of volunteers that have been pretty successful. So we feel that in order to meet the intended purpose, the draft environmental impact statement needs to be more detailed so it will openly inform the public about the intended actions and completely discuss those -- both the controversial options that have been put out there and also the humane alternatives.

Thank you.

MR. CASE: Thank you.

MS. HUEBNER: Would you like

written testimony tonight or shall I --

MR. CASE: Yes. Give it to Mr. Kokel.

Thank you.

Number 6.

MR. PANARONI: Steve Panaroni, P-a-n-a-r-o-n-i. I'm just an avid hunter, been hunting for over 30 years and enjoy hunting geese. Thank you guys for doing the study. I think it's real important. From what I've seen, without remembering a lot of it, what this gentleman here had to say I think alternative G, letting the state control it is probably the best thing. But I do have one concern: if we start doing a bunch of this is are you guys going to keep monitoring the situation, or who monitors the population over the 10 years? Will it then revert to the state or will they have some Federal expertise as well?

MR. CASE: Thank you.

Number 7.

Eight.

MR. TORINO: Good evening. My name is Chris Torino, T-o-r-i-n-o, from West

Hartford, Connecticut. I'm here representing myself but I also sit on the same DEP commission that Ray does who spoke first. So I will just echo Ray's thoughts and agreeing with option G and to break away from that for a moment, I am also a hunter. I find it amazing and I'd like to ask some of the biologists what they think: I have to sit in my duck stand in January and watch geese fly from pond to pond to pond and we can't do anything; can't shoot them. Now you just said there's a big problem there. We better get going on it and, you know, when people like myself and this gentleman here who want to shoot these geese and eat them. I mean, I -- I have to say I -- on a rare occasion I agree with the Humane Society, I think when you wrap a bunch of them up and gas them or slaughter them like that that's -- that's ridiculous. I mean it's fair game, I think, when it's one on one. You probably wouldn't agree with me but anyway I think it's fair game one on one and we eat everything that we shoot and what we don't we give to our clubs. So I wondered why, you know, what's the big

deal with that hunting period. I understand the fall -- the migration from Canada, and I'm not a biologist but we're talking January or perhaps even extending it to February, in this particular state above Route 95. You can hunt below Route 95. Well that's great if you can get down there early and you know somebody, but the early September didn't work for me. I got permission from a farmer and it was blue skies everyday because the corn isn't cut and there is no reason for the geese to come there. Why should they when the kids are feeding them in the parks and stuff? And they're a beautiful bird for kids to feed but if you want to solve the problem you have to let the hunter have access to the birds.

Another comment is how did you handle the snow geese? I've had occasion to hunt in Arkansas a couple of times and I'd like to get a piece of the snow geese action out there. Have you given that power back to the states or are you guys still running that program? Because that sounds like something, you know, with the unlimited bag and all that.

And I've been, you know, I've tried hunting in Canada this year and it's just as tough. It depends on how many shots you have. If the geese or the birds aren't there it's a waste of time. We need to get our people in when the birds are there. You know, again, what's the big deal with January? You know, it's after the migration as far as I'm concerned so, you know, make it easier for us to -- to help you folks, and if we can get enough of the management going then we perhaps could put at least a dent in the problem. That's all I have to say.

MR. CASE: Thank you.

Number 9.

MR. BORAWSKI: Good evening. John Borawski, B-o-r-a-w-s-k-i. I'm a member of the Bloomfield, Connecticut Fish and Game Club and a life member of the NRA and NAHC, that's the North American Hunting Club. I'm here to express my opinion that extended open seasons on Connecticut resident geese. To me it's a most cost-effective method to let the sportsmen who generate revenue by purchasing licenses and firearms and ammunition that go

back into the Fish and Wildlife Service through taxes, that's the most cost-effective method. I also agree with this gentleman, number 8, about the Humane Society. Something must die in order for me to eat it, but to gas or trap it's not an appealing method for me.

Thank you.

MR. CASE: Thank you.

Number 10.

MS. ALMY: Hi. I'm Jessica Almy, that's A-l-m-y, and I'm from the Cape Wildlife Center in West Barnstable, Massachusetts. I want to agree with what Linda Huebner had said previously. My major concern about the DEIS is that it fails to outline the specific methods by which lethal control will be performed. However, an equal concern is that the problem isn't well defined in the document. The problem is truly the human/goose conflicts or the cultural carrying capacity and not the overpopulation of geese which is the biological or the ecological carry capacity. Even if killing Canada geese would reduce

populations such an effective program would fail to address the actual problem. We know that when communities deal with deer-vehicle collisions, effective programs integrate changes in speed limits, driver education programs and other sociological factors, not simply biological controls. Likewise, to address our Canada goose problem we must undertake a broader approach than any of the alternatives outlined in the DEIS.

Thank you.

MR. CASE: Thank you.

Number 11.

MR. SAMOR: Good evening. My name is Alexander Samor, S-a-m-o-r. I live in Southport, Connecticut. I'm speaking on behalf of the Connecticut (inaudible) Association. It's clear that the population of Canada geese has grown in the State of Connecticut to a point where these magnificent birds have become nuisance and the problem needs to be addressed as quickly as possible. These birds have made a mess of our parks and our golf courses and our beaches and our waterways and we're in favor

of giving the State agency as much leeway as possible to manage the population. It's clear that the population needs to be reduced to a point where it's in concert with the environment and right now it's out of control. It needs to be brought back into concert with the environment. So we're in favor of whether it be Alternative F or G the broadest possible leeway to the professionals. This is a biological problem. The biologists ought to be empowered and the state regulators ought to be empowered to do what they deem appropriate to control the situation and we're confident that the people here will do an adequate job to accomplish the goal.

Thank you.

MR. CASE: Thank you.

Is there anyone here this evening that has not had a chance to speak that would like to?

Okay. If not, then I'd like to thank you for taking the time out of your schedules to be here this evening. And thank you for your concern for geese and for

wildlife. If you have additional questions for any of the folks up here, please feel free to come up and talk. And, again, thanks for attending.

(Whereupon, the above proceedings were adjourned at 7:45 o'clock p.m.)

CERTIFICATE

I hereby certify that the foregoing 36 pages are a transcription of an audiotape sound recording taken of the Public Hearing in the matter of: U.S. FISH AND WILDLIFE SERVICE, TO DISCUSS DRAFT EIS ON RESIDENT CANADA GOOSE MANAGEMENT, at the Holiday Inn, 80 Newtown Road, Danbury, Connecticut, on May 21, 2001.

I further certify that inaudible portions of the sound recording were indicated as "inaudible" in the transcript.

I further certify that the transcript was prepared by employees of the word processing department of The Cunningham Group, Inc., under my direction.

Margherita R. Cunningham
Registered Professional Reporter
Licensed Shorthand Reporter
(License No. 00165)

U.S. FISH & WILDLIFE SERVICE

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RE: PUBLIC MEETING

RESIDENT CANADA GOOSE MANAGEMENT

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6:30 p.m.
Wednesday, May 22, 2002

Ramada Inn & Conference Center
999 U.S. Route 1, South
North Brunswick, New Jersey

B E F O R E:

DAVID J. CASE, Case & Associates

RON W. KOKEL, Wildlife Biologist

MR. CASE: I think we'll go ahead and get started.

My name is Dave Case. I'm the facilitator for tonight's meeting. I would like to welcome you and thank you for taking the time out of your schedule to be here.

The process we'll follow tonight is similar to the last meeting we had two years ago in Parsippany.

First I'd like to introduce a few people.

From the New Jersey Division of Fish and Wildlife, Paul Casselli, the supervising Wildlife Biologist for the Department; Ted Nichols, Wildlife Biologist; Larry Hardy, the Division of Wildlife Management; and Brian Swift from the New York Department of Conservation.

There is also a number of other state biologists. They are in town for a meeting dealing with the Canada goose issue. A number of them are sitting up front. If you happen to be from

Pennsylvania, Rhode Island, or Delaware, come up front and talk to a representative. George Hass is the migratory bird coordinator in the Massachusetts regional office and handles permits.

We'll have some time after the meeting, if you have specific questions, come up and talk with these folks.

The purpose of this meeting is to get your comments on the draft Environmental Impact Statement that the U.S. Fish & Wildlife Service has prepared on resident Canada geese.

Ron Kokel will give a presentation, an overview of the EIS and the proposed alternative by the Fish & Wildlife Service.

As you came in, you received a card with a number on it. We'll ask people to come up one at a time. I'll call your number and go to the next number if you don't jump up right away. State your name and spell your last name to make sure we get it correctly. Albert is the court reporter

and he's capturing everything that is said tonight as part of the public record.

If you represent an organization officially, let us know that and where you are from. Please remember to spell your last name. The process again is to get your comments. I apologize in advance, there are a lot of people here tonight. We expect more to come in to speak. If anyone goes too long, I'll ask you to hurry along so everyone can speak tonight.

I'll pass around sign-up sheets. If you want to receive a copy of the final impact statement, please sign-up. If you received a copy of the first one, that means you are on our list already and note that, but sign-up again. We want to make sure we don't send you two copies, they are pretty thick. If you haven't received a copy, but want to receive a copy, just check that box as well. We want to make sure that everyone that signs up gets a copy.

Again, I’ll start by introducing Ron Kokel, Waterfowl Biologist with the U.S.

Fish and Wildlife Service. He'll start with the presentation. Ron.

ROB KOKEL: Good evening everybody. I am Rob Kokel. I'm with the U.S. Fish and Wildlife Service's Division of Migratory bird Management. I'm stationed in Arlington, Virginia. And on behalf of our Director Steve Williams, I'd like to welcome all of you that are here tonight.

This is the ninth of eleven public meetings that are being held across the country for the purpose of developing public participation and input into our process of developing an environmental impact statement on resident Canada geese. The DEIS was developed in full cooperation with the U.S. Department of Agriculture's Wildlife Services.

First, why are we here? Well, we're here to explain the environmental impact statement, it's proposed action, and to listen to your comments. The Draft Environmental Statement considers a range

of management alternatives for addressing expanding populations of resident geese. And, as such, our main purpose is to listen to you and to invite your comments on what our recommended actions are.

First, a brief explanation of the National Environmental Policy Act; or NEPA. NEPA requires completion of an EIS to analyze environmental and socioeconomic impacts that are associated with any Federal significant action.

Second, NEPA also requires public involvement including a scoping period before the draft is issued and a comment period after the draft.

We began this process in August of 1999 when we published a notice that announced our intent to prepare this EIS. Then, in February of 2000 we held nine public meetings across the U.S., in response to scoping designed to seek public input into this process. Scoping ended in March of 2000. One meeting was held in Parsippany.

In response to scoping, we received

over 3000 comments and over 1250 people attended the nine public meetings.

What did we find out during scoping? During scoping we found that the top issues of concern included several things: the property damage of conflicts caused by resident geese; the methods of conflict abatement; sport hunting opportunities on resident geese; the economic impacts caused by resident geese; human health and safety concerns; and the impacts to the Canada geese themselves.

NEPA also outlines a specific format for an environmental impact statement. There's a purpose or needs section; an alternative section; an infected environment section and environmental consequence section.

What are we talking about when we're talking about resident geese? In the EIS we define resident geese as those geese which nest within the lower 48 states in the months of March, April, May or June or reside within the lower 48 states in the

months of April, May, June or August.

The purpose of the EIS was three-fold. One, to evaluate alternative strategies to reduce, manage and control resident Canada goose population in the U.S.; second, to provide a regulatory mechanism that would allow state and local agencies, other Federal agencies and groups or individuals to respond to damage complaints; and third, to guide and direct resident Canada goose population management activities in the U.S.

The need for the EIS was two-fold. First, increasing resident Canada goose populations coupled with growing conflicts, damages and socioeconomic impacts that they cause has resulted in a reexamination of the Service's resident Canada goose management.

The draft environmental impact statement examines seven management alternatives. First alternative, alternative A, is no action. That's the baseline to which everything else is compared. Alternative B, is non lethal

control and management which includes only non federally permitted activities. Alternative C, is non lethal control and management which includes some federally permitted activities. Alternative D, expanded hunting methods and opportunities. Alternative E, integrated depredation order management. Alternative F, the proposed action which we term State empowerment. Alternative G, the general depredation order.

Under the first alternative, the no action alternative, no additional regulatory methods or strategies would be authorized. We would continue the use of all hunting seasons on resident geese. The issuance of depredation permits and the issuance of any special Canada goose permits.

Under the second alternative, the non lethal control and management which includes non federally permitted activity, we would cease all lethal control of resident Canada geese and their eggs. Only non lethal harassment techniques would be

allowed. No permits would be issued and all special hunting seasons would be discontinued.

The third alternative, the non lethal control and management which includes federally permitted activities, would cease all permitted lethal control of resident Canada geese with several exceptions. One, we would also promote non lethal harassment techniques. There would be no depredation of special Canada goose permits issued. Egg addling would be allowed with a Federal permit and special hunting seasons would be continued.

The fourth alternative, expanded hunting methods and opportunities. Under this alternative we would provide new regulatory options to increase the harvest of resident Canada geese. We would authorize additional hunting methods such as electronic calls, unplugged guns, and expanded shooting hours. The seasons could be operational during September 1 to 15. They could be experimental if approved during September 16 to 30 and they would

have to be conducted outside of any other open season.

The fifth alternative we termed integrated depredation order management. This alternative actually consists of four different depredation orders. There's an airport depredation order; a nest and egg depredation order; an agricultural depredation order and a public health depredation order. Implementation of each of these orders would be up to the individual state wildlife agency. Special hunting seasons would be continued and the issuance of depredation permits and special Canada goose permits would also be continued.

Under the airport depredation order, we would authorize airports to establish a program which would include indirect and/or direct population control strategies. The intent of this program would be to significantly reduce resident goose populations at airports. Management actions would have to occur on the premises.

The second depredation order, the nest and egg depredation order, would allow the destruction of resident Canada goose nest and eggs without a Federal permit. The intent of this program would be to stabilize existing resident goose breeding populations.

The agricultural depredation order would authorize land owners, operators and tenants actively engaged in commercial agriculture to conduct indirect and/or direct control strategies on resident geese depredating on agricultural crops. Again, the management actions would have to occur on the premises where the depredation was occurring.

The fourth depredation order, the public health depredation order, would authorize state, county, municipal or local public health officials to conduct indirect and/or direct population control strategies on geese when recommended by health officials that there is a public health threat. Again, management actions would have to occur on premises.

The sixth alternative is our proposed action, state empowerment. Under this alternative we would establish a new regulation which would authorize state wildlife agencies or their authorized agents to conduct or allow management activities on resident goose populations. The intent of this alternative would be to allow state wildlife management agencies sufficient flexibility to deal with the problem caused by resident geese within their respective state. Under this alternative we would authorize indirect and/or direct population control strategies such as aggressive harassment techniques, nest and egg destruction, gosling and adult trapping and culling programs; and we would allow implementation of any of the specific depredation orders identified in alternative E.

Additionally, during existing special hunting seasons we would expand the methods of take to increase our harvest, as I explained under alternative D, such as additional hunting methods, electronic

calls, unplugged guns, expanded shooting hours, -- these seasons could be operational during September 1 to 15, again they could be experimental during September 16 to 30 and they would have to be conducted outside of other open seasons.

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Under the program the Service would annually assess the impact and the effectiveness of the program and there would be a provision for possible suspension of regulations, that is the conservation order and/or the hunting season changes, when the need was no longer present. We would also continue all

special and regular hunting seasons. We would continue the issuance of depredation and special Canada goose permits. The only state requirements under the program would be to annually monitor the spring breeding population of resident geese and annually report take under authorized activities.

The last alternative we termed a general depredation order. Under this alternative we would allow any authorized person to conduct management activities on resident geese that are either posing a threat to health and human safety or causing property damage. This action would be available between April 1 and August 31. It would also provide expanded hunting opportunities as identified under alternative D. We would have continued use of special and regular hunting seasons and the issuance of depredation and special Canada goose permits. Authorization for all management activities under this alternative would come directly from the U.S. Fish and Wildlife Service.

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affected environment. We looked at the biological environment and the socioeconomic environment. Under the biological environment we looked at the resident Canada goose populations, water quality in wetlands, vegetation and soils, wildlife habitat and federally listed threatened and endangered species.

Under the socioeconomic environment we looked at the migratory bird program which includes a sport hunting program and a migratory bird permit program, social values and considerations economic considerations including property damages caused by resident geese, agricultural crop problems, human health and safety issues and the program cost.

The environmental consequences section forms the scientific and the analytic basis for comparison of all the different alternatives. It analyzes the environmental impacts of each alternative in relation to those resource categories that I just went over. And, again, the no action alternative provides a baseline for

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Under our proposed action, we expect there to be a reduction in Canada goose populations, especially specific problem areas. We expect increased hunting opportunities; a significant reduction in conflicts; decreased impacts to property safety and health. While there would be some initial workload increases, as the populations decrease we believe that there would be long-term workload decreases, and above all the alternative would maintain viable resident Canada goose populations.

Some of the recent modeling that's

been done suggests that in order to reduce the four Flyways' populations from the current level of about three and a half million down to the Flyways' goals of 2.1 million would require for ten years one of these options: Either the harvest of an additional 480,000 geese; the take of an additional 852,000 goslings annually; the nest removal of 528,000 nests annually or the combination of an additional harvest of 240,000 geese annually and the take of 320,000 goslings annually. One of these would have to occur each year for ten years over what is occurring currently.

Thus, we believe the only way to possibly obtain these kind of numbers is to give states the flexibility to address the problems within their respective state. To address population reductions on the widest number of available fronts. Since states are the most informed and knowledgeable local authorities on wildlife conflicts, the primary responsibilities and decisions should be placed with them.

What comes next? First is the

development of a new regulation to carry out the proposed action. This should be forthcoming soon. Second, is the public comment period on the draft environmental impact statement, and it ends May 30th; and, third is publication of a final environmental impact statement. The Service's record of decision and a final rule which we anticipate for this fall.

As I just stated, the public comment period is open until May 30th and I think Dave has already outlined some of the various methods that you can use to submit your comments. These include any oral or written comments that you may submit tonight and any that you may subsequently send in to us. The address is printed on the back of the card that you received when you came here tonight.

Additionally, we've set up an electronic site where you can send e-mail comments and access all of the other pertinent information to the EIS process, including the draft environmental impact statement. And on behalf of the Service,

I'd like to thank all of you for attending the meeting, in particular those who will submit comments tonight.

Thank you.

MR. CASE: Thank you, Ron. Again, the process we will follow this evening.

If you'd like to give comments tonight, we welcome that. If not, there is an e-mail address on the back of your card. We handed out cards as you came in and will call you in the order you came in. If you don't jump up, I'll go to the next number. We ask that you come up to the microphone so everyone can hear and our court reporter, Albert, will be able to see you. State your name and spell your last name for us. If you represent an organization officially here tonight, what that organization is and where you are from.

Again, there are some handouts on the clipboard out there. If you want a copy of the Environmental Impact Statement, please fill that out.

I apologize in advance. There are over

80 people here tonight. Although it's a big room, there are quite a few of us. I apologize to everybody in advance, if you go a little too long, I'll ask you to hurry along. I would like to get started.

Number one. Number two. Three.

TED NICHOLS: Thank you for the opportunity to comment on the draft environmental impact Statement regarding resident Canada goose management. Although resident Canada geese are a valuable natural resource, the New Jersey Division of Fish and Wildlife, hereafter referred to as Division, concurs with the U.S. Fish and Wildlife Service, hereafter referred to as Service, position that there is a need for action given the multitude of problems incurred by overabundant resident Canada geese.

Given the nationwide problem of overabundant resident geese, we believe a nationwide solution, where the federal government (for example, the Service) serves in the lead role, is warranted. As

such we do not concur with the Service that Alternative F, "state empowerment", should be the preferred alternative.

Based on the language in Alternative F, state empowerment, our agency would likely need to issue state permits to document the taking of geese. This alternative does not relieve the affected landowner of an already burdensome permit process. This alternative also transfers the one million-dollar cost of administering the permit program for managing this federal species, to the states without compensation. The Division believes the entire burdensome permit procedure, designed to protect against excessive take of a species, is unnecessary for resident Canada geese at this time. The resident goose population is twice the New Jersey and Atlantic Flyway population goals, indicating the need for population reduction, not protection. Given Alternative F in New Jersey with no additional funding, the Division would be forced to spread its already thin Wildlife Control Unit resources among conflicts involving black bears,

white-tailed deer, beaver, as well as other wildlife species, and now resident Canada geese.

We believe that the authority to act on problems associated with resident geese should be conveyed directly to the affected landowner through a federal, general depredation order. As such, the Division supports implementation of Alternative G, the general depredation order, with several amendments and clarifications. We believe this alternative, with our proposed amendments, provides the most flexibility to agencies and property owners to deal with goose and human conflicts. Alternative G frames the issue on a nationwide scale and transfers authority for action directly to the affected agency or individual.

New Jersey and other Atlantic Flyway states have repeatedly expressed the desire for a general depredation order that allows for nest and egg destruction and treatment as well as the taking of geese, subject to state guidelines, when geese are depredating

agricultural crops, creating threats to human health safety, damaging public or private property or creating a nuisance situation. Therefore, we recommend implementation of Alternative G with the following amendments and clarifications:

1. We recommend that the definition of an "authorized person" under the general depredation order be broadly defined to include virtually any property owner or manager that may be adversely affected by resident geese.
2. We would urge that damage, as defined under the general depredation order, be broadly interpreted. Grazing damage to vegetation as well as fecal deposition on lawns, walkways, docks etc., that diminishes aesthetics or conflicts with desired human uses should be included under the definition. This broad definition would address problems occurring from property damage and nuisance situations caused by geese.
3. The requirement that a non lethal harassment program certified by

USDA-Wildlife Services be implemented concurrently with the general depredation order is not acceptable. We are not aware of any wildlife services certification program that is currently in place, or how it would be implemented. Furthermore, non lethal approaches are often too costly and ineffective to be a reasonable requirement before other actions can be taken. Non lethal approaches also do little to address the underlying problem of overabundant geese. We believe that most people will choose non lethal measures whenever they are practical and effective, and we would continue to advise landowners to implement a combination of lethal and non lethal measures in accordance with integrated pest management principles.

4. As written, the general depredation order is limited to the premises where the problem is occurring. Geese associated with damage or other human related conflicts often occur on

adjacent properties. For example, geese may fly though airport air space yet nest or congregate on an adjacent property off-site. Therefore, the scope of the general depredation order should be expanded to include adjacent properties as long as landowner permission is obtained.

5. Although we agree with the Service that expanded hunting opportunities are warranted to help reduce resident goose populations, the regulation changes proposed in Alternative G do not go far enough. Rather we recommend implementation of a conservation order for Canada geese be included in Alternative G. Specifically, the conservation order should allow for the take of Canada geese from August 1 to September 15, with no bag limits, unplugged shotguns, use of electronic calls and expanded shooting hours.

6. While Alternative G has an array of management actions needed to control resident Canada geese, we are concerned

that the reporting requirements may pose an unnecessary and undue administrative burden on both state agencies and the public.

In New Jersey, appropriate surveys and monitoring programs are in place to ensure that the resident Canada goose population will not be reduced below desired population objectives through implementation of a general depredation order and conservation order.

Thank you for your consideration of our agency's comments.

In closing, the Division wishes to thank the U.S. Fish and Wildlife Service for preparing the draft EIS. If the Division can assist in any way in preparing the final EIS, please do not hesitate to contact us. Continued cooperation among affected partners is needed to resolve this difficult problem of critical importance to New Jersey and other U.S. citizens.

Thank you.

MR. CASE: Number four.

SCOTT ELLIS: The New Jersey Fish and Game Council, hereafter referred to as Council, is by legislation, responsible for adopting and amending regulations governing the taking of wildlife which are legally classified as game birds, game mammals, furbearers or freshwater fish. The Fish and Game Council is one of six councils or committees created by legislation to work closely with the Department of Environmental Protection, Division of Fish and Wildlife, hereafter referred to as Division.

The Council consists of 11 members who are appointed by the Governor. Three members represent the agricultural community and are nominated through the State Agricultural Convention, six sportsmen representatives are nominated by the New Jersey State Federation of Sportsmen's Clubs. In addition, the chairperson of the New Jersey Endangered and Non-game Species Advisory Committee as well as one public member knowledgeable in land use management selected by the Governor serve on the Council. Council members function as unpaid volunteers

who act in the best interest of the state's fish and wildlife resources on behalf of the public.

The Council, in concert with the Division and the U.S. Fish and Wildlife Service regulate the taking of both resident and migratory Canada geese in New Jersey.

Thank you for the opportunity to comment on the draft environmental impact statement regarding resident Canada goose management. Although resident Canada geese are a valuable natural resource, the Council agrees that there is a need for action given the multitude of problems incurred by overabundant resident Canada geese in New Jersey.

The Council concurs with the position of the Division regarding the preferred alternative in the draft EIS. Specifically, given the nationwide problem of overabundant resident geese, we believe a nationwide solution, where the federal government (for example, the Service) serves in the lead role, is warranted. As such, we do not concur with the Service that Alternative F,

"state empowerment", should be the preferred alternative.

The Council is concerned that Alternative F would require the Division to issue state permits to document all taking of geese. This alternative does not relieve the affected landowner of an already burdensome permit process. Rather this alternative transfers the cost of administering the permit program for managing this federal species, to the states without compensation. The Council believes the entire burdensome permit procedure, designed to protect against excessive take of a species, is unnecessary for resident Canada geese at this time. The Council believes that that administration of Alternative F by the Division is impossible considering their budget, their personnel and the need to concentrate their wildlife control efforts on non migratory species such as bears, deer and beaver.

We believe that the authority to act on problems associated with resident geese should be conveyed directly to the affected

landowner though a federal, general depredation order. Therefore, the Council supports implementation of Alternative G, the general depredation order, with the several amendments and clarifications, as outlined by the Division's comments. We believe this alternative provides the most flexibility to New Jersey agencies and property owners dealing with goose problems. In New Jersey, appropriate surveys and monitoring programs are in place to ensure that the resident Canada goose population will not be reduced below desired population objectives through implementation of a general depredation order and conservation order.

Thank you for your consideration of the New Jersey Fish and Game Council's comments.

In closing, the Council wishes to thank the U.S. Fish and Wildlife Service for preparing the draft EIS. If the Council of Division can assist in any way in preparing the final EIS, please do not hesitate to contact us. Continued cooperation among affected partners is needed to resolve this difficult problem of critical importance to

New Jersey's citizens.

Thank you.

MR. CASE: Number five. Six.

BARI FEINSTEIN: I'm a voter and taxpayer from Bergen County, New Jersey and I'm speaking on behalf of many other citizens, who could not be here today, but have signed my petition opposing Alternative F. I am also speaking as a representative of the New Jersey Chapter of the Coalition to Prevent the Destruction of Canada Geese. This is our position:

The draft EIS shows that our views, and those of a majority of scoping session comment writers, were acknowledged but dismissed because they disagreed with the U.S. Fish and Wildlife Service's premeditated goal of turning over it’s congressionally-appointed responsibility for Canada geese to state wildlife agencies.

In the DEIS, the U.S. Fish and Wildlife Service admits to having priority to the

opinions of state wildlife agencies, flyway councils and wildlife services. These agencies do not represent the public. They represent themselves. Their opinions reflect a vested economic interest in any policy that liberalizes killing wildlife. Catering to agency greed is an intolerable approach to policy making.

The DEIS blindly asserts that population reduction should be the basis for the preferred management program. It is remarkable that the closest thing to an explanation given for choosing this "approach" is the statement that the Service "believes" it might mitigate goose problems. This is an inadequate justification for such drastic policy making. Indeed, Alternative F is so poorly defined in the DEIS that the statements made about its allegedly intended impact, whether in absolute terms or relative to other options, are meaningless. Only one thing is certain: many geese will be killed. I must ask, if the geese are slaughtered what animal could be the next victim? What are we teaching our children -

that problems can only be solved by bloodshed instead of teaching them compassion and respect for all living things?

Population reduction means killing. Killing not only affords gratuitous economic opportunities for state wildlife agencies (revenues from expanded hunting) and wildlife services (extermination programs), but it also gives the Service an excuse to completely disregard non-lethal management options in its policy making. Non-lethal goose management was inaccurately portrayed in the DEIS as being of questionable utility while population reduction was portrayed as being of obvious utility. In reality, the reverse is true. There is concrete precedent for the effectiveness of non-lethal Canada goose management in eliminating the impact of geese. The same cannot be said about killing programs -- but not for a lack of trying.

Population data are presented in an attempt to support the population reduction

plan concept. However, these data are incomplete, contradictory, and of inconsistent quality. Goose population trend assertions are highly speculative, and in some cases plain wrong.

According to the Service's own reports, the Atlantic Flyway population of "resident" Canada geese has hardly changed in four years. Is that what the Service considers an exploding population? Similarly, public health concerns are still cited, even though study after study confirms that geese are an insignificant public health issue. Some of these studies were even funded by the Service for the purpose of finding something from which an imaginary goose emergency could be fabricated. The Service continues its attempt to justify new regulations by relying on second-hand information and damage claims that have neither been confirmed nor evaluated based on any set of established standards. Most of the supporting data in the DEIS come from the special interest groups who will gain the most economically from the proposed

alternative.

If the extermination plan, which is violent and cynical, is implemented it will have a negative impact on society. It will be wildlife management at its worst. Hunting will be allowed in parks and neighborhoods in the summer when people are hiking, picnicking, camping, etc. Adult geese and goslings will be killed on a large scale. More geese will be forced into areas where they are unwanted (private property, etc.) and people will be given false hope that killing will resolve goose conflicts. Bottom line is - there will be a blood bath, a completely unjustified and needless slaughter on a scale that's completely unethical. But even if you don't care about the inhumane aspect, round-ups don't solve the human-goose conflicts.

If the geese are in an area where they are unwanted, the available humane methods should be used to move them. Killing geese to rid the property of them is not only cruel, but counterproductive, because a new flock will move right in to fill the void.

There are clear and simple means of redistricting the population of geese, as simple as ReJex-It and other turf grass repellents that will deter the geese from an area. In addition, there are other humane methods that can be used as alternatives such as: barriers; habitat modification, clean-up projects and use of border collies. By implementing programs to discourage wildlife from areas where they are not wanted, we can effectively solve wildlife problems without resorting to lethal control measures.

Finally, we resent the fact that state wildlife agencies played a significant role in boosting the population of resident Canada geese from the 1960s onward, and in some cases, still do (DEIS, II-18). References provided in the DEIS show that these agencies predicted in the 1980s that goose conflicts would increase due to their propagation efforts. Yet the Service allows these practices to continue.

The state empowerment alternative would reward those (state wildlife agencies)

who caused whatever problems that exist with increased hunting revenues and Pittman-Robertson money. The resident goose controversy is clearly the willfully manufactured product of state wildlife agencies whose goal was to eventually demand complete life of death control of a migratory bird species. To adopt Alternative F would be to surrender to the demands of special interest groups.

In conclusion, it seems inherently unfair and cruel to kill animals when there are humane alternatives. Add the risks of hunting and extermination in public parks and neighborhoods and the threat it poses to the people who use and enjoy those areas and the ridiculous nature of the extermination becomes even more clearly ludicrous. There is also a Migratory Bird Treaty (1916), which would clearly be violated. Therefore we are asking that you adopt Alternative A, no action or a non-lethal management alternative. This would allow Canada goose conflicts to be evaluated on a case-by-case basis, and the U.S. Fish and Wildlife

Service's important role in overseeing control of these birds would be retained.

On a personal note - I am sympathetic to some people's complaints about Canada geese; however, we need to work together to come up with a solution that is morally and ethically sound. As Americans, we must continue to live up to our country's standard of ethics by implementing strategies that are humane. We can coexist with the geese.

Thank you for your time!

MR. CASE: Number seven.

MR. BAILEY: Ron Bailey from Ocean County and live right in the center of the Atlantic Flyway. I have a few brain storming ideas I would like to pass on.

I looked at all the proposals of the Division of Fish and Wildlife, the Department of the Interior had proposed. None are acceptable to me. Maybe the right one hasn't been shown, but I know from the past that brain storming in any type of operation, whether it be business or environment, it has to be done.

There are ways. I have several of my own ways that I have discussed with people from the Department of Interior before I started. I thought I could get one of these proposals as me, Ron Bailey, who is a duck and goose hunter. I'll be 70 years old in a couple of months.

What can we do? I say let's continue business as usual. Let's try to use brain storming.

I want to tell you a little bit of my qualifications. It's not egotism. I'm from the Dupont, I guess it's scientific community. I'm retired right now. I work for National Cancer Institute and what we do, we're trying to prevent the cancers before they start. My chore was chlorine. Why can't we do that with these Canadian geese?

I've been working since 1996 with Steve Aifr and different people from the refuge and didn't get any place. There are too many complications. John Does never come in, the regular hunter, there are no bridges they have established.

None of these proposals -- I'm not speaking for anyone, I'm speaking for myself -- again I think we have a long way to go before we propose another EIS. That's all I have. Thank you.

MR. CASE: Eight, nine, 10.

MR. CORNEY: John Corney. I'm representing myself, but I am also a trustee of New Jersey Waterfowlers Association.

Bottom line, I'm in favor of Alternate F with major modifications. Number one, it identifies the starting date to be September. That very easily could be pushed earlier to August.

I'm also in favor of the implementation of the U.S. Federal Wildlife Services immediately issuing a conservation order for RB geese nationwide. For the specific flyways, the Central Flyway, even though the statistical data doesn't show, there is really a major issue in the Central Flyway, for the Mississippi Flyway and also for the Atlantic Flyway.

As modification to Alternate F, I would like to recommend that within each one of

the respective Flyways, there are existing technical committees on which there are resident biologists where their background and knowledge is Canada geese. That the Atlantic Flyway, Mississippi Flyway in conjunction with the International Federation and a representative of the U.S. Federal Wildlife Service immediately initiate a combined study group. Bottom line is, just like we study the hell out of the white geese, we're going to do the same thing with the RB geese and we all know this has been a long-term management and sociological issue. Some people say even going back over 20 years.

So if we are going to do something we might as well start immediately and get immediate results. The charge to the technical combined study group would be to come up with a combined recommendation in one year's time. In addition to the hunting aspects of Alternate F, include baiting. Period. We all know the difference between a teal, a green head, Drake or mallard and

Canada goose. Therefore the mortality would be very incidental if baiting was initiated. Bait worked for market hunter, it works for this particular issue also.

We need an extensive public relations campaign. All of the combined agencies of the departments of the United States should get together because right now they are totally disjointed. U.S. Federal Wildlife, USGS, U.S.D.A. seems to be split-end study groups going around splintered information available.

I'd like to give you a copy of Regent Seven off the Internet that's been in existence since 1998 and there is probably been less than 1,000 hits on this particular document which specifically addresses urban geese. With an associated link that takes one to the animal alliance of Canada, that also back in 1998 did a 90-page report, et cetera, et cetera.

We need combined immediate PR because the RP goose situation in the Continental United States is multi-facetted and we got to get the word out.

One additional item that hasn't been mentioned is this: How about reintroduction into the migration? We all know that primarily the South St. James Bay, at the same time the Ungover Group, the Alternate Impetegrums, so on, so forth, the numbers are fluctuating back and forth. At the same time we have an overabundance of RG geese in the continental United States.

Let's get creative. Geese motel. We have nets, we have bait. Let's take it from there. I would leave that to the tech committee. I think we would all like to see a very beautiful resource reintegrated back into migratory flyway patterns within the standard time frames that they used to breed, come down winter and at the same time return and really, that should be our ultimate objective.

Very quickly I would like to ask for some numbers because I cannot find the information. In the Alternative Flyway for 2001, how many RP geese are there? Also for Mississippi Flyway and also for New Jersey. Per the mid winter January 2002 mid winter

surveys, how many Canada geese are in the Alternate Flyway, Mississippi flyway and New Jersey? What is the percent of reduction that is desired being an objective for the Atlantic Flyway, for the Mississippi Flyway? It was identified that 10 years we would have X, we have Y, so on so forth. What's the drop dead date? There was a 50 percent recommendation back in, it was either 2000 or 2001, for the white goose issue. Well, we're still studying it with working groups, joint ventures, so on and so forth at the same time the white geese are still tearing up the meadows.

That's all I have to say. Thank you very much for your time and consideration and welcome to New Jersey.

MR. CASE: Eleven, 12, 13.

MR. TITTEL: Jeff Tittel, director of New Jersey chapter of the Sierra Club.

I'm here because there is sort of an alternative that's not there. Whether you pick A through G, one of the things that's missing seems to be habitat.

One of the biggest problems we have in

a state like New Jersey, we are creating a habitat conducive for the over population of geese. We over populate our woodland and farm fields by cutting down trees and destroying, repairing buffers, filling in wetlands. We are creating more habitat for over population. Detention basins and lawns are really places for the geese population to keep growing and growing.

Unless we start dealing with those issues as part of any of the different alternatives there, we are never going to solve the problem. In order to really manage the goose population we have to manage our landscape and we're not doing that. When you fill in wetlands and turn them into detention basins, you create nice ponds for the Canadian geese to move to. As long as we put lawns around our lakes and concrete, nice office parks with ponds in front, we keep saying the over population, geese create a water quality issue.

As long as some lived on a lake, I wondered which creates a water population

issue: Four hundred fifty houses with septic tanks leaking into that lake or two dozen geese on the lake. Holistically, to do a better job, otherwise we come up with more short-term solutions rather than long-term solutions and need better management of the lands.

MR. CASE: Fourteen.

MR. SWIFT: Brian Swift, representing the New York State Department of Environmental Conservation. We concur with the comments made by Mr. Ted Nichols of the New Jersey Division of Fish and Wildlife.

MR. CASE: Fourteen, 15, 16, 17.

MR. BIRMAN: Phil Birman, resident of Elizabeth, New Jersey. I was moved by the article that was in the Star Larger. The reason I was moved, I love these animals. One loss, one removal from the environment, one Canadian goose is one too many as far as I'm concerned.

As far as how it affects our society, the way I see it it's detrimental, absolutely. What are we doing?

We're creating ethical issues,

practicing mathematical issues, religious issues. Ethical issues - certainly life is precious. We are setting a precedent, unheard of consequences.

We see what's going on around us, 9/11 issues. Here we are doing something, breeding a really terrible thing. Setting a stage for sharp actions. Unwitting actions, things that don't make sense.

If you do anything, do something in a humane, sensible, loving way. There are ways to do it like the last person said, the one prior to the last one. Give it a little time. Think about what you are going to do, how you will do it and you'll get the right results. Don't go ahead, what you are doing, to cull and kill.

That is not the way. I have my personal reasons over here. I'll read it off.

1. There is unreliable goose population data, therefore one should not develop policy based on statistically questionable data. The exploding population is clearly subjective.

2. Most of the negative claims about

geese are exaggerated claims that are never validated and nor seem to matter from those demanding such horrible killings.

3. Exponential population growth rate is another myth. It assumes that there are no other biological limiting factors.

4. Graphs and trends intent is to scare the public into accepting mass killing. It has little to do with statistics, banding, aerial survey than an inconvenience.

5. There are obviously ethical, pragmatic and religious issues that are against killing and culling of geese, animals, and any life. Ethically it is wrong to take any life in a humane and understanding society. Pragmatically it is wrong because it instills bad values and sets a precedent in society that killing is okay and can be used as a means to an end without seeking life saving sensible solutions, and regards that some forms of life is worth less using poorly founded excuses. Religiously it is wrong because many religious beliefs regard God's creation and life as sacred, precious that is to cherished and cared for.

6. Goose mess is not a health hazard because all it is recycled grass.

7. Game agencies are in the business of hunting opportunities which means they are not interested in stabilizing but increasing population to make hunting a big business to exploit the resident geese.

8. Killing of Canada geese is based largely on an illusory health argument per National Wildlife Health Center.

9. Killing of geese as justification is fraudulent.

10. There is a misconception that feeding causes problems. Instead geese use biological relevant criteria. This would help explain why the geese feed mostly in unpopulated areas such as golf course.

11. Migration of birds to northern and southern regions is discouraged because those areas are no-longer habitable due to waste, pollution and unsound ecological conditions such as fouled water.

12. Killing of Canada geese is a violation of the United States Fish and Wildlife Service "Migration Bird Treaty Act" and

Migratory Bird Conservation Act. Those that plan and kill the birds must be stopped, fined, and imprisoned.

13. Let us stop this killing and consider realistic humane solutions. My feeling is that we should be thankful that these birds are in our midst. Watching them makes me experience profound feelings that life is so beautiful evident by the birds' beauty, grace, love and care for its young, social concerns and pairing off of male and female. Note geese often mate for life, pine due to death, aggressive only when protecting their young, devoted parents, share food, help its kind in stress other species. They show a willingness to interact without causing harm and threat with us. Each bird may look the same but is unique just as human beings. They have the right to be here, should not be denied. Sprawl, environmentally unmindful industrialization and the twisted unfounded reasons imposed by human kind have caused the problems and threats.

Consider other options that do not kill or harm these beautiful birds.

A. Reduce clear cutting and intensively landscaped areas.

B. Use non-lethal goose control such as methyl anthranilate (Kool Aid).

C. Use habitat modification to control geese such as fencing near water areas that are restricted, and establish areas that are favorable for the geese where they can be safe and fed.

D. Use border collies to a limited degree.

E. Use turf grass goose repellents, flight control, It-It.

F. Goose D-fence.

G. Goose poop buster.

H. High Tech distress calls.

I. Robo goose.

J. Dissuader Hand-held Laser, Gater Guard.

K. Bird-X, Med Pest Supply.

L. Egg control, humanely, shake eggs that are two weeks or younger but not ones that float. Leave one egg in clutch to avoid another clutch.

Consider the realistic humane

solution. My feeling is we should be thankful these birds are in our midst, whether there is a smaller number or larger number. Watching them makes my experience, profound feeling, life is beautiful by the birds.

Social concerns, paring off of male and female. Geese often mate for life. This is something we can learn from. They are examples for us. We should not destroy something that is a good example to our social being.

As far as other things, they lose a mate, they grieve. They may be aggressive only when their young is threatened. It's understandable. Why would anyone be concerned, even about the droppings. This is recyclable. It's not a hazard, it's just overdone. People give you the impression it's a hazard. Everything I read up to now, there is no indications it's a hazard or a problem. It's the personal ego acts by individuals. People who want their total rights over their land.

Who was first here? Were we here

first or birds here first? Who. Let's show a little grace, little kindness, little love. That's all I want to say.

MR. CASE: Eighteen.

MS. HEINRICH: Helen Heinrich, and I'm here to represent the farmers of North New Jersey Farm Bureau. We have some 18,000 farm families. Their numbers and many of them would be here except this is the time of year when they are out in good weather bringing in the hay and taking care of other crops that have been delayed because of bad weather, but wanted me to deliver some information about our policies and problems with the geese.

We will be sending you a written set of statements, of comments from our president later.

I wanted to make a few points here because the farmers are people who experience on a daily basis the problems with the geese unlike the speaker just before. Farmers are in a situation now where their income is threatened for many reasons, especially the field crop farmers,

with low prices and of course the weather. The drought or too much rain or whatever. And having the geese do damage to their crops is just one more blow that is very difficult financially and emotionally for a farmer to withstand.

Farmers are working very hard to work with watershed groups on non-point source solution, improvement and the geese are implicated in that. One of the crops that they like to destroy the best would be cover crop like winter wheat where they pull the struts out so there isn't any wheat to harvest there a little bit later this year and in the meantime the soil is washed away. We are working hard to keep that from happening and the geese are setting those efforts back.

They also destroy the edges of streams. This causes soil erosion.

Last of all, many of our streams are supposedly impaired with fecal chloroform. That could come from many different sources, but we see an awful lot of geese and we think it's got to be ascertained, their

role, in terms of water quality problems too.

We tried to use non-lethal weapons, non-lethal methods, tried permits. We've put up with long tedious months of waiting for the permit from Fish & Wildlife Service and also participated in the 2000 scoping session and we are urging you to act. Let's have no more studies, no more delays.

Let's start working on this problem and we would favor action that accomplishes the most in the quickest period of time.

We favor Alternative G because we feel that this is the one that would provide the most flexibility. It would be something coming from the federal level that would apply to everybody and hopefully all of the problems. Whether it's to be done or not can be solved once for the whole country.

We refer you to Alternate F. You will have questions and challenges on 50 of them instead of just one.

We would like to see Alternative G with a tool box and as many tools as will do

the job, with the states able to choose and help the individual agencies or land owners deal with the most appropriate tools. This will be less burdensome and we think will get the job done more efficiently.

We are well-aware of the problem of money to manage these programs and to ask the local, the State Fish & Game agency to take on the burden without any additional funds. It's going to, as they said, increase the spread of their staff across the bear problems, beaver problems, white tail deer as well as the geese. Farmers are suffering from all those animals. We don't want to see any reduction on their ability to take on these problems.

We would like to see you follow through with Alternate G as soon as possible. We do feel very impressed with the way New Jersey monitors and surveys its geese and we think certainly you and the State agency working together within the flyway can keep monitoring the progress of the reduction and this will be beneficial not only to farm landowners, but also to the

resource itself.

Thank you.

MR. CASE: Nineteen.

MR. DRAKE: David Dranke. Extension wildlife specialist for Rutgers cooperative extension.

Like to applaud you for the comprehensive way you've looked at this issue. The relative quickness for which you administered and issued the Draft EIS. I fully concur with the comments and from the comments of New Jersey Fish and Wildlife. Thank you.

MR. CASE: Twenty.

MR. BAKER: I don't represent anybody except myself.

I come from a little town just north of here by the name of Livingston and the reason I decided to come was because I'm getting so sick and tired what these beasts have done to a typical suburban town. I'm sure it can be multiplied all over the state, all over the nation, that I thought I would at least come and say a few words from just an ordinary citizen, plain old taxpaying guy

that doesn't represent any of the bureaucratic groups.

I just think it's disgusting. There is a ballpark near where I live which can't be used half the time because it's constantly full of goose droppings. There was a beautiful park where the children used to play. They can't play now because now it's either full of filth or because the geese come in there and if the children go anywhere near the geese they attack the children.

Someone made the comment before that they only attack children when they are protecting their young. That's baloney. I've seen over and over again geese attacking children particularly when there is no baby around. I'm just making the point that who's more important?

We're in a state that's very, very crowded. I agree. We have a huge population in New Jersey and it continues to grow. Well, mankind comes before the beast, it's just that simple.

This guy doesn't agree with that,

that's his privilege. Mankind comes before the beast and I don't want to see my grandchildren try to go out in the park and have some disgusting goose jump on my grandchildren and bite it. You know, that's why I'm here. That's only a personal thing.

Adding all the other concerns, the problems at the airport that have been mentioned, the little old ladies that want to feed the birds, that's the ones that you guys are so concerned about. The farms as the lady mentioned, overwhelmed with geese. They are polluting the lakes as we know. I'm just repeating something that you all know, but I think it's worth repeating.

We have a small lake in my town, can't even be used anymore. Used to be used again by the children, can't be used anymore because it's full of goose turds. Nobody can use them anymore. If we do, knowing these blasted geese will grow and grow and grow and what are we going to do? We'll be talking 10 years from now before what we are going to do about it. We got to do something now.

Thank you very much for listening to me.

MR. CASE: Thank you. Twenty-one.

MS. FRITZGES: Teresa Fritzgtes. I'm speaking on behalf of the New Jersey animal rights and its 2000 members who oppose the killing of Canada geese by any method. We strongly object to Alternate F, which will turn over responsibility of Canada geese to state wildlife agencies. To do so in New Jersey will result in the same massive slaughtering as has occurred with white tailed deer.

While the New Jersey Division of Fish and Wildlife is not responsive to the wishes of the vast majority of the states residents, we hope the Federal Government will be. It is well-documented that the population of Canada geese has been manipulated for hunters.

According to a recent article in the Trenton Times, a U.S. Fish and Wildlife official indicated Canada geese were brought into New Jersey by hunters to attract migrating Canada geese. Now that some

people are complaining about their existence, there are plans to have the geese pay with their lives.

Canada geese have also been drawn to areas which people now want them removed. Wild geese visited waterways less visual to humans. Now they are drawn to corporate parks and golf courses with topography and vegetation that entice them. For those who do not choose to modify their grounds, droppings can be raked or swept up by equipment similar to street sweepers. Non-lethal approaches work.

Each site should be evaluated and specific methods can be devised to deter geese. Some methods include prohibited sustained feeding, habitat modification, exclusion by national barriers or fences and non-lethal repellents.

The statement that Canada geese droppings is a health threat is unsubstantiated. In fact, there are no documented cases that Canada geese are common for human illnesses, the opposite is the case. Dr. Milton Friend, director of

wildlife health research center with all fowl diseases of the U.S. Fish & Wildlife Service in Madison, Wisconsin, has conducted numerous studies on the issue and come into contact with vast numbers of geese.

Despite such exposure, I pointed out, "There is not a single documented case of any of us coming down with any kind of disease problem as a result of Canada geese." Yet this myth is perpetrated much like deer are responsible for lyme diseases.

It is unconsciousable that public officials cry these scare tactics to justify self-interest, increased revenues for hunting and private and businesses. We ask you adopt non-lethal methods. With continued public education and non-lethal approaches we are confident that those that see Canada geese as unwelcome will co-exist with them.

MR. CASE: Twenty-two.

MR. WHITTENDALE: Tom Whittendale.

Official comments are presented by mail last week to the Service. We endorse

Alternative G with conservation order, the same as New Jersey and same as New York. That's also been endorsed by the Governors and Council on the Division of Wildlife.

MR. CASE: Twenty-three, 24.

MR. BRIDGES: After listening here I believe the real reason some people want geese killed is one, geese can fly; two, geese don't kill anyone; three, geese are beautiful; four geese are for life and faithful. These people want to kill geese in the hope it will ease their pain. Now the U.S.-let's-kill-more-fish-and-wildlife service wants to do how it knows how to do with animals, which is kill more.

I believe Bevis Singer was speaking to the geese and to us when he asks what could they know, all these scholars, all these philosophers, all the leaders of the world. They convinced themselves as man, the worse transgressor of all the species is the crown of creation. Thank you.

MR. CASE: Twenty-five, 26, 27, 28, 29.

MR. WEIDNER: Dave Weidner.

I thank the Fish & Wildlife Service for the opportunity to speak tonight. The owner of Storm Outfitters, we are a professional goose and hunting guide service. I want to make certain the voice of the sportsman is heard tonight.

All decisions made are based on sound biology and would like to encourage the members of the audience to please trust the fish and wildlife individuals as well as to support wetlands conservation, organizations such as Ducks Unlimited.

Please also remember that man has created this problem, much as the individual from the Sierra Club stated, due to habitat destruction, wetlands destruction. We really need to keep working on that.

I've looked over a lot, actually all of them and I have a lot of problems with all of them. I think some will work and some will not work. I think we need to increase the harvest limits based on sound biology. If possible we need to extend the season, the September season, if it's not going to impact on the migratory population.

To push it as far as possible without having significant impact on the megaureters into October.

To open it in August I don't think is going to do any good whatsoever. I think you're going to run into a lot of problems with recreational people who are sharing the same environment as a lot of the fowlers.

The other thing we might want to consider is to allow a spring hunt after the migratories have passed through. This is something I haven't seen too much about, but it seems if we can get a springtime to occur after the migratories have passed through and before any of the crops are placed into the ground, that might be something that would work as well. Again based on sound biology. Extend some of the zones in the State of New Jersey to include some of essential areas, if possible, that would, I think, significantly help.

I do not support the use of electronic calls, not support the use of unplugged shot guns, that's a safety issue.

Last, I would like to encourage some

type of program whereby there is a better mechanism or communication between farmers and sportsmen. Thank you for your time.

MR. CASE: Thirty.

MR. CASTELLANA: Doug Castellana, life long resident of New Jersey. Lived in Sussix County for the last 28 years. I live and represent the Lake Pokhung Outing Association, a small community around a 50 acre lake and 500 acres.

If what would facilitate our particular problem would be Alternate G, then I fully support our New Jersey Division of Fish & Game, Mr. Nichols with his suggestion that Alternate G be adopted and with a slight change to the authorized person being anyone, which, as he said, I would like to add or his agent.

I know a lot of elderly people who are having problems with geese on their property that would not do the undertaking. Thank you.

MR. CASE: Thirty-one, 32, 33.

MR. SANDS: Petersburg, New Jersey, Cape May County.

I thank the service for hearing all sides of this argument. I just want to point out to the service, they are walking a fine line and tarnishing their good name.

For 28 years I've been an outdoors man and the number one thing is conservation. Sponsor for Delta and Ducks Unlimited by going the route which is basically the slaughter of Canada geese. The notion of conservation, that's always been out by the service, starts to get muted.

To bring this as a way of "a hunting opportunity" creates a situation where people think this now is hunting. When I was growing up that was considered to be a slob hunter, an unwarranted slaughter. Whatever you got on the ground, start to inject that into hunting itself. Down the road, things like mallards became a problem. The excuse comes up again, wanton slaughter. People bring that onto themselves to think they have a reason to control something and it's okay to control geese so it's okay to control whatever else it is.

When you make your decision, my

personal opinion, stay with Alternate A, watch that fine line for the service, don't tarnish the good name U.S. Fish & Wildlife Service has now.

MR. CASE: Thirty-four, 35, 36.

MR. BRODY: Joe Brody from Glouster County, New Jersey.

I just like to refute what the lady said, Canada geese were brought here by hunters to expand our hunting opportunities. They haven't been. They have been a natural renewable resource as long as New Jersey has been here.

Robert A. Mitchner's novel Chesapeake, read it and find out the Delaware Indians hunted the Canadians when they were here when the country was in the beginning years. Canada geese have always been here and I don't think we should kill them, we should harvest them. We shouldn't slaughter them, they are going to be here.

New Jersey, I've watched it from my childhood. We are losing more and more land, more and more habitat every year. It disheartens me. I grew up in south Jersey,

my grandfather was a farmer. His farms are long gone, there are apartments there. I'm losing more and more ground. I watch the turkeys, deer, ducks, geese. We lose it every year. It's our heritage.

New Jersey has always been known as the Garden State. Pretty soon it will be known as asphalt state. Nothing but apartments and housing developments from the Delaware River to the Atlantic Ocean. It's breaking my heart to see that.

I realize we have a problem with the Canada geese. I don't think they should be rounded up and slaughtered like people are talking. Expand the hunting opportunities, try to control it like that. Very much in favor of the things Fish & Wildlife has done for us and the division. I think they have done a great job and hope they continue to do a great job to represent everybody, hunter and non-hunter and citizens of New Jersey.

That's all I wanted to say and I thank you.

MR. CASE: Thirty-seven, 38, 39, 40,

41, 42, 43, 44.

MR. TRONCO: Ray Tronco, Borough Councilman, Borough of South Plainfield in charge of Parks and Recreation.

One of the problems I have, representing a community of 22,000 people, is to try to get something done as one person trying to represent 22,000 people.

I can't tell you 22,000 people would support the New Jersey petition on this. I'm sure 99 percent of them would.

Constantly hear of the problem of the Canadian geese or Canada geese. Did a lot of research on it and realized unfortunately to get anything done you need to lobby hard. Unfortunately most of the lobbying is done on the Canadian geese side. It's such an epidemic, I'm not sure what the solution is. I strongly think too much time has been spent on it. It's a problem created by man in 1917 by adopting the treaty.

I looked at it. We have a couple of acts and changed it and modified it. Clearly something has been done. You can't take your kids to parks. We have a fishing

darby in our lake. Kids fall and hurt kids, breaking an arm and slipping on the droppings. Get it in the vehicles, bring it into the house. Actually starting two years ago they're in my pool. They are defecating all over the pool, the sidewalk and pool, the lawn.

I honestly believe that New Jersey is overcrowded like probably every state is. Obviously we are growing everywhere. If I was the only home in South Plainfield, the Canadian geese would find my people. The problem is not overcrowding, although a problem in itself, but they are looking for where people live. They are not good neighbors, don't behave themselves.

How would you feel if your animal, your dog that is house broken went outside and went onto your neighbor's lawn and defecated and had to hire somebody to clean it up? I don't think we are looking at this quick enough. I think it's taken way too long. I don't want to see it get to the three million mark. There is eight million people in the State of any New Jersey,

probably find the lion's share want something done and done right away.

Don't ask me why they are not here or speaking up, but I can tell you I speak for South Plainfield of 22,000 people and sure most of them support the quickest response possible and F is probably the best act. Until you teach the Canadian geese to use a kitty litter box, I'm in support of that.

MR. CASE: Forty-five, 46.

MR. SWIGHERT: I live in Warren County. I'm in favor of Alternative G.

I believe that one of the items that was removed or not added to the hunting methods another gentleman mentioned was baiting. If there is an early season, we had one in September. It's the same at least in Northern New Jersey, I'm sure Southern New Jersey, that the crops really are not harvesting, which limits the area in which one can hunt geese. Without baiting, especially if we start in August, there will be a limited number of places to hunt that don't conflict with other people. I believe that baiting should be added. There would

be no conflict.

There was a mention one reason it wasn't included, there would be a conflict with the hunting season, there is no other waterfowl season at the time of year in New Jersey nor a dove season as mentioned. We have no dove season.

I would add baiting to the allowed hunting methods.

MR. CASE: Forty-seven, 48.

MR. POVALSKI: Ray Povalski. Life-long resident of New Jersey. Just a quick comment. I read through the different proposals and I would like to say, whether it's A, B or C, I believe one of those alternatives should be continued, but under no circumstance, I repeat under no circumstance should there be state empowerment over any other alternative.

And I say that on behalf of the other seven million residents of New Jersey that could or could not make it here tonight. I was not only dismayed, but quite disappointed to hear our own New Jersey Fish & Wildlife to go for either F or G, but to

add a laundry list of additional exceptions, everything from the kitchen sink to every other possible alternative to make it easier for them and anybody else in the state to take it upon themselves to solve this problem. Of course they had the footnote they didn't want the added financial burden.

Add that all up and add up the other important factor the wildlife in New Jersey, specifically the deer problem, can perhaps be traced back to the wildlife management techniques of the New Jersey Fish & Wildlife. I believe no matter what remedy we choose in your proposal, please, please, please do not allow state empowerment of the alternatives. Thank you.

MR. CASE: Forty-nine, 50, 51, 52, 53, 54, 55, 56, 57.

MS. RUSZALA: Cindy Ruszala. I really came here to observe tonight, but I decided to say a few things.

I work for Englehart in Woodbridge. We have a lot of these geese around, but after sitting in an office all day and working, to me that's part of nature. When

I come out at lunchtime or at night or in the morning, it brings another side to everything that's going on in the world and everything that's going on in my life and that's part of nature. They do mate for life. I walk by them everyday. There is over 500 people in my company. They walk in and out at lunchtime. I never seen anyone be attacked. If they have a nest, yes. Walking I've never observed that. I'm working 12 years at this place.

I just don't think they should be slaughtered. I think there is a solution to every problem. I taught my children that. My children are grown now and they have always gone by that. Slaughtering or having the state takeover and do something is not the right approach. There should be more studies.

Maybe we can do something to stop the population from here. The birds that are here, they shouldn't do them. I seen the eggs are taken. That must be traumatic. They mate for life, that's better than humans in that respect. We need to learn to

exist with them and find a solution to that.

MR. CASE: Fifty-eight.

MR. LEE: Dave Lee. I'm a resident of rural Salem County and support Ted Nichols and Fishing & Wildlife's proposal, also support continued study of the misuse of sportsmen money by the Fish & Wildlife Service.

MR. CASE: Fifty-nine, 60, 61.

MS. BARRANTES: Claudia Barrantes. I came here with my friends. I'm representing myself tonight, but I work at Roy Weston Incorporated. Also to observe.

I'm a firm believer that conservation is the way to go. I try to follow the updates and what the division has offered in the past. I really love these animals and also understand what kind of impact they have posed on everyone, whether it be from businesses to regular people's lives.

But my opinion is that we should not slaughter these animals just to get rid of the problem. Life is too precious to go ahead and do that. I know we've spent a lot of time to try to resolve this matter.

You're going to create more problems by putting these ideas into our children and there's got to be other solutions.

I've yet to learn and see what kind of alternatives we might have, but I don't think we should go ahead and kill these animals. They are too precious. We should change the redevelopment of how we build our environment better so we don't invade the territories.

I've heard all night how different opinions that people have brought up. We can't all come to one conclusion. We have the disagreeing sides and the side that believes we should kill them. Something should be done. I don't have the answer, but hear to listen to everyone. Perhaps in a day, week or month we could come up with a recommendation. I thank everyone's time to listen to me and hopefully we can learn something from this. Thanks.

MR. CASE: Sixty-two, 63, 64.

MR. JANY: Steve Jany. I wear three hats tonight. One as a farmer, one as president of Mercer County Board of

Agriculture, and member of the New Jersey State Board of Agriculture.

State Board of Agriculture oversees the New Jersey Department of Agriculture and the department sent a letter on April 29 supporting Alternate G.

After listening to Ted Nichols tonight, we also support his view and Fish & Wildlife's view.

As a farmer, geese have became a major problem. Used to be just in the small grains, wheat barrel rye and like that. Now they have became a problem in the corn and soybeans. They go down the row and nip off the crops.

If we can't make a living farming, then landowners that own land that rent to other farmers, they can't be farmed. It will be more than likely turned into more development. We don't need that. Alternative G would be good.

MR. CASE: Sixty-five, 66, 67, 68.

MR. EMBER: Steve Ember. I represent myself tonight.

This is not a management proposal,

this is a hunting proposal. The real problem is not the Canada geese. It's sprawl. It's the fact we take away the natural habitat and replace it with basically non-cultural habitat that the geese adopted to. I give them credit for that. It's unfortunate this occurred, but we've caused the problem. We are the ones with the grass lawns; we are the ones that refuse to landscape the grass lawns by putting bushes there and other vegetation that discourage the geese. We provide the habitat, we provide the food. If we feed, they will breed.

What's really behind this, it's really about money. Everything that you see is always about somebody making profit. Who profits here? Well, the gun industry, the hunting industry does. That's what's behind this. What they want to do is add to their list or at least extend the list of recreational hunting opportunities. They want to bring it into the suburbs. That's right, these geese are in the suburbs. They'll do it at night, find all kinds of

ways. Like they did in Princeton, they'll allow silencers. They've shown this before, they'll do it again.

Most wild animals would rather die than live with us. The few species that are willing to co-exist with us are viewed as pests and killed. First we take away their natural habitat and replace it with macadam. We don't like them, they are nuisances and kill all the wild animals. The result, we have a sterile environment, no more nature.

There's a dirty little tale about many people around here. You know who the best friends of the developer in New Jersey: Fish & Wildlife people in New Jersey. They are the ones that refuse to enforce the laws on stream encroachment, riparian lands, for threatened and endangered species. They are quick to give out permits, never educate the public about the danger associated with developing in these sensitive areas. They are the developer's best friend. They have great people in the division, all kinds of great biologists, great landscape projects that can be used for the public good. Why

don't they use it? I'm sure there is money involved. If there was enough investigation there might be some very interesting results. It's not just about the violation of the support hunting, it's about the profits.

I would urge you to stop seeing wild animals as the problem and start learning to co-exist with them. Solve the real problem which is sprawl, the loss of natural habitat. There are plenty of non-lethal solutions, other speakers mentioned it. I would not waste everyone’s time to mention them again.

I would point out we need to protect the farmers. I'm very much for that. We should have feeding bans. People should not be feeding wild animals. That should be against the law. I would urge you to remember, if we feed they will breed.

MR. SPACE: Eric Space, life long resident of Sussex County. Wildlife damage control. To me, whatever alternative, doesn't matter to me. If you have depredation permits, let's speed up the

process. I see other goose companies. At times you take six months to get permits. Let's get them in a day or two. If I have a problem with geese, it takes months to get a permit. Months later doesn't matter, months later the geese are done and the problem isn't solved.

MR. CASE: Seventy, 71, 72, 73.

MR. MESSEROLL: John Messeroll, president of Middlesex County Federation of Sportsmens Clubs. I represent 30 clubs and approximately 3500 men and woman that are sportsmen of the Council.

We agree with the position of the Fish & Game.

Monetary burden shouldn't be put on individual states. As you stated, it's a national problem that would not be solved easily, but should be acted on with expedience. Baiting and shotguns should not be included in the issue.

You need to work on a good cook book because there is going to be a lot of them to eat.

MR. CASE: Seventy-three, 74, 75, 76,

77.

MR. EVENGER: Richard Evenger from Salem County.

I would like to thank the Fish & Wildlife for addressing the issue. I have been involved and trying to get something done with geese close to about 15 or 20 years.

Started out as a member of the board of health. I saw the first signs of how they started to deteriorate our water sheds and water quality. Watching it, it's getting worse now as more and more ponds are incapable of supporting fishing life because of this problem.

I would like to go along with Alternate G. I support the Fish & Game. I also listened very carefully to one wild fowler from Cape May County that indicated trying to associate the curing of a problem with hunting makes it kind of difficult.

If there is some way it could be done not to include it as a hunting, but as a method of stopping it, it will be greatly appreciated.

The only thing I like to say to some of my friends, while I appreciate the freedom of speech, I would like to have facts instead.

MR. CASE: Seventy-eight, 79, 80.

MS. PASZAMANT: Carol Paszamant. Life long resident of New Jersey, specifically Middlesex County, which is where we are right now.

We've heard representatives of a lot of groups. One voice we haven't heard and would not is that of the geese. We haven't heard and would not is that of the geese themselves. This is not due to any lack on their part, but our inability to understand them. They speak their own language and have their own social norms.

U.S. Fish & Wildlife is supposed to be constructive. It can back fire. It hasn't worked for deer, it would not for geese. Geese are highly un-intelligent.

All living things poop, even gentleman from Livingston. There is no evidence this posts a health hazard. They are vegetarians. Little more than wet grass.

We invited them to stay with our land management and geese should not suffer. To round them up as they molt, to gather up whole families, mothers, children's fathers, to send them off to chambers to be gassed, these are nightmares no living creatures should have to endure and certainly not whole societies. It is immoral, horrible and unconscionable.

The anti-goose hysteria fanned by the media and those permit hunting or other methods of killing has exercised the zoophobia humans are prone to.

Humans exhibit extreme behaviors from feeding to killing. How about the median, no feeding, no kidding?

Find a use for the poop; examples, fertilizer.

All the geese would ask is to be left alone. They don't ask our friendship, but merit our respect. All good relationships are based on mutual respect. Let's show some other species which we share the planet with and maybe it will rub off and we'll have more respect for each other.

MR. CASE: Eighty-one, 82, 83.

MS. ROSENBAUM: Rose Rosenbaum. Hillsborough. And I have lived in New Jersey most of my life in several different counties.

To massacre the Canada geese should not be an option. Most Americans consider hunting to be unacceptable use of wildlife. Hunting is not a necessary management tool that controls animals and prevents over-population. The CDC states there is no evidence that supports any health issues with the geese. Why don't the people of New Jersey consider looking at what others are doing.

Rider University and the Wall Street Journal says no way to shooting. They use Goose Busters to control the population. The Dow Jones Company maintain clean stretches of land the old fashion way. The town of Hamilton Chief of Staff say they got a Federal ranch to change the habitat so it doesn't attract the geese as well as sheep dogs to move the geese out. They don't think it is necessary to go in and shoot.

They say they are far more human than that. There are many sacred devices available and that can be used in conjunction with other alternatives.

MR. CASE: Eighty-four, 85, 86, 87, 88, 89, 90.

Is there anybody here tonight that has not had a chance to speak yet that would like the opportunity?

If not, on behalf of the Fish & Wildlife Services, I thank you for taking the time out of your schedules to be here tonight and your concern for wildlife.

There are a number of people that are here to answer questions. I urge you to stop by. Thank you again for joining the meeting.

CHARLES M. KUPERUS: Dear Mr. Andrew:

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement for the Management of Resident Canada Geese.

Damage from Canada geese has had a

significant adverse effect on New Jersey's agricultural industry. Such damage has reduced crop yields and income, and may also contribute to the loss of New Jersey farms. Our farmers for many years have tried non-lethal methods, including harassment with dogs and pyrotechnics, fencing, balloons and repellents, as well as control of goose nesting - all at great expense. Despite this, the resident goose population continues to increase. It is evident that non-lethal methods alone are not effective enough to reduce the goose population.

The problems associated with Canada geese extend beyond the agricultural industry. Many of our communities are experiencing traffic hazards, degraded water quality, shoreline destabilization and increased erosion as a result of Canada geese. Clearly, a more pro-active management strategy is necessary to reduce the resident goose population and protect New Jersey's general public, agricultural industry and natural resources.

We have thoroughly reviewed the

alternative strategies in the draft and highly recommend that the U.S. Fish and Wildlife Service support and implement the general depredation order in Alternative G.

Thank you for the opportunity to comment.

(TIME NOTED: 8:45 p.m.)

C E R T I F I C A T E

I, ALBERT M. CITTONE, a Court Reporter and Notary Public of the State of New York, DO HEREBY CERTIFY that the statements hereinbefore set forth is a true record of the proceedings.

I FURTHER CERTIFY that I am not related to any of the parties in this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 26th day of June 2002.

ALBERT M. CITTONE
Notary Public of the State of New York

U.S. FISH AND WILDLIFE SERVICE

REPORTER'S TRANSCRIPT

of

PUBLIC MEETING

May 29, 2002

Location:
Colorado Division of Wildlife
NE Region Service Center
6060 Broadway
Denver, Colorado

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P R O C E E D I N G S

MR. CASE: I think we'll go ahead and get started. You guys don't have to sit way in the back there. There's room up front. Come on up.

My name is Dave Case, and I'm the facilitator for tonight's meeting. I guess we don't really need a facilitator. We could all sit in a circle and talk. But we'll still go through the formal process.

As you know, the purpose of the meeting tonight is to take public comment, on the Draft Environmental Impact Statement that the U.S. Fish and Wildlife Service has prepared in relation to resident Canada goose overabundance.

The process we're going to go through is pretty simple. I'll go through that in a minute. First, I would like to introduce Ron Kokel, with the U.S. Fish and Wildlife Service. He's largely responsible for putting together the Draft Environmental Impact Statement.

Also I would like to thank Jim Gammonley from the Colorado Division of Wildlife for help in setting this up, and also the other Colorado Division of Wildlife folks for making it tonight.

When you came in we handed out cards, the numbered cards. And we'll go in order. So there's some who get to go early on and some will have to wait until

later.

When you come up, we'll let you use this podium, just state your name. If you could spell your last name for us so we get it right for the court reporter, we sure would appreciate it. We are recording this and will have a full record.

I normally say I apologize in advance if you take too long and I have to cut you off, but I don't think we'll worry about it tonight.

I do have a sign-up sheet. If you would like to get a copy of the Final Environmental Impact Statement, sign up on this. There's a box there to check if you received the first one. Check that. If you've not received one before, then check that one, just so we make sure we don't send you two copies.

So with that, I would like to introduce again Ron Kokel. He's going to give a brief presentation on the components of the Environmental Impact Statement, and then we'll open it up for comments.

So, Ron.

MR. KOKEL: Thank you, Dave. And a good evening, everybody. Again, I'm Ron Kokel. I'm with the U.S. Fish and Wildlife Service, Division of Migratory Bird

Management, and I'm stationed in Arlington, Virginia. And on behalf of our director, Steve Williams, I would like to welcome everybody that's here tonight.

This is the tenth of eleven public meetings that are being held across the country for the purpose of inviting public participation and input into our process of developing an Environmental Impact Statement for resident Canada goose management. This DEIS was developed in full cooperation with the U.S. Department of Agriculture's Wildlife Services.

First off, why are we here? Well, we're here for a couple reasons. We're here to explain what's in the draft, its proposed action, and to listen to your comments. The draft considers a range of management alternatives for addressing expanding populations of resident geese.

As such, really we're just here to listen to you and to invite your comments on what our recommended management is.

First, a brief explanation of the National Environmental Policy Act. The National Environmental Policy Act really governs this whole process that we're in. It requires completion of an EIS to analyze environmental and socio-economic impacts associated with

any significant Federal action.

And, secondly, NEPA requires public involvement, which includes a scoping period before the draft is issued and a comment period after the draft is issued.

We began this process in August of 1999 when we published a notice that announced our intent to prepare this draft. Then in February of 2000 we held nine public scoping meetings across the country, one of which was held here in Denver, designed to seek public input into the process. Scoping ended in March of 2000.

In response to scoping, we received over 3,000 comments and over 1250 people attended the nine public meetings.

What did we find during scoping? We found that the top issues of concern were property damage and conflicts caused by resident geese, the methods of conflict abatement that are available, sport hunting opportunities on resident geese, the economic impacts resident geese cause, human health and safety concerns, and the impacts to the Canada geese themselves.

NEPA also outlines a specific format for an environmental impact statement. There's a purpose in each section: An alternative section, an effective environment section, and an environmental consequences section.

But, first, what exactly are we talking about

when we talk about resident Canada geese? We define resident Canada geese in the EIS as those geese which nest within the lower 48 states in the months of March, April, May, or June, or reside within the lower 48 states in the months of April, May, June, July, or August.

The purpose of the EIS was threefold: First was to evaluate alternative strategies to reduce, manage, and control resident goose populations in the U.S.

Second, to provide a regulatory mechanism that would allow state and local agencies, other federal agencies, and local groups and individuals to respond to damage complaints or damages caused by resident geese.

And, thirdly, to guide and direct the resident Canada goose population management activities in the United States.

The need for the EIS was two-fold: Increasing resident Canada goose populations, coupled with the growing conflicts, damages, and socio-economic impacts that they cause, has resulted in a reexamination of the Services' resident Canada goose management.

The EIS looked at seven alternatives.

Alternative A was no action. This is the baseline for all the analyses.

Alternative B is a nonlethal control and management alternative which only includes those

non-Federally permitted activities.

Alternative C is also a nonlethal control and management, but does include some Federally permitted activities.

Alternative D is expanded hunting methods and opportunities.

Alternative E, we termed it integrated depredation order management.

Alternative F is the proposed action, termed state empowerment.

And, lastly, Alternative G is a general depredation order.

Under Alternative A, the no-action alternative, we wouldn't have any additional regulatory methods or strategies. We would continue to use those special hunting seasons, the issuance of individual depredation permits, and the issuance of any special Canada goose permits.

Under the second alternative, nonlethal control and management, which includes non-Federally permitted activities, we would cease all lethal control of resident Canada geese and their eggs. Only nonlethal harassment techniques would be allowed, the Service wouldn't issue any permits, and all special hunting seasons on resident geese would be discontinued.

Under the third alternative, nonlethal control and management, which includes some Federally permitted activities, we would cease all permitted lethal control of resident geese, with several exceptions. Included among these would be promotion of nonlethal harassment techniques. There would be no depredation or special Canada goose permits issued. Egg addling of Canada goose eggs would be allowed with a Federal permit, and special hunting seasons would be continued.

Under the fourth alternative, expanded hunting methods and opportunities, we would provide new regulatory options designed to increase the harvest of resident Canada geese. We would authorize additional hunting methods, such as electronic calls, unplugged guns, and expanded shooting hours.

These seasons could be operational during September 1 to 15, they could be experimental during September 16 to 30, but they would have to be conducted outside of any other open season.

The fifth alternative is termed integrated depredation order management. And actually this alternative consists of four different depredation orders. There's an airport depredation order, a nest and egg depredation order, an agriculture depredation order, and a public health depredation order.

Implementation of any of these orders would be up to the individual state wildlife agency. Special hunting seasons would be continued and the issuance of all depredation permits and special Canada goose permits would also be continued.

More specifically, the airport depredation order would authorize airports to establish and implement a controlled program, which could include indirect and/or direct population control strategies. The intent of this program would be to significantly reduce Canada goose populations at airports.

The nest and egg depredation order would allow the destruction of resident Canada goose nests and eggs without a permit. The intent of this program would be to stabilize resident Canada goose breeding populations.

The agriculture depredation order would authorize landowners, operators, and tenants that are actively engaged in commercial agriculture to conduct indirect and/or direct control strategies on geese that are depredating on agriculture crops. Again, with this alternative, as with the other ones, management acts would have to occur on the premises.

The last depredation order is a public health depredation order, which would authorize state, county, municipal, or local public health officials to conduct

indirect and/or direct control strategies on geese when it's recommended by health officials that there's a public health threat. And with this one, management actions would also have to occur on the premises.

The sixth alternative is our proposed action, which we term state empowerment. Under this alternative, we would establish a new regulation which would authorize state wildlife agencies or their authorized agents to conduct or allow management activities on resident goose populations.

The intent of this program is to allow state wildlife agencies sufficient flexibility to deal with the problems caused by resident geese within their respective states.

The program would authorize indirect and/or direct population control strategies, such as aggressive harassment programs, nest and egg destruction, gosling and adult trapping programs, and would allow implementation of any of those specific depredation orders that I went over under Alternative E.

Additionally, during existing special hunting seasons we would expand the methods of take to increase hunter harvest, as I explained under Alternative D. We would authorize additional hunting methods.

Again, these seasons would be operational during

September 1 to 15, they could be experimental during September 16 to 30, but they would have to be conducted outside of other open seasons.

In addition, we would establish a conservation order which would provide special expanded harvest opportunities under a portion of the Migratory Bird Treaty Closed Period. That is August 1 to 31 and a portion of the Treaty Open Period of September 1 to 15.

Like with the additional hunting methods identified under Alternative D, we would also authorize those. And, again, those would have to be conducted outside of any other open season.

Under the program, the Service would annually assess the impact and the effectiveness of the program, and there would be a provision for possible suspension of the regulations, that is, the conservation order and/or the special hunting season changes, when the need was no longer present.

We would also continue all special and regular hunting seasons. We would continue the issuance of depredation and special Canada goose permits. The only state requirements under the program would be to annually monitor the spring breeding populations and to annually report on authorized activities.

The last alternative is a general depredation

order for Canada geese. Under this alternative we would allow any authorized person to conduct management activities on resident geese that either pose a threat to health, human safety, or of causing damage. It would be available between April 1 and August 31. It would provide some expanded hunting opportunities like under Alternative D.

We would also continue to use the special and regular hunting seasons in the issuance of depredation and special Canada goose permits. And unlike Alternative F, under Alternative G the authorization for all management activities would come directly from the U.S. Fish and Wildlife Service.

Under the effective environmental study we looked at two things. We looked at the biological environment and we looked at the socio-economic environment.

Under the biological environment, we looked at the resident Canada goose populations, water quality of wetlands, vegetation and soils, wildlife habitat, and any Federally listed threatened and endangered species.

Under the socio-economic environment we looked at the migratory bird program, including the sport hunting program, the migratory bird permit program, social values and considerations, economic considerations, such as

property damages and agricultural crop damages, human health and safety issues, and the program costs.

The environmental consequences section forms the scientific and the analytic basis for a comparison of the alternatives. It analyzes the environmental impacts of each of those alternatives in relation to the different resource categories. And, again, the no-action alternative provides the baseline for all this analysis.

Under the no-action alternative, what we would expect to happen is that the populations of resident Canada geese would continue to grow. In the Atlantic Flyway we would expect about 1.6 million within 10 years, in the Mississippi Flyway, 2 million within ten years, in the Central Flyway, 1.3 million in ten years, and in the Pacific Flyway, around 450,000 within ten years.

We would also expect continued and expanded goose distribution problems and conflicts, increased workloads, and continued impacts to property, safety, and health.

Under the proposed action, we expect there to be a reduction in Canada goose populations specifically in more specific problem areas. There would be increased hunting opportunities. There would be significant

reduction in those conflicts. We expect that there would be a decreased impact to property, safety, and health.

While there would be some initial workload increases as the program starts, as populations decrease we believe that there would be long-term workload decreases, and the program would maintain viable resident Canada goose populations.

Some recent modeling that's been done in the Mississippi Flyway, when expanded to the rest of the nation, suggests that to reduce the four Flyways populations from current levels of about 3.5 million down to the Flyways' established objectives of 2.1 million, would require one of these options annually for ten years: The harvest of an additional 480,000 geese annually, or the take of an additional 852,000 goslings annually, or the nest removal of 528,000 nests annually, or a combination of an additional harvest of 240,000 geese annually and the take of 320,000 goslings annually.

Each one of these would have to occur annually for ten years over and above what is occurring right now.

Thus, we believe that the only way to possibly attain these kinds of numbers is to give the states the flexibility to address the problems within their respective state. The population reductions should be available on a wide number of fronts. And since states

are the most informed and knowledgeable local authorities on wildlife conflicts in their state, the primary responsibilities and decision of program implementation should be placed with them.

What comes next?

First is the development of a new regulation to carry out the proposed action. And this should be forthcoming real soon.

Second is the public comment period on this draft ends tomorrow, May 30.

And third would be the publication of a Final EIS, the Service's record of decision, and a final rule, which we anticipate for this fall.

As I just stated, the public comment period ends tomorrow. And I think that Dave may have already gone over some of the ways you can submit your comments, but I would draw your attention to the fact that printed on the back of the card that you received when you came in tonight is an e-mail address and an address where you can send mail comments. And these would include any comments that you give tonight or any that you may subsequently send in.

And on behalf of the Service, I would like to thank everybody for attending this meeting and particularly anybody that provides comments.

And that concludes my part of the presentation.

If you could get the lights.

MR. CASE: Thanks, Ron. If you're going to send in written comments, those have to be postmarked by tomorrow or e-mail sent by tomorrow night.

With that, I'll go ahead and take comments.

Did everybody get to sign up on the sign-up sheet that's going around?

AUDIENCE: No, it was dark and I didn't see it.

MR. CASE: Okay. Sorry about that. We'll go ahead and start with No. 1.

MR. DIGGERS: I'm No. 1. But I really just came here to voice my opinion for Alternative F. And, in fact, I've already done it electronically.

MR. CASE: Why don't you come on up, so that way we can do it officially. Go ahead and stand at the podium. Make sure you state your name and where you're from and spell your last name.

MR. DIGGERS: My name is Earl Diggers. I'm from Liberal, Kansas. I own and operate American Pigeon Control.

I am for Alternative F for resident Canada geese.

AUDIENCE: State again what Alternative F is.

MR. DIGGERS: What is it?
It's a resolution for Canada goose control. I can't remember all the letters. But I'm for it.

We've got to do something. I've had calls in Kansas. This is the closest meeting that I could attend.

I've got stage fright.

MR. CASE: Okay.

MR. DIGGERS: I came to listen and learn. And I'm here with some thoughts on the subject, but really just to listen. But I am for Alternative F.

Thank you very much.

MR. CASE: Thank you. No. 2.

MR. SEUBERT: I'm John Seubert. I'm a wildlife ecologist.

MR. CASE: Would you spell your last name for us.

MR. SEUBERT: S-e-u-b-e-r-t. I've been involved for many years in the problem of bird hazards to aviation. And starting in 1966 I got together with Dave Sharp. And I realized somehow that -- at that time I'd just heard about the big increase in the Canada geese population. And I said, whoa. So Dave Sharp lived about five minutes

from me, and he was very kind in putting together the goose information. We're always a year behind. But it was good enough.

And so I put together a little paper that I gave out in Phoenix at a meeting of the Bird Strike Committee of the United States, which is held each year. I revised it from 1988 through '97.

And what I did in that paper was to try to summarize. It just isn't controlling Canada geese or why do we have more Canada geese. And not much has been said about this. But I got hold of the U.S. Census Bureau, the population reference bureau which analyzes the data.

And the human population, in case you haven't noticed it, is growing, particularly in Colorado. We've added a million people to Colorado in the last ten years. And they make projections on the population growth. I presented those figures.

I got the figures from ATA on the amount of air traffic for the last about 20 years. And that curve keeps going up.

And I got hold of an insurance broker in London, who always analyzes data on what the need is for new aircraft. And, for example, in the paper given in 2000, people with the Boeing Company are saying in like the next 12 years they need 9,000 new aircraft.

So the bottom line is, if you have more geese and more aircraft, more landings, more takeoffs, logic would dictate -- and I've always been a sucker to believe in logic -- it's going to create a high degree of potential hazard. And that's what my interest is.

And when it comes to the EIS, which I've seen before, my primary recommendation, and I don't remember all the letters or numbers, is that when there's a serious threat to human safety, I'm concerned now about the airport problem or even the in-flight problem, the priority has to be to try to control the problem.

So I believe in the integrated goose management, what you laid out, which was a variety of things. And I would recommend that, when there's a serious problem and a hazard potential, and we can document it, we've got all kinds of data on near misses, there shouldn't be any doubt.

I mean, you handle the problem any way you can, which would include population reduction, trapping the young during their flightless period, or removing geese from the airport by shooting, like Jim Cooper has done in part up in Minneapolis. It should be done. It's as pure and simple as that.

I just gave our guests here a report on goose strikes for the last 11 years put out by the Fish and

Wildlife Service. And if any of you are interested in getting that, he's got a website that you can climb on and get a copy. It has all of the strikes, and it gives examples of near misses.

We've had several cases where aircraft have taken off from LA on their way to Japan, taken birds in, and just by the grace of God they were able to get up and get around in time to land. I don't like the idea of near misses.

I think they've done a heck of a good job with the EIS. I think they've been very careful and very scientific. And I hope the thing comes out in a way that will relieve some people of the potential hazard with these geese.

Thank you.

MR. BROWN: My name is Jerry P. Brown. I'm the manager of golf courses for the City of Fort Collins here

in Colorado, and I've been very interested in Canada geese issues for a very long time.

I have to be a little bit careful from a political perspective, because the City of Fort Collins -- I cannot speak for the city government itself. I didn't get a resolution or any document from the government.

But as the manager of the golf courses in Fort Collins and also part of the parks and recreation department, we have a lot of Canada geese on our facilities. And the biggest problem isn't a safety hazard, like the previous gentleman has talked about. And technically it may not be a health hazard by legal definition, but it's clearly a nuisance and a problem of interacting geese with the urban population.

The three golf courses I manage, probably in the 23 years I've been managing them, Canada geese complaints is the highest amount of complaints I do receive. And it's strictly a matter of the fact that the golfers are on the golf course, they pay good money to be there, and it's our job to maintain the golf courses to the highest quality level that we can.

Canada geese pooping on the greens, especially, makes that difficult. We end up cleaning two and three times a day. It costs us quite a bit of money.

Obviously, during the season when they're

nesting they become quite territorial, and golfers get near the geese nests with their golf balls and, of course, the geese chase them, and it becomes kind of interesting.

I'm not really against Canada geese so much as I'm against having them on my golf courses. And I've talked to golf course managers throughout the front range of Colorado, and we all experience similar problems.

We in Fort Collins have been harassing legally through DOW permits and all of the various things that we have to do for at least 20 years, if not more.

By harassment, I'm saying we're just chasing them off. We're trying to move them from one place to another. I have used everything from, you know, shotguns to cracker shells, to chasing them in carts, to putting up barriers around my lakes, to all sorts of things, whatever is available.

You know, I didn't read the entire Draft EIS, but I read what affects our flyway and our region. And I felt that was a very excellent document. I agree again with you. It just seems like it covered a lot of the issues.

We are in the process of getting dogs to go on our golf courses. That's a separate issue. I had to get a legal change in our city code from the city council to allow dogs off leash in order to chase the

geese. I know what the rules are, that I can't do that between April 1 and July 31. So generally all the experts I talked to told me March is a great time to do that.

So we're going to do everything we can to harass them off the golf courses. There's even a laser product on the market that's being used in our area that shoots a laser at them and kind of scares them and they go.

We learned yesterday it doesn't work when they're in the water. It does work on land for some reason.

Again, we're trying to get them off the golf course, because the purpose of the golf course isn't an open space, it isn't a natural area. It's for golf and golf courses. And we spend millions of dollars to do that.

So from my perspective, I can't again come here and say I think we need to kill them or wipe out the species, or something of that nature.

In looking at Options A all the way down, as I recall, F talked about a 55 percent reduction in the bird population in the Flyway. And if nothing is done, like some people might advocate, I understand the geese population will double in this Flyway by 2005. And that's just unacceptable.

We're having so much interaction in Fort Collins

with geese and people it's becoming very difficult. I see geese now in places I never used to see them: In driveways, in apartment complexes and driveways. I was just amazed. I always expect to see them in an open area, but never in those closed areas where they can't get away.

So, anyway, I just simply want to go on record from Jerry Brown's perspective, as the manager of public golf courses, I would really like to see Option F implemented.

Again, I can't speak for the City of Fort Collins. I know my golfers just want to get rid of the geese off the courses. It's not -- I don't think that they're advocating mass destruction.

But the fact of the matter is there's too many geese, and we need to do something about it. And I do think Option F is pretty good.

Thank you very, very much.

MR. CASE: Thank you. Is there anybody else that would like to make comments that hasn't had a chance?

Okay. Then, with that, I'll adjourn the meeting and open it up. There's plenty of time for questions. If you have questions for Ron, you can come up and do that. But from the official meeting standpoint, we'll close the meeting.

And thank you for coming. I appreciate your taking the time and not being able to watch the hockey game as we speak.

Okay. Thank you. And we'll go ahead and open it up for questions.

(The public hearing was concluded at 7:45 p.m.)

CERTIFICATE OF REPORTER

STATE OF COLORADO)
)
COUNTY OF DENVER)

I, JOHN D. BOVERIE, a Certified Court Reporter and Notary Public within and for the State of Colorado, do hereby certify that I was present at the time of the proceedings set forth above, that I took down all proceedings stenographically, and that the foregoing is a full, true and correct transcript.

IN WITNESS WHEREOF I have affixed my signature this 10h day of June 2002.

JOHN D. BOVERIE, CSR
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U.S. FISH AND WILDLIFE SERVICE PUBLIC MEETING

ON RESIDENT CANADA GOOSE POPULATIONS

7:00 p.m.
Thursday, May 30, 2002
Bellevue, Washington

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May 30, 2002

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MR. SENG: I guess we'll go ahead and get started. Good evening and welcome to tonight's meeting on resident Canada goose management. My name is Phil Seng and I'll be the facilitator for tonight's meeting.

The purpose of the meeting is to take public comments on the Draft Environmental Impact Statement that the U.S. Fish and Wildlife Service has prepared on management of resident Canada geese. I'd like to thank all of you for coming out on such a beautiful evening to make comments tonight.

This is the last of 11 public meetings that have been held around the country on this issue. We started out on April 1st in Dallas, Texas. We had a meeting in Palatine, Illinois, which is a suburb of Chicago. From there we went to Waupun, Wisconsin; Franklin Tennessee; Bloomington, Minnesota; Brookings, South Dakota; Richmond, Virginia; Danbury, Connecticut; North Brunswick, New Jersey; and last night in Denver, and finishing up of course here tonight in Bellevue.

I’d like to recognize a couple of people in the audience, Brad Bortner there in the back, Region 1 Migratory Bird Coordinator. Don Kraege, who is the state waterfowl biologist with the State of Washington. And Brad Bales next to him, who is the waterfowl biologist for the State of Oregon.

The procedure tonight is very straightforward. We'll have a brief slide presentation by Dr. Robert Trost, who is the Pacific Flyway Representative for the U.S. Fish and Wildlife Service on the draft EIS. And then we'll open up the presentation to your comments, which is obviously the main reason we're here.

When you came in, you should have received a numbered card like this. If you intend to make public comment, you'll need one of these cards. We'll take them in order, so card No. 1 gets to make the first comment, and we'll go through as many cards as we handed out.

If you choose not to make public comment, when I call your number, if you would please just say pass so we can move on. If you do wish to make comments, please come to the microphone here

in the front for two reasons. First, so that everyone can hear what you have to say, and also so that Lisa, our court reporter, can capture everything you have to say and make sure that we don't get it wrong.

When you come to the mic, if you would please state your name and spell your name unless it's immediately obvious how to spell it. If you're representing an organization, please state what that is, and also if, would you tell us where you're from.

I’d like to mention that the format of this meeting is designed for the service to take your comments. It's not set up as a debate format. So please keep that in mind. If you have questions of clarification about what was covered in the presentation, Bob can choose to take those, but it's not designed to be a discussion format.

I'm going to be passing around a signup sheet. If you would, please, sign it so we know who was here tonight. Also there are

two check boxes below where you sign your name. If you received a copy of the draft Environmental Impact Statement, then you're on the Service's mailing list and you will get a copy of the final EIS when it becomes available. So check that box if you have received a copy so we don't get you on there twice, so you don't receive two copies.

If you did not receive a copy of the draft and you would like a copy of the final, there's another check box that indicates that to make sure you'll get a copy when the final is available.

And my job as meeting facilitator is to make sure that everyone has a chance to speak, so I apologize in advance if I need to cut someone off or ask you to hurry along your comments.

Again, the main reason is to make sure you all have a chance to speak. With this amount of people, it shouldn't be a problem, but I reserve the right to do that in advance in case I need to.

So with that, I'd like to introduce Dr. Robert Trost, and he'll give us a brief presentation on the Draft Environmental Impact Statement.

MR. TROST: Thank you, Phil, and good evening ladies and gentlemen. Again, my name is Bob Trost and I'm the Pacific Flyway Representative for the U.S. Fish and Wildlife Service, Division of Migratory Bird Management. I'm stationed in Portland, Oregon. And on behalf of our director, Steve Williams, I'd like to welcome all of you to this public meeting, and we certainly are pleased and appreciate the time and effort you have put in to coming here tonight to make comments on this draft EIS.

As Phil has already indicated, this is the 11th of 11 public meetings. It's true Washington definitely does think from east to west and we're last on the totem pole as is often the case, but nevertheless, an important part of this whole issue, and we hope that you do become involved in all sorts of these types of things.

We're here tonight for the purpose of inviting public participation and input into our process and in developing the final environmental impact statement for how we're going to manage residence Canada geese.

This Draft Environment Impact Statement was developed with the full cooperation of the U.S.

Department of Agriculture's Wildlife Services.

Why are we here? Well, that's a broad question obviously, but my small part of the answer tonight is we're here to explain the Draft Environmental Impact Statement, its proposed action, and to listen to your comments. The Draft Environmental Impact Statement considers a range of management alternatives for addressing expanding populations of locally breeding Canada geese. As such we are here to listen to you and to invite your comments on the Service's recommended management of these birds.

First, a brief explanation of NEPA, the National Environmental Policy Act. NEPA requires completion of an environmental impact statement to analyze environmental and socioeconomic impacts associated with significant actions.

NEPA requires public involvement including a scoping period before the Draft Environmental Impact Statement and a comment period after the Draft Environmental Impact Statement.

We began this process on August 19th, 1999, and we published a federal register notice that announced our intent to prepare this environmental

impact statement. Then in February of 2000 we held nine public scoping meetings designed to seek public input into this process. The scoping period ended in March of 2000, and some of you may have been here at the previously held scoping meeting. In response to the scoping, we received over 3000 comments and over 1,250 people attended the nine public hearings.

Top concerns that people identified at the scoping sessions were: Property damage and conflicts, methods of conflict abatement, sport hunting opportunities, economic impacts, human health and safety concerns, and the impacts of proposed actions to Canada geese.

Basically the NEPA outline mandates a specific format for an environmental impact statement. This is to include a purpose and need, a section on possible alternative actions, a description of the affected environment, and an assessment of what the proposed environmental consequences might be of the various alternatives considered.

Probably one of the first questions that comes to mind are what exactly are resident Canada

geese? We have chosen to define them for purposes of this environmental impact statement as those geese nesting within the lower 48 states in the months of March, April, May, or June, or residing within the lower 48 states in the months of April, May, June, July, or August.

Now to the purpose and needs section of the draft: the purpose of the EIS is to evaluate alternative strategies to reduce, manage, and control resident Canada goose populations in the United States. And, two, provide a regulatory mechanism that allows state and local agencies and other federal agencies and groups and individuals to respond to damage complaints or damages themselves. And, three, to guide and direct resident Canada goose population management activities within the United States.

The need we think is fairly straightforward. Basically what we're faced with is a situation where we have increasing numbers of resident Canada geese throughout the United States. In conjunction with these increasing numbers, we have growing conflicts, damages, and socioeconomic impacts of these growing populations. And this has led to a reexamination of the Service's

resident Canada goose management program.

And these are the alternatives that we took from the public scoping meetings as possible ways in which to approach addressing these questions and problems:

Basically what we're going to talk about is seven alternatives. The Draft Environment Impact Statement examines seven management alternatives. Alternative A is a no action alternative. Not change anything that we're currently doing at present. Alternative B is non-lethal control and management. Basically we would limit our activities to non-lethal control and management activities, things that currently do not require a permit to be undertaken.

Alternative C would be non-lethal control and management and would include those activities which presently are permitted with a permit. Alternative D would be to expand hunting methods and opportunities.

Alternative E would be a series of integrated depredation control orders. Alternative F is the state empowerment option and it is at present our preferred alternative in this Draft Environmental Impact Statement. And

Alternative G is the general depredation order.

I'm now going to talk about these in a little more detail, and I hope that -- several of you are already familiar with these alternatives -- but hopefully if not, this will give you a basis for some of your thinking on this.

The Alternative A is the no action. And basically under the no action alternative, no additional regulatory methods or strategies will be authorized. We would continue to use special hunting seasons. We would issue depredation permits, and we would issue special Canada goose permits.

Alternative B, non-lethal management and non-permitted activities. Under the second alternative, the non-lethal management in the above, we would again cease all lethal control of resident Canada geese and their eggs. We would use only non-lethal harassment techniques. We would not require any permits for these activities, and we would discontinue the use of special hunting seasons.

Under Alternative C, the non-lethal management including permit activities, we would

cease all permitted lethal control of resident Canada geese. We would promote non-lethal harassment techniques. We would not issue a depredation or special Canada goose permits. We would allow egg addling with a permit, and we would continue the use of special hunting seasons.

Under Alternative D, we would provide new regulatory options to increase the harvest of Resident Canada Geese. We would authorize additional hunting methods such as electronic calls, unplugged shotguns, and expanded shooting hours.

We would make such methods available or operational during the September 1st to 15th seasons. We would make use of such alternatives experimental between the periods September 16th to the 30th, and we would have a provision that said that these particular techniques would only be employed outside of other open seasons or other migratory game birds.

Under Alternative E, we would have a series of depredation orders, first of which would be one for airport depredations. We would also have a nest and egg depredation order. We would also have an agriculture depredation order. We would

have a public health depredation order.

We would leave, for the most part, the implementation of these depredation orders up to the state wildlife agencies. We would consider -- or we would continue the use of special hunting seasons, and we would issue depredation permits and special Canada goose permits. We would continue to issue these as we currently do.

Under Alternative E, the airport depredation order, we would authorize airports to establish and implement a program including indirect and or direct population control strategies.
The intent of this program is to significantly reduce goose populations at airports. We would mandate that such management
actions must occur on the premises.

Under Alternative E, a nest
and egg depredation order, we would allow the destruction of resident Canada goose nests and eggs without a permit. And the intent of this program would be to attempt to stabilize breeding populations of Canada geese, particularly within urban or suburban areas.

By an agricultural depredation order, we would authorize land owners, operators, and

tenants actively engaged in commercial agriculture to conduct indirect and/or direct control strategies on geese depredating agricultural crops. Again, we would mandate that such actions would have to occur on the premises.

On the public health depredation order, we would authorize states, counties, municipalities, or local public health officials to conduct indirect and/or direct control strategies on geese when recommended by health officials, and where there is a clear and public health threat. Again, we would mandate that such actions would occur on the premises where the problem was.

Under Alternative F, the state empowerment, this is our preferred Alternative. We would establish a new regulation authorizing state wildlife agencies or their agents to conduct or allow the management activities of resident Canada goose populations.

Our intent would be to allow state wildlife agencies sufficient flexibility to deal with problems caused by resident geese within their respective states.

In this regard we would authorize indirect

or direct population control strategies such as aggressive harassment, nest and egg destruction, gosling and adult trapping, and culling programs. We would allow implementation of any of the specific depredation orders included under Alternative E.

In addition, during existing special hunting seasons, we would expand methods of take to increase hunter harvest. We would authorize additional hunting methods such as electronic calls, unplugged guns, and we would expand shooting hours. We would make such changes operational during the September 1st to 15th period. And we would make such changes experimental during the periods of September 16th, to 30th. Again, such special Canada goose seasons must be conducted outside of the regular waterfowl hunting seasons.

Under the conservation order, we would provide special expanded harvest opportunities during a portion of the treaty that is presently closed between August 1st and 31st and the open period September 1st to 15th.

During this time we would authorize

additional hunting methods such as electronic calls, unplugged guns, and expanded shooting hours, and we would also allow liberalized bag limits. Again, these must be conducted outside of regular seasons.

The Service would annually assess the impact and effectiveness of this program. The provision for possible suspension of these special regulations, the conservation order, or changes to the regular season structure is there and would be probably altered if there was no longer a need present for their use.

Under this alternative as well we would continue, of course, all special and regular hunting seasons. We would continue to issue depredation and special Canada goose permits, and the state would be required to annually monitor the spring breeding population of the Canada geese within its state. And it would also be required to report the take that occurred under these authorized activities.

Under the last alternative considered was one of a general depredation order. And here we would allow any authorized person to conduct management activities on resident geese either

posing a threat to health and human safety or causing damage. Such a depredation order would be available to all between April 1st and August 31st.

This would as well provide for expanded hunting opportunities. It would allow for the continued used of special and regular hunting seasons, and the issuance of depredation and special Canada goose permits. And it would allow for the authorization of all management activities to come directly from the state rather than the federal government.

A little bit about the affected environment: For impacts under the biological environment, these are the things we looked at: We looked at potential impacts on resident Canada goose populations, water quality and wetlands, vegetation and soils, wildlife habitat, and federally listed threatened and endangered species.

Under the socioeconomic environment, we looked at migratory bird program management aspects, the sport hunting program, and the migratory bird permit program. We took a look at social values and considerations. And under

economic considerations, we considered property damage and damage to agricultural crops. Obviously too, we considered human health and safety, and the cost of the program itself or program administration.

The environmental consequences section then, attempts to pull these things together, and basically it forms the scientific and analytic basis for comparing the alternatives. It analyzes the environmental impacts of each alternative in relation to the resource categories. The no action alternative provides the baseline for all of our analysis.

Under the no action alternative, we would expect that the populations of resident Canada geese would continue to grow. We predict that in the Atlantic Flyway, approximately 1.6 million resident Canada geese would exist within the ten-year time frame. Within the Mississippi Flyway, approximately 2 million additional Canada geese will exist within a ten-year time frame. Within the Central Flyway, 1.3 million, and within the Pacific Flyway, 450,000 resident Canada geese should exist in the next ten years without action.

We expect this type of population growth

will lead to continued and expanded goose distribution problems and increasing numbers of conflicts with other human uses.

We also anticipate that this growth will lead to increased workloads for a variety of different folks, both public and private. And we expect that this growth would lead to continued impacts of the type we've witnessed on property, safety, and human health.

Under the preferred alternative, the state empowerment, environmental consequences, we expect to achieve a reduction in populations especially in problem areas. We would expect to have, as a result of the preferred alternative, increased hunting opportunities. We would also expect a significant reduction in the number of conflicts. We expect decreased impacts to property, safety, and human health.

We expect workloads to increase somewhat initially, but over the long term, we expect workload problems to decline. And we expect that under this alternative we will maintain viable resident Canada goose populations.

The results of some recent population modeling that we have done suggest that to reduce

the four Flyways' population from its currently estimated 3.5 million down to approximately 2.1 million, under the preferred alternative, will take about ten years.

We hope to achieve this or we believe this would be achieved by increasing the harvest by 480,000 geese annually. We also expect that we would be taking an additional 852,000 goslings annually, and would be removing over a half a million nests annually to make this reduction work, the combination of additional harvest of 240,000 geese annually and 320,000 goslings annually.

Our conclusions then: we believe there is only one way to attain these numbers, and that is to give states the flexibility to address these problems within their respective states. To allow us or those states to address population reductions on a wide number of available fronts.

And since states are the most informed and knowledgeable local authorities on wildlife conflicts, the primary responsibilities and the decisions for the programs should be placed with states and local governments.

What comes next? First would be the

development of a new regulation to carry out the proposed action. This should be forthcoming in May. Today is the last day for public comments on this Draft Environmental Impact Statement. And, third, we expect the publication of the final Environmental Impact Statement, a record of decision on what the final determination is, and the final rule sometime during the fall of 2002.

As I stated, today is the last day for public comments. I'm sure that if you feel smitten with insight here that you would care to share with us and get it in the mail to us shortly, those comments would be considered, recognizing that this public hearing is not conducted until the date of the closing period, but I encourage any of you so inclined to send your comments in.

I think that Phil will review some of the ways in which you can comment besides commenting here at this meeting. And of course should you chose to, oral or written comments may be submitted tonight as well.

The address should be printed on the back of the card you received when you arrived here tonight. And additionally, we have set up an

electronic site where you can email comments and access other information pertinent to this EIS process, and I think Phil will be filling you in on what that is as well.

And so, on behalf of the Fish and Wildlife Service, I would like to thank all of you for attending the meeting, and particularly thanks to those of you who are going to comment, either orally or in writing later. Thanks again.

MR. SENG: Thanks, Bob. Now, for the important part of the meeting, to hear what you have to say. I would just like to again mention, we'll go in order. When I call your number, if you don't want to comment, please just say pass so we can go on.

And Bob mentioned about the address on the back. The email. I would encourage you to use the email address if you're going to make comments

As most of you know, because of the 9/11 situation and the Anthrax issue in Washington, mail going into Washington D.C. has not been as

timely as it might otherwise be, so the email is the way to go if you choose to do that.

Again, when you come to the mic, you have to stand pretty close to the mic for it to pick up, so I ask you to do that. State your full name, spell your name unless it's immediately obvious, and any organization you represent, if you're formally representing them tonight, and where you're from. So without further ado, card No. 1.

MS. WATHNE: My name is Lisa Wathne, spelled W-A-T-H-N-E. I'm the director of the Pacific Northwest Regional Office of the Humane Society of the United States. And if I could just ask my question first before I give my comments.

On the slide where you showed the numbers of geese, goslings, and nests that were going to need to be removed and harvested over the next ten years to meet the goal, is that an increase in harvest, or is that the total desired harvest?

MR. TROST: It's an increase, and I apologize because I don't believe that was clear. The total numbers that we anticipate include those that are currently taken plus those under the new

regulations.

And we do anticipate that there would be about 240,000 geese harvested annually that are not currently harvested, and that the implementation of the preferred alternative would result in the taking of about 320,000 goslings more than are currently taken.

MS. WATHNE: Okay, thanks. Again, I'm with the Humane Society of the United States with the Pacific Northwest Regional Office. We cover the states of Washington and Oregon. And our Wildlife and Habitat Protection Division has already provided our organization's official comments regarding the Draft Environmental Impact Statement, but I wanted to come here tonight just to offer some comments I think more specific to our region.

And I'd say that in my opinion, one of the most striking points about this document, about the EIS, is that it does not provide information on exactly what is involved or what is going to occur or occurs under the various lethal control plans that are mentioned except for hunting, of course. That's obvious.

But except for hunting, the lethal control

options are only alluded to, they're not described. And this does not leave an opportunity for an average member of the public who is reading this document and who cares about geese to grasp the nature of the roundups. And the roundups and gassing that is part of these options are a very real and a probably very necessary option for the plan that you've proposed.

Last year many of us in the Puget Sound area and a good number of the people sitting in this room watched one of these roundups performed by the United States Department of Agriculture.

We watched geese be baited with food into pens, roughly grabbed and shoved into gas chambers where, according to my organization's veterinarians, there is a very good chance that many of them suffocated to death rather than humanely dying through the gassing process as was intended.

In many instances geese were rounded up and killed in areas where non-lethal methods had not been employed, and where egg oiling had either not taken place or had been done inadequately. And as a consequence, hundreds of the birds that were rounded up and killed were goslings who never had

to be born to begin with. Their lives could have been prevented and their, what we consider cruel and unnecessary deaths could have been prevented.

And at one point in your presentation you talked about the social values and considerations that were taken into consideration for your plan. And I would suggest that if most people knew truly what was meant by lethal option and had the chance to watch any of those roundups, the social considerations that you are thinking about would be skewed in a very different way.

I think -- I know that people would be outraged by what I saw and what a number of us in this room saw last year.

Thousands of birds suffered needlessly in the gas chambers but USDA, you know, declares that once again this year there's going to be more slaughters, the same number of birds as last year.

I personally find it a remarkable circumstance of wildlife management that neither the federal nor the state governments seems to be capable or willing to help people resolve conflicts with wildlife without killing. And I say this as somebody that has a degree in biology. From day one when I began my studies, that seemed

a remarkable fact to me.

Simply put, in our opinion there's no justification for killing when non-lethal and humane alternatives are available and have proven to be successful. More than a dozen communities throughout the country engage in comprehensive, non-lethal goose management programs using community-based resources.

These approaches offer the only realistic solutions to the problems people experience with Canada geese and they deserve to be given a chance to work in other locations. Our office stands ready to help in this area with that.

We have been effectively shut out of the process here, mostly by the United States Department of Agriculture, but your agency has made the permitting process -- I should say your agency's permitting process is extremely cumbersome and not conducive to helping people who want to help.

The Pacific Northwest Regional Office of the Humane Society of the United States challenges you, the U.S. Fish and Wildlife Service to forgo killing and to opt for more effective and responsible approaches to Canada geese. Thank

you.

MR. SENG: Thank you. Card 2.

MS. BRAGDON: My name is Katherine Bragdon, and that's K-A-T-H-R-I-N-E, Bragdon, B-R-A-G-D-O-N. No affiliation today. I urge you to avoid any plan that would increase hunting opportunities and to use roundups as a means to decrease the Canada goose population. As Lisa Wathne had mentioned, there are many methods for reducing the number of geese that are community-based, effective, humane, and economical.

For instance, in Seattle the Humane Society of the United States trained 60 volunteers to addle eggs last year. There were more volunteers than there were opportunities to addle. Meanwhile, the opposite was true for the federal agents, who had more nests than they could effectively handle.

The result, a taxpayer-funded roundup of geese who should have never been born. It made no sense to not take advantage of the outpouring of support for a humane solution and then to go forward with an undeniably cruel, unnecessary, and ultimately an unsuccessful plan given the killing that they are again going to be doing this year.

It's just astounding.

Including the community in an opportunity like this is a win-win situation. While it not only addresses the perceived problem, it also saves money and educates people about our natural environment that is currently being decimated by development, overlogging, pollution, et cetera.

As a society, we must all become involved in protecting our natural resources which play a central role in the health of human and nonhuman inhabitants.

Community activities like these that are based on humane and scientific solutions as well as tolerance can provide a vehicle for this needed participation. Again, I urge you to develop a plan that is humane and effective and does not include any unnecessary gassing of Canada geese. Thank you for the opportunity to speak tonight.

MR. SENG: Thank you. Card 3?

MR. METZ: My name is Dr. Stewart Metz. That's S-T-E-W-A-R-T, M-E-T-Z. I live in Bellevue. I'm speaking for myself, but I've been an internist for the last 30 years, and I'd like to address the health issues involved with the Canada geese. I'd like to read this if I could.

"Any of the proposals to killing thousands of Canada geese when based principally upon health concerns is predicated upon two assumptions:

"No. 1, that both feces of Canada geese and the nearby bodies of water contain high titers of human pathogens such as coliform bacteria, which can be attributed to the geese. And 2, if the feces in the water are contaminated, they have led and will lead to human disease.

"To my knowledge, neither of these postulates has been proven to be true. What are the facts?

"Two recent studies of Canada goose feces by Rosco, et al and Converse, et al and carried out by the National Wildlife Health Center and New Jersey Division of Fish and Wildlife. The major findings can be summarized as follows:

"No. 1, they looked specifically in Canada goose feces for serotype 0157:H7, the form of e. coli best documented to be a pathogen for humans. It was not found.

"No. 2, they looked for salmonella, shigella, campylobacter, and Yersinia. These bacteria were not found in this and other studies as well. They looked for listeria species. While

it was found in occasional samples, many of the isolates were not pathogenic, i.e., were not disease causing. And even where listeria was found in geese, it was usually found in domestic, not Canada geese.

"Similarly species of parasites and protozoa were found, but their pathogenicity was not established. I am unaware of any outbreaks of protozoal disease shown to be due to Canada geese. Converse concluded in these studies that, quote, 'The low frequency of positive cultures indicates that the risk to humans of disease through contact with Canada goose feces appeared to be minimal,' close quote.

"Similarly Roscoe concluded that, quote, 'Canada geese do not pose a significant source of environmental contamination,' and quote, 'That no human disease outbreaks have been directly linked to exposure to goose feces.'

"Surely we haven't forgotten the lesson of the Northwest resort which was shut down recently due to repeatedly high titers of coliforms in the spa water. It was ultimately determined that the cause of the contamination was the bathers themselves, not the wildlife.

"Conversely, I would conclude by calling your attention to the recent so-called Henhouse Inspection Bill designed to prevent infection of eggs by salmonella enteritidis, an undeniable cause of epidemics of potentially fatal human gastroenteritis merely by the non-lethal measure of examining the hen houses and the hens therein.

"Yet our Legislature in their wisdom did not pass this bill. If we do not take steps to prevent diseases using simple and effective measures requiring no killing of animals, I maintain that is unresponsive, inconsistent, disingenuous, and even hypocritical to consider sacrificing living creatures whose role in disease causation is far less certain.

"In the 21st Century, I would hope that we could demand facts before we end innocent lives." Thank you for letting me speak. (Applause.)

MR. SENG: Thank you. Card No. 4.

Pass.

MR. SENG: 5.

SPEAKER: I'd like to pass, but I do have a comment or question.

MR. SENG: Can you come to the mic.

MS. WINESTEIN: My name is Diane

Winestein and I'm here as a citizen. My question is, I'd like to know what an unplugged gun is, not knowing much about guns. I would also like to know how the comments are going to be used, if we're just going through the motions and you've already made a decision. I'd like specifically to know how the comments are going to be used.

MR. TROST: First, the easy question, more probably the easier of the two. Federal law requires that those folks hunting migratory birds hunt with a gun that's not capable of holding more than three shells. Most shotguns will hold five or more. And, therefore, they're plugged.

An unplugged shotgun means that they would not be required in any special seasons to have a plug in their gun. And many hunters feel that they could kill more birds on a given occasion if they had the use of the additional shells, so that's what that refers to.

The other part is, no, we're not going through the motions. We're soliciting comments on the alternatives. We will go back, we will consolidate all of those comments, review them, take a look at how they come out as far as -- it's not really a numbers thing, but about the salient

arguments that are made about and what seems to be the most prevailing public sentiments across the country.

And we will attempt to select the preferred alternative which may not be what we currently would indicate in the final. And when the final comes out, we will make a decision which will be heavily influenced by the comments we've received on the draft. Does that answer your question?

MR. SENG: Card 6.

MR. VARDEN: My name is Bob Varden, that's V-A-R-D-E-N. I'm a Humane Society United States volunteer. I live in Seattle, and I understand that the Humane Society of the United States has offered on different occasions to have their volunteers oil and addle eggs and to train their volunteers to do this in a professional way, and has not been met with very receptive reception on the part of the USDA and your agency.

And I'd just like to have your comments on why this is so. And we have hundreds of volunteers who are ready and who will be professionally trained to do this, so I'd just like to have your comments on that, please.

MR. SENG: Is that a Fish and Wildlife

Service issue or USDA?

MR. TROST: It's primarily USDA.

MR. SENG: Do you want to respond?

MR. TROST: My response is going to be, it's not something that's within the context of the Draft Environmental Impact Statement. There are representatives here from the different agencies, and if you'd like, we will probably be willing to discuss this with you after the meeting. But it really has no bearing on the Draft Environmental Impact Statement.

MR. SENG: Card 7.

MS. MORRIS: My name is Yolanda, Y-O-L-A-N-D-A, Morris. No affiliation. I just wanted to state for the record that I oppose any use of inhumane and lethal controls. And my second point was going to be what Bob just touched upon, which you guys can't really do anything about, but just accepting the help of the many volunteers that are willing to help with the more humane methods of population control. Thanks.

MR. SENG: Card 8.

MS. THOMAS: My name is Sheridan, S-H-E-R-D-A-N, Thomas, T-H-O-M-A-S, and I'm here today representing PAWS, Progressive Animal

Welfare Society. I'm also representing the 40,000 members we represent throughout the State of Washington.

PAWS operates the largest wildlife rehabilitation hospital in Washington. Members of the public frequently bring injured and often Canada geese, which we rehabilitate and return to the wild. It is because of community interest in the well-being of Canada geese that we feel strongly about the proposed EIS.

On a hot, sunny day last summer, PAWS staff and volunteers spent the entire day in Greenlake Park handing out information on Canada geese. Hundreds of people walked past and took our information. The majority gave us comments as they walked and jogged by.

Well over 90 percent of these people expressed their outrage that wildlife are being killed in their park. They acknowledge that goose poop is a nuisance and some questioned the health and safety aspects.

However, when informed that there are alternatives to killing the geese, they were outraged that the authorities weren't trying harder to use these methods. They questioned why

there weren't more signs in the park asking people not to feed the geese. They wondered why authorities aren't working with local groups to addle more eggs. They wondered why park management isn't landscaping to discourage geese from congregating in well used areas.

I've also been meeting with residents who live along Lake Washington and have geese coming into their yards. These people live in million dollar homes and their yards are beautifully manicured. They don't want their lawns messed with goose poop, but they've expressed that they don't want the geese killed.

Many residents are trying repellants and utilizing fences and hedges to keep the geese out. They're encouraged to hear that population numbers can be controlled by addling. They also wonder why addling isn't taking place to any large extent and why authorities are not working with community groups and residents to try these humane methods.

The community does not want increased gassing or hunting of geese. The community is willing to work with authorities on humane geese management. Thank you.

MR. SENG: Card 9.

SPEAKER: Pass.

MR. SENG: 10.

MS. HANAN: Janet Hanan, H-A-N-A-N, Bellingham, Washington. I'm not affiliated. I too am vehemently opposed to any plans that call for a lethal solution to the Canadian geese issue. I'm especially horrified at the numbers that were presented tonight.

Surely you know that killing, short of total genocide, is never a successful method of population control. I grew up hearing the adage from hunters and if you know any hunters, you may have heard this as well: The more you kill, the more you get.

I want to share with you my experiences. I live in a golf course community on Lake Whatcom in the northwest corner of Washington State. We had 80 geese rounded up and gassed last year to the horror of 95 percent of the community.

The reason, too much goose feces on the golf course. Now less than a year later there are again an estimated 80 geese around the golf course. I rest my case. Killing doesn't not work.

Furthermore, attempts to justify lethal

schemes with unsubstantiated allegations that the goose feces is a health threat are bogus and irresponsible. In Whatcom County there have been studies conducted to determine Lake Whatcom's condition. Dr. Mark Le Pay, an internationally known water toxicologist and public health expert has recently found that contaminants to the lake are not related to goose feces.

For example, the unacceptable levels of PCPs, and I quote from his report, "Suggest logging residues of treated lumber as a continuing source of water pollution and the abundance of other pollutants were found to exceed permissible levels," but he attributed them to, "Insufficiently processed human waste."

I just want to add that this is a new world after September 11th. Life is precious. (Applause.)

MR. SENG: Card 11.

MS. TANNER: Ann Tanner, T-A-N-N-E-R, from Mount Vernon. I just wanted to make a very short comment. I, like many -- most people here are totally opposed to lethal methods of controlling goose population, and I would urge you to only consider methods of non-lethal control and

take into account all the volunteers who are willing to help you do that. Thank you.

MR. SENG: Thank you. Card 12.

MS. TAYLOR: I'm Debby, D-E-B-B-Y, Taylor, T-A-Y-L-O-R, and I'm from Shoreline, Washington and I'm unaffiliated. I agree with everyone so far that I support the geese basically and would like to see non-lethal methods and addling used.

I consider the whole goose mess, basically man has made it and man has enhanced it, and I think we're looking at extreme measures of dealing with it and I think we need to be more compassionate, and we can also be practical at the same time in dealing with this and we have the potential for many volunteers helping with this. And that's basically what I have to say.

MR. SENG: Thank you. Card 15.

MS. CHILCOAT: My name is Chelsea, C-H-E-L-S-E-A, Chilcoat, C-H-I-L-C-O-A-T, and I'm going to be pretty brief because most of what I

wanted to say has already been said, but I am incredibly opposed to using lethal methods for geese population control. There are plenty of alternatives such as egg addling that the public is willing to participate in that will not only increase the value for life and teach people respect for the environment, but also get the community involved in issues like this. So please go in favor of the non-lethal methods. Thank you.

MR. SENG: Thank you. Card 16.

MR. MOSS: Bill Moss, M-O-S-S. I'd like to really object to the presentation and how slanted it was all the way down to this is the one we're really pushing. This one is the huge one here. This one we're really going to itemize and we're really pushing this one.

There's no form of objectivity in that at all, which is a huge uphill battle to fight an agency out of control, and who's going to turn it over to other individual agencies who are

themselves out of control, lining their pockets obviously with federal money and keeping themselves very busy at this control issue.

But anyway, if this was Panda Bears, if it was Panda Bears, what, are we going to stuff them in there and gas them? I don't think so. But what's the difference? Is it kind of a speciesist thing? It's animals we don't like.

Where did this come from? Whose idea was it? We're going to kill a bunch of stuff. This is a real problem. We got an agency here and we've got to do something with it. We can kill some stuff and we can be all puffed up and we can make presentations all over the place and we can take input. Thank you very much.

And we can be heavily influenced by that, I'm sure. I saw a lot of our heavy influence on your presentation. But anyway, I wanted to -- I was going to talk about Oz and the people behind the curtain and the people looking for a heart and some courage, and what was the other?

THE AUDIENCE: A brain.

MR. MOSS: A brain, and I was going to expose you as the guy that Toto pulled back, pay no attention to the guy behind the curtains who's

like manipulating everything. Right, but I thought...

What I want to do is talk about the kids. And what kind of influence is that on the kids that are coming up? And I wanted to say one word: Mylar. Mirrored Mylar. What kid can get himself a gas chamber? CO2 is just really hard to come by. Any kid can lay his hands on some Mylar and make a little fence of Mylar that flutters in the breeze and distracts as many geese as can be killed in a day.

But maybe they would like to model themselves more directly after you and you could help them along by using means that they could get their hands on more readily than CO2. Want to invest heavily in C02. Think about the kids. Think about yourself when you were a kid.

MR. SENG: Thank you. Card 18.

MR. WATSON: My name is Larry Watson from Bellevue, Washington. Most of what's been said tonight I agree with. I would like to just say that I don't agree with lethal, using any lethal means, and as people have expressed before me.

And what I don't understand is it seems to

me you're taking the most economically high cost method of doing what you're trying to do. I think we all realize that there may be a problem, but you've gotten all kinds of offers from people to help you free of charge. And, furthermore, I don't understand why you want to use our tax money to kill something that we created as human beings. Thank you.

THE AUDIENCE: (Applause.)

MR. SENG: Card 19.

MR. KOSTURA: My name is Dan is Kostura, K-O-S-T-U-R-A. And actually I wish to submit my comments in writing, but I feel it's been unclear as to when the deadline is to submit these comments. Is there a definitive date we should do this by?

MR. TROST: The official date is today, May 3rd.

MR. KOSTURA: I know.

MR. TROST: And in recognition of the fact that the public hearing is tonight, they'll generally take them postmarked within a week.

MR. KOSTURA: Okay. And will that apply for email as well?

MR. TROST: Yes.

MR. KOSTURA: Thank you.

MR. SENG: Thank you. Card 20.

MR. STOCKLA: Walter F. Stockla, S-T-O-C-K-L-A, of Covington, Washington. Covington is right next to Kent. I'm basically just going to read the written statement that I submitted earlier, and then I have a few off-the-cuff comments that sort of occurred to me while I was sitting here listening to other folks.

I would like to offer my comments regarding your agency's Resident Canada Goose Management Draft Environmental Impact Statement. I'm opposed to increased hunting and the encouragement of wholesale roundup and gassing of geese as a wildlife management technique.

Non-lethal methods have been demonstrated to be more effective and are obviously more humane. For example, the organization, Geese Peace in Fairfax County, Virginia, in your agency's own backyard, has clearly demonstrated the effectiveness of egg addling and occasional habitat modification.

Why does a volunteer organization show more creative thinking than highly paid government bureaucrats? I am sick and tired, damn sick and

tired of the attitude that the solution to every perceived animal or human/wildlife conflict is to just start killing wildlife.

Humane, non-lethal methods do exist and have been successful. Use them. Remember, the title of your agency is the Division of Migratory Bird Management. Not Division of Migratory Bird Extermination.

Now my impromptu comments that sort of occurred to me. I guess the first one is, really how bad is goose poop or bird poop anyway? I mean several times in my life I've been hit by bird poop. About five years ago maybe, it was even less than that, maybe it was a few years ago, I was walking my dogs and some bird pooped on my shirt.

Okay. I didn't think I was in any need of immediate medical aid or run to the emergency room at the hospital. And just about a month ago I had a bird poop on my head. I wasn't worried about my imminent demise. I went and wiped the damn thing off.

Okay. The next thing, I think the hunting approach is kind of absurd. There are places where you can hunt and there are places where

there might be too many geese. They're not the same place. The geese are probably regarded as being in too large numbers maybe in waterfront community geese.

You're going to go out there and start shooting away from your shotgun 50 yards from people's houses. That's just plain stupid. The other approach, gassing the geese, okay, you know, you damn well have to know that the public is against this because the times that the gassing of geese has been used, the agencies that have been doing it have tried to do it in secret.

They would not announce where it's going to be and they would do everything possible to hide the fact they were doing it. So you know that the public is appalled by this and is going to be opposed to it. And there's going to be demonstrations, at least I hope there are, because if there are, I'm going to be there.

The final thing is an analogy. Basically there's too many geese, the question is what do you do about it? That's kind of like let's say you decided your family was to big for the house. Maybe you were thinking you have too many kids. What do you do? Do you use birth control,

analogous to egg addling, or you just let the kids be born and decide to machine gun them. That's the analogy. Thank you.

THE AUDIENCE: (Applause.)

MR. SENG: 21.

MR. DEERING: My name is Frank Deering, D-E-E-R-I-N-G, like the animal deer. And I just want to say that I oppose any lethal method to manage the populations of Canada geese. And I was very struck by your presentation that the only one of the benefits of your Alternative F were increased hunting opportunities. I can't say that that speaks anywhere near to me, thank you.

MR. SENG: Thank you. Card 22.

MS. DEERING: Beverly Deering, D-E-E-R-I-N-G. I too am totally opposed to any kind of lethal method of control of Canada geese or, in other words, killing. I am in favor of your Alternative B, non-lethal methods with the addition of egg addling. Any kind of alternatives for killing geese are not humane and not acceptable.

I just wanted to mention that I had heard on public radio within the last month that there was

some report -- and I'm sorry, I don't have the facts about who it was -- but that the population of Canada geese in this area had actually decreased. So I'm afraid that I do question the accuracy of the population figures.

I highly resent the spending of tax dollars for killing of wildlife, which I love. I was heartbroken last year by the implementation of your Alternative A which the plan calls no action, which means the mass killing of geese, so that now a park where I regularly walk has -- the population is so reduced that when I go there I usually don't see any geese.

I feel it's not the action of a civilized society to inhumanely kill innocent animals when their presence is an inconvenience to some. It's really time to find more humane ways to deal with these conflicts rather than these quick and dirty solutions. Thanks.

THE AUDIENCE: (Applause.)

MR. SENG: Thank you. Card 23.

MR. BALES: My name is Brad Bales, B-A-L-E-S, and I'm the Migratory Game Bird Coordinator for the Oregon Department of Fish and Wildlife in Portland, and I have statement from

our agency. I'm also here representing the Pacific Flyway Council, made up of ten western states. I have a brief statement.

There were two letters submitted by both the Pacific Flyway Council and the Oregon Department of Fish and Wildlife that should have been received in the Arlington office by now.

Just to hit the basic highlights beginning with the Pacific Flyway Council. The Council believes programs to manage resident goose issues including depredation should be coordinated among all flyway member states. Accordingly, they cannot concur with the Service's selection of Alternative F, state empowerment, as the preferred alternative currently outlined in the environmental impact statement.

Overabundant resident geese are a nationwide concern and the Service must maintain a leadership role in partnerships with all states to implement effective management solutions.

However, the Council does support the options listed under Alternative F pertaining to depredation and conversation orders. These options would give states substantial flexibility to address resident goose problems.

The Oregon Department of Fish and Wildlife in a similar vein would support Alternative F under conditions that, one, the Service maintain a leadership role and partnership with all states to implement effective management solutions to deal with resident Canada goose issues.

Two, dedicated federal funding to the states' reduced depredation management programs. And lastly, the management flexibility that is outlined in the orders under Alternative F must be streamlined to become an effective and easy to use system. Again, the Department conditionally supports Alternative F under these conditions. With that, thank you.

MR. SENG: Thank you. Card 24.

MS. PARRAO: I am Edith Parrao, P-A-R-R-A-O, and I'm from Olympia. And I always watch the geese when I am going in the park by the Nisqually wetland refuge. And they're such beautiful birds and they mate for life and go through a mourning period when one of their

partner dies. And they're such good parents with their goslings, and I just don't think they should be gassed. Thank you.

MR. SENG: Thank you. Card 27.

MS. SKINNER: I'm Rebecca Skinner and I'm from Seattle. And I'm just going to read the letter that I sent over a month ago to the Division of Migratory Bird Management which I haven't received any response, so...

"Recently I observed three Canada geese and a flock of goslings. These geese reminded me that springtime weather has arrived in Seattle.

"I am writing because I am concerned about the future of Canada geese and the lethal methods of dealing with humane wildlife conflicts. The geese I see along Lake Washington or Lake Union in Seattle are a friendly reminder of why I moved to Seattle.

I enjoy observing wildlife and do not want their livelihood threatened because of public misconceptions regarding threats to public health and safety via goose feces.

Many people in the northwest are interested in community-based programs to help resolve problems with geese humanely. I'm asking the U.S.

Fish and Wildlife Service and the United States Department of Agriculture to support community-based programs that deal with geese humanely.

Last summer I spent many evenings on the shore of Lake Washington observing geese who establish long-term bonds and create tightly knit family units. One of the most interesting experiences I had while sitting with the geese involved a transient who told me he had names for all the geese. He told me they return every year to the same shore to rest.

Please let the geese rest in peace and stop the lethal methods of gassing geese in order to control population. There are many problems with the U.S. Fish and Wildlife Service's plan to kill large numbers of birds, including the fact that the USDA officials mistakenly kill ducks and other wildlife in the process of gassing geese. Thank you for taking the time to hear my concerns regarding lethal methods of controlling wildlife. I hope you have the opportunity to enjoy the outdoors this summer and spend time with wildlife in your home state. Thank you.

MR. SENG: Thank you. Card 28.

MR. PENNINGTON: My name is Nancy Pennington, P-E-N-N-I-N-G-T-O-N. I was just going to -- I'm from Seattle -- say that there don't appear to be a lot of hunters here, but the gentleman before the last woman, I believe, works for the USDA.

MR. SENG: State waterfowl biologist.

MR. PENNINGTON: State. And this is a public hearing, whichmeans private citizens can comment. Is this appropriate for him to be commenting?

MR. TROST: (Nodding head.)

MR. PENNINGTON: It is. I have a couple of questions. One is, in your presentation there was a lot made of health and safety in regard to the geese. Dr. Metz and a couple of other people have addressed safety issues -- the health issue which I think has been established is non-existent. There are no threats to public health from the geese.

The question I have is, what is the safety threat?

MR. TROST: The most often used example is collisions with aircraft at airports. And there are documented fatalities associated --

MR. PENNINGTON: So airports?

MR. TROST: At airports, yes.

MR. PENNINGTON: Okay. That's a safety issue?

MR. TROST: Yes.

MR. PENNINGTON: Okay. I just wanted to make one comment. I concur with everything that everybody has said except the gentleman from Oregon, that I'm opposed to all lethal methods for all the reasons that everybody has stated, but one I think is really important is that our children are being taught that the way to deal with any problem is to kill it.

I don't believe that your department has given a fair chance to alternative methods. And I'd also like to point out as someone else did, that these people are sneaking around in the dead of night to gas the geese. They want the children in the parks to see what happens. If they are doing a decent and honorable thing, they can do it in broad daylight.

THE AUDIENCE: (Applause.)

MR. PENNINGTON: I also wonder why you don't take advantage, there is a room full of volunteers willing to go out and addle eggs to

stop the birth of too many birds. Why don't you use it?

Obviously the USDA can't get to every spot to addle every egg. We are willing and ready to go. Why are the permits being denied? This just doesn't make any sense. And I thank you for listening to my comments.

MR. SENG: Thank you. Card 29.

MR. MORAN: I'm Jamie Moran, M-O-R-A-N, of Seattle. I oppose lethal management methods--management, quote, unquote. While Alternative C is very good in that it encourages and I encourage egg addling, it does allow for inhumane special hunting, and, therefore, is flawed. Thank you.

MR. SENG: Thank you. Card 30.

SPEAKER: Pass.

MR. SENG: 31.

MS. BAKER: Karen Baker, Redmond. I pretty much agree with everything that's been said by everyone else. It's just unacceptable to spend our tax dollars to murder hundreds of thousands of animals. And in this day and age, it's just ridiculous. There's much better things that we can be doing with our tax dollars.

And in addition to egg addling, I'm sure there's some other means of birth control that can be devised. I believe I read somewhere that there's things that can be put in feed to give to birds to keep them from reproducing, so something like that could probably be useful.

But going out and killing hundreds of thousands of birds is just totally unacceptable, and I don't like my tax money being used for it.

MR. SENG: Thank you. 32.

MS. GRUBB: My name is Eunice Grubb, spelled E-U-N-I-C-E. And like others here I'm an advocate for the humane treatment of all animals. I'd like to quote the philosopher or naturalist, Immanuel Kant, who has said that the moral character of a man can be judged by the way he treats animals.

By extension, our governments, our communities can also be judged, their moral character can also be judged by the way it or we treat the animals in our communities. The cruel roundup and gassing of these innocent animals is truly inhumane and unacceptable.

Non-lethal methods of hunting and gassing are also not acceptable. If they must be removed,

killing, killing, killing is not, should not be the way of our lives today. Thank you.

THE AUDIENCE: (Applause.)

MR. SENG: Thank you. Card 33.

MR. KINNEY: My name is Les Kinney, K-I-N-N-E-Y. I was out at Marymoore Park a week and a half ago, and a V-pattern of geese flew overhead, and there was probably 30 or 40 geese, and it was absolutely gorgeous. And the thought of shooting or gassing those geese is just appalling to me. Please look at alternatives to killing to manage the geese population. Thank you.

THE AUDIENCE: (Applause.)

MR. SENG: Thank you. Card 34.

MS. DUNSMORE: Hello, my name is Terry Dunsmore, D-U-N-S-M-O-R-E. Everyone here has spoken so eloquently about being opposed to the goose kill and I am also completely opposed to it. But I do have a question for you.

You mentioned some social value studies that were done, and I'm interested in how the studies were conducted. Were they outcome studies, where I might get copies of those, and what the outcomes of those outcome studies were. Can someone speak

to that or answer that question?

MR. TROST: I'm not sure that I referred to specific studies, however, I would refer you to the Draft Environmental Impact Statement itself for a complete source of references and discussions on that topic.

Have you a copy of that?

MS. DUNSMORE: I don't. I have requested it on the thing they sent around, but it said -- it was under socioeconomic environment. You said this is part of the DEIS.

MR. TROST: Right. Those factors were considered, but I don't know that specific -- environmental impact studies and NEPA law does not require that new studies be done, but that you take into account all the available information and existing studies.

So when we do an environmental impact statement, regardless of the subject, we do not go out and commission specific studies on that issue.

MS. DUNSMORE: So it might be based on old studies?

MR. TROST: Yes.

MS. DUNSMORE: Sometimes maybe very old studies like 20-year-old, like public opinion

from 20 years ago or something?

MR. TROST: There may be some of that in there as well.

MS. DUNSMORE: Okay. Thank you.

MR. SENG: Thank you. Card 35.

MR. JOHNSON: My name is Wayne Johnson from the Northwest Animal Rights Network. And I am a clinical psychologist and have been for the last 32 years. So I hope you'll permit me to say that gassing one of the these magnificent birds let alone another 320,000 is insane.

I want to look at this from the point of view of an animal rights activist. It's obvious from what's been said here that we like these geese. That they're very special animals, but I hope that we would be as consistent with Panda Bears or pigs or any other of God's living creatures.

Now, we've been talking about this issue for a long time here in the Northwest, sir. In the mid 1980s they told us that the way to deal with it was translocation. So they rounded these geese up, translocated them to eastern Washington and western Idaho.

After we got the hunting tags back, we found

out about 50 percent of the animals that had been translocated were dead. So translocation along with the goslings that died in transit during a rainstorm that year meant more dead geese.

Then you tried addling, but addling wasn't enough, and the numbers of geese killed went up. The result of the conversation on addling meant more dead geese. You asked us to submit testimony and come to community forums. We did, and the answer was more dead geese. The Humane Society of the United States proposed community-based solutions, and the answer was more dead geese.

Simply tonight, Dr. Metz argued from the information that Converse and his colleagues have done in Ithaca and New Jersey showing that you've not even close to met -- despite the disingenuous comment about airports -- not even close to met the tough standard of the Migratory Bird Treaty Act. Airports have their own permitting process. The fact is that Sea-Tac has a permit, the Renton Airport has a permit.

The health considerations are around lakes, around golf courses, pooping has become a capital crime, and that's insane. And so I'm under no illusion that the fix is in, that the option will

be taken and that hundreds of thousands of geese are going to be killed.

No matter how many times we use a rational forum, the only answer to this particular problem is massive civil disobedience. The only thing, the only thing that is going to stop more dead geese is for enough citizens to say no.

Now, from the point of view of an animal rights activist, do we have the numbers now? No, we don't. We don't have the numbers now. But there are a growing number of people that will walk around Greenlake and not see any geese or very few geese.

And there are a growing number of people who will realize what killing geese actually means, that I believe that you're going to have a fight on your hands.

Last summer we were able to round up, no pun intended, a few citizens that cared enough to engage in civil disobedience. This year maybe we'll have a few more. The results are going to be more dead geese.

But ultimately I believe, from an animal rights perspective, that enough people will finally say enough, that it is going to be more

and more difficult for the U.S. Fish and Wildlife and the paid killers and pimps in the USDA to kill these geese. Thank you.

THE AUDIENCE: (Applause.)

MR. SENG: Card 36.

SPEAKER: Pass.

MR. SENG: 37.

MS. HARTMAN: My name is Kristi Hartman, K-R-I-S-T-I, H-A-R-T-M-A-N. I'm not with any particular affiliation, though my husband, Brad, and I are here as Washington State voters and we are also Lake Washington waterfront property owners and have been since 1998 and I also lived in Lake Union for three years prior to that. And we came on kind of short notice tonight, so I apologize for the dress. We're not particularly appropriate.

And I would like to thank the animal rights organizations that are here tonight for keeping us posted on issues that, while we might not agree with everything they always have to say, it does give us the opportunity to educate ourselves about these issues.

I jotted down some notes and it kind of brings back a timeline that goes back to last

spring when we first were made aware of the geese issue here in Washington and management issues about how we should deal with their population.

And the first thing that I wanted to mention was that I used to work with Judge Marsha Peckman when she was a juvenile court judge, and so I paid attention to her decision as to whether or not to let the geese killings go forward.

And I was really surprised at how that turned out, very surprised and disappointed. And I guess the thing that surprised me the most was that the burden of proof seemed to be on the wrong end.

And from the very beginning I had been surprised that if this is a federal issue, that it seems like the will of the people of Washington State have largely been ignored. I want to stick to my timeline, so I'm going to come back to that.

And after Judge Peckman's decision happened, I heard about the Gasworks Park roundup. I read it in the paper and it just seemed to be sort of, I don't know, overblown. I couldn't imagine that something as horrible as that would happen here in Seattle.

And I contacted the reporter whose article I

read and said did this really happen? And I talked to other people who said yes. In fact, I found out there was a pickup truck that had been revamped to be a gas chamber, so geese were loaded into the back where they couldn't even stand up in the back and they were gassed.

And I did also hear about the suffocation issues, where -- I mean we're talking hot summer days. This was like in July or August and the temperatures in the 70s and 80s and it was so hot outside, I can't imagine geese being loaded up in there waiting for the rest of them to be led in weren't horribly suffering.

I find that just awful to bear. As a result of that, I contacted local officials. It's been since last summer, as I mentioned, so I don't recall all of the people that I wrote directly, but I recall I wrote at least four or five letters, and I did receive some responses, both my email.

And the thing that I remember the most about the responses was, yes, they remembered the judge's decision, and, yes, they were saddened by this as well, but they had to do something about the goose populations. They had to address the

citizens' concerns about health and safety, and so what could be done.

However, the thing that just shocked them was that they had no idea about the gas chamber issue. They didn't realize that this was the method which the management was intending to handle the problem.

So I was surprised to learn that these officials didn't realize directly how this was going to be run. I did somehow land myself on the mailing list and I did last summer receive a copy. I must have been one of the early ones that got this big fat report in the mail, and I read every bit of it, cover to cover.

It's a subject that really interests me, primarily because I had heard about the egg addling. And I thought that sounds like a great idea. No harm to the geese, and lessen the population. All these good things.

And I also heard about tactics which involved landscaping projects, letting the fronts of the grass grow up near the lake edge to discourage geese from gathering there. Numerous stuff and so I wanted to see if any of this was included in report.

And as the first gal that spoke from the Humane Society mentioned, the thing that was very disturbing about the report, that there was nothing really specifically mentioned about how they were going to lethally manage the geese. It was all in there about lethal management, but I didn't really see anything about how it was going to happen.

And mind you, this came after I read the articles at Gasworks and the gassing, so I went, hmm, no wonder the officials didn't really know what was going to happen, because if they were reading this environmental impact statement and saying, yes, okay this looks fine, how were they to know to object?

It bothers me that there were large groups of volunteers that I also read about through the summer papers that were learning how to addle eggs and do all of that, and I read about the people that would train dogs to scare the geese off. And there were all these various community groups. I was so proud of all the community support that was there to obviously support the geese population, but also support and address the issue of eradication or, you know, move them out, do

something.

But I really was proud of our community in doing that. And something that this reminds me of is, that it seems that the USDA is constantly taking the easy way out for management. It made me drive to Olympia about the Lake Hole trap issue when the Washington Citizen Initiative was in danger of being overturned and all of that stuff.

But the comments that happened back when I went to that hearing were again USDA comments that basically said they didn't want to deal with the issue in a way that wasn't quick and easy no matter the cost to the taxpayers or the taxpayers' will in wanting to look at alternative solutions.

I just wanted to conclude by saying how much I support and my neighbors support non-lethal methods of managing these geese, and would really encourage you to consider and work with the community organizations that have voiced their opinions and their support of non-lethal methods.

They're here and Washington State is a place where we'll work with you. We have lots of hands to help. And I hope that you would utilize those hands to enact our will of wanting non-lethal methods of management. That's all. Thank you

very much for your time and consideration.

THE AUDIENCE: (Applause.)

MR. SENG: Thank you. Is there anyone holding a card higher than 37, any latecomers holding a card?

THE AUDIENCE: (No response.)

MR. SENG: Okay. Then I would like to remind you that the signup sheets are on the back table now. If you wish to receive a copy of the final EIS, please signup so you'll get a copy in the mail. I'd like to thank you very much for taking time out on such a beautiful evening to come share your comments with us. And I declare this meeting adjourned. Have a safe trip home.

(Meeting adjourned 8:45 p.m.)