

**U.S. Fish and Wildlife Service**

**Environmental Assessment**

**For the**

**Proposed Hunting Plan  
Hamden Slough National Wildlife Refuge  
Becker County, Minnesota**

**Regional Director  
Region 3, U. S. Fish and Wildlife Service  
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**Abstract:** The United States Fish and Wildlife Service proposes to provide compatible hunting opportunities for waterfowl and white-tailed deer on Hamden Slough National Wildlife Refuge in Becker County, Minnesota. This environmental assessment evaluates four possible alternatives for the hunting opportunities. The proposed action alternative would provide compatible hunting opportunities while providing the non-hunting visitors with other priority public use opportunities i.e. wildlife observation, wildlife photography, environmental education and interpretation. Hunting opportunities for Persons with Disabilities would be provided through the use of existing gravel roads on the refuge. Parking lots would provide appropriate access and will help distribute use. The approved acquisition boundary includes lands owned by private citizens, which must be considered when developing the hunting opportunities. The general goals of the hunting program are:

- A. Provide the public with safe and enjoyable hunts that are compatible with the Refuge purpose.
- B. Provide quality hunting opportunities that minimize conflict with other public use activities.
- C. Provide the public with opportunities to hunt waterfowl and white-tailed deer that are consistent with the State of Minnesota, that don't adversely effect localized wildlife population, and are consistent with the 1997 National Wildlife Refuge Improvement Act.

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## **CHAPTER 1. PURPOSE AND NEED**

### **SECTION 1.1 PURPOSE**

The Purpose of this Environmental Assessment is to evaluate alternatives for opening and implementing a hunting program on Hamden Slough National Wildlife Refuge (NWR).

### **SECTION 1.2 NEED**

Providing compatible wildlife-dependent recreation and education activities on units of the National Wildlife Refuge System is a Service priority. One of the goals of the National Wildlife Refuge System is, “to provide an understanding and appreciation of fish and wildlife ecology and man’s role in his environment, and to provide refuge visitors with high quality, safe, wholesome, and enjoyable recreational experiences oriented toward wildlife to the extent these activities are compatible with the purposes for which the refuge was established.” (National Wildlife Refuge Administration Act of 1966, 16 U.S.C. 688dd-ee)

In addition, the National Wildlife Refuge Administration Act of 1966 as amended in The Refuge Improvement Act of 1997 finds in Section 2, “When managed in accordance with principles of sound fish and wildlife management and administration, fishing, hunting, wildlife observation, and environmental education in national wildlife refuges have been and are expected to continue to be generally compatible uses.”

Hunting, as herein proposed, is intended to: A) fulfill the Service’s commitment to provide the public opportunities for outdoor recreation; B) provide valid wildlife management techniques to influence the distribution and abundance of waterfowl and white-tailed deer to aid Hamden Slough NWR’s habitat restoration and management activities; and C) help insure healthy wildlife populations are in balance with available habitat.

### **SECTION 1.3 DECISIONS THAT NEED TO BE MADE**

This Environmental Assessment is prepared to evaluate the environmental consequences of opening Hamden Slough NWR to hunting, and the types of hunting allowed. Four alternatives are presented in this document:

- 1) Waterfowl hunting limited to a Youth Waterfowl Hunting Day, and white-tailed deer hunting during the deer muzzleloader season (Proposed Action),
- 2) No Action,
- 3) Depredation Control, and
- 4) Opening the refuge to all hunting in accordance with Minnesota state seasons.

The Regional Director, U. S. Fish and Wildlife Service, Twin Cities, Minnesota, is the official responsible for determining the action to be taken in the proposal by choosing an alternative. She will also determine whether this Environmental Assessment (EA) is adequate to support a Finding of No Significant Impact (FONSI) decision, or whether there is a significant impact on the quality of the human environment, thus requiring the preparation of an Environmental Impact Statement (EIS).

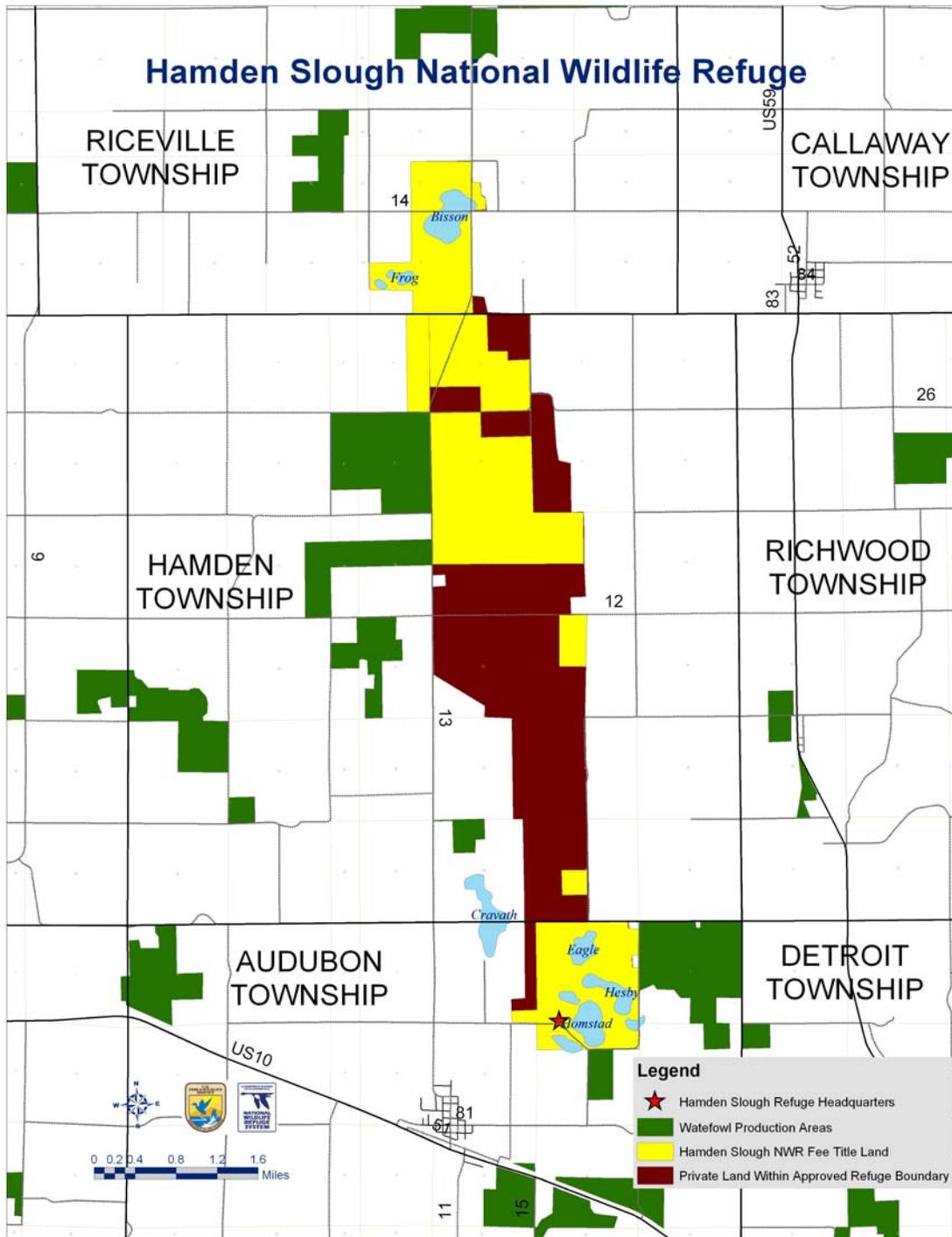
## **SECTION 1.4 BACKGROUND**

Hamden Slough NWR was established on September 19, 1989, under the authority of the Migratory Bird Conservation Act "...for use as an inviolate sanctuary, or for any other management purposes, for migratory birds." (16 U. S. C. § 715d). This includes "... conservation, management, and restoration of the fish, wildlife, and plant resources and their habitats for the benefit of present and future generations of Americans, [16 U. S. C. 668dd(a)(2) (National Wildlife Refuge System Administration Act)]. It is intended to permanently preserve 5,944 acres of native prairie and wetlands within the historic range of the northern tallgrass prairie area of western Minnesota. The refuge will contribute to goals for ecosystem conservation and restoration, threatened and endangered species recovery, neotropical migrant bird conservation, biological diversity, and wildlife oriented public recreation.

The U.S. Fish and Wildlife Service (Service) issued a Final Environmental Assessment (EA) in 1988, for establishing Hamden Slough NWR and the area for the refuge. The refuge was developed to address the loss of America's grasslands and mounting evidence indicating that many grassland species populations had precipitously declined as the prairies had vanished. Estimates place the original northern tallgrass prairie in Minnesota and Iowa at approximately 25 million acres. Today, there are only an estimated 300,000 acres remaining in the two states, representing a greater than 99 percent reduction in the amount of tallgrass prairie habitat (Samson and Knopf 1994). Currently, only a small percentage of these habitats have been permanently protected, making tallgrass prairie one of the rarest and most fragmented ecosystems. The refuge was established to provide a means of working with individuals, groups, and government entities to permanently preserve and restore a portion of the northern tallgrass prairie. All lands that are purchased in easement or fee title from willing sellers will become units of the NWR System.

Waterfowl and white-tailed deer hunting is a historic and current tradition of residents of northwestern Minnesota. Hunting was used by Native Americans and early settlers as a stable for family subsistence. Many families continued to use hunting for subsistence, at the beginning of the 20th century and into the Depression of the 1930's. Since the early 1960's, the Service has allowed public hunting and administered a hunting program on Minnesota's federal Waterfowl Production Areas (WPA). Most recent estimates show that more than 125,000 people annually visit WPA's located in Minnesota for the purpose of hunting. During its history, the Service has not noted any significant adverse effects of this hunting program on the goals of the WPA's, and has determined that this use is compatible with the purposes of the WPA's and the NWR System's mission statement.

**FIGURE 1. Hamden Slough National Wildlife Refuge, Minnesota.**



## CHAPTER 2. ALTERNATIVES

### SECTION 2.1 ALTERNATIVES ELIMINATED FROM DETAILED STUDY

No alternate was eliminated from detailed study.

### SECTION 2.2 ALTERNATIVES CARRIED FORWARD FOR DETAILED ANALYSIS

Alternative A (Proposed Action): Permitting limited hunting on portions of Hamden Slough NWR for a Youth Waterfowl Hunting Day, and white-tailed deer hunting on the whole refuge with muzzleloaders during Minnesota's muzzleloader season.

This alternative would allow hunting on designated areas of Hamden Slough NWR after determining that: 1) such activity is consistent with resource objectives, and 2) biological monitoring programs on Hamden Slough NWR, Detroit Lakes Wetland Management District Waterfowl Production Areas, or local Minnesota DNR properties provide adequate assurances that target species support a harvestable surplus. Existing areas of Hamden Slough NWR currently proposed under this alternative are shown in Figure #1.

Hunting would be conducted in accordance with all applicable state and federal regulations. Coordination with Minnesota DNR biologists will promote continuity and understanding of Service and state resource goals and objectives, and will help assure that the decision-making process takes into account all interests. A Youth Waterfowl Hunting Day and white-tailed deer hunting during the state muzzleloader season will be the focus of limited hunting activity at Hamden Slough NWR.

#### Alternative B: No hunting (No Action)

Under provisions of the National Wildlife Refuge Administration Act of 1966, refuges are "closed until open." Thus, if the Service takes no action in regards to hunting management, refuge lands would remain closed to hunting.

Under this alternative, the refuge would continue as a haven for wildlife. The area is notable for its large blocks of grassland and wetland habitats, and was selected for Important Bird Area designations in 2004, by the Audubon (Society of) Minnesota. Populations of white-tailed deer and Canada geese could continue to grow. White-tailed deer and Canada geese can increase to levels that result in damage to agricultural croplands as well as to native vegetation without the population control provided by hunting. Depredation complaints from local landowners and farmers would continue to grow.

Under the No Action alternative, the Service would continue to plan for and implement habitat restoration efforts. It would also manage existing habitats for tallgrass prairie,

wetlands and wildlife. These actions would be carried out in cooperation with volunteers and partners.

Alternative C: Depredation Control by Service Personnel.

Under this alternative, the Service would possibly need to reduce populations of white-tailed deer to maintain habitat objectives. This would entail the harvest of white-tailed deer, which can do serious damage to native prairie wildflowers and the understory component of adjacent forest habitats through over browsing. Harvest would be by Service personnel using firearms. Animals harvested in this manner would likely be distributed to charitable organizations for distribution to people of need.

Alternative D: Permitting general hunting on Hamden Slough NWR as allowed by Minnesota State Regulations.

This alternative would allow hunting on Hamden Slough NWR in accordance with the Hunting Seasons and regulations set by the State of Minnesota, after determining that: 1) such activity is consistent with resource objectives, and 2) biological monitoring programs on Hamden Slough NWR, Detroit Lakes Wetland Management District Waterfowl Production Areas, or local Minnesota DNR properties provide adequate assurances that target species support a harvestable surplus. Areas of Hamden Slough NWR currently owned in fee title would be hunted for deer, upland game birds, furbearers, and mammals. Waterfowl and migratory game birds would be hunted on 40 % of the refuge fee title lands, in accordance with requirements of the Migratory Bird Conservation Act.

Hunting would be conducted in accordance with all applicable state and federal regulations. Coordination with Minnesota DNR biologists will promote continuity and understanding of Service and state resource goals and objectives, and will help assure that the decision-making process takes into account all interests.

**FORMULATION OF ALTERNATIVES:** This environmental assessment is prepared to evaluate the environmental consequences of opening the refuge to hunting and the methods of hunting on the refuge. Four alternatives are presented in this document:

- Opening 40% of the refuge for hunting on Youth Waterfowl Day, and the total refuge for deer hunting during the muzzleloader deer season – the Proposed Action;
- Leaving the refuge closed to hunting – the No Action Alternative;
- Harvesting deer by Service personnel, for any necessary depredation control;
- Open all of the refuge to big game, small game and upland game hunting seasons, in accordance with the State of Minnesota regulations; and permitting migratory game bird hunting on 40% of refuge property during the state waterfowl seasons.

**SECTION 2.3 ALTERNATIVES ACTION TABLE**

The table below summarizes the actions that are anticipated under each alternative. Detailed discussion of the environmental impacts of each alternative can be found in Section 4. Some of the issues are carried into the impact assessment are described in more detail in Section 4.

Action	ALTERNATIVE 1 (Proposed Action) Open Entire Refuge for Deer Muzzleloader Season, 40% to Migratory Birds on Youth Waterfowl Day	ALTERNATIVE 2 (No Action) Continue No Hunting on Refuge	ALTERNATIVE 3 Depredation Control using Service Personnel	ALTERNATIVE 4 Open Entire Refuge to Big & Small & Upland Game, 40% to Migratory Birds
Provides for 60% closed areas for Migratory Birds, as required under MBCA	Yes, but muzzleloader deer hunting will occur in closed migratory bird hunting areas	Yes. All areas closed	Yes. All areas closed	Yes, but big, small & upland game hunting will occur in closed migratory bird hunting areas
Species that will be hunted	Waterfowl and deer	None	Deer	All species allowed by state law
Compatible with Refuge Goals and Purpose	Yes. Provides for priority public use while providing sanctuaries to improve occurrence of species for diversity and viability.	No. Does not provide for priority public use	No. Does not provide for priority public use	Yes, but doesn't consider the need of sanctuaries to conserve species for diversity and viability.
Provides for Priority Public Uses	Yes. Satisfies the needs of the 1997 National Refuge Improvement Act, but combines uses.	No. Does not satisfy all uses identified in the 1997 National Refuge Improvement Act.	No. Does not satisfy all uses identified in the 1997 National Refuge Improvement Act.	Yes. Satisfies the needs of the 1997 National Refuge Improvement Act, but gives priority to hunting.
Hunting and non-hunting activities segregated	No. Doesn't separate uses, conflicts possible.	Yes	Yes	No. Doesn't separate uses, conflicts possible.
Meets needs identified by public and partners	Yes. Maximizes hunting opportunities as identified by most public and partners.	No. Does not allow hunting opportunities as identified by most public and partners.	No. Does not allow hunting opportunities as identified by most public and partners.	No. Does not provide a compromise expressed by both hunters and non-hunters concerning wildlife disturbance.

## CHAPTER 3. AFFECTED ENVIRONMENT

### SECTION 3.1 PHYSICAL CHARACTERISTICS

Hamden Slough NWR is situated on 3,402 acres in west central Minnesota within Becker County. The refuge is about 7 miles northwest of Detroit Lakes, Minnesota and just east of the Buffalo River. The nearest communities are Audubon, Minnesota, about 1 mile southwest of the southern boundary of the refuge, and Callaway, Minnesota, about 3 miles east of the northern boundary. The refuge is rectangular with the approximate dimensions of 10 miles in the north-south direction by about 1.3 miles in the east-west direction. The refuge occupies land on the very most eastern edge of the tallgrass prairie.

Hamden Slough NWR topography is nearly level on the north end and mildly sloping on the southern portion. Soils are well drained, very deep clay loams which form a thick till over glacial outwash. The surface layer of the soil is generally grayish black loam to a depth of 8 inches. The subsoil layer is composed of silty sandy clay that is light gray and mottled. The subsoil layer extends below a depth of 6.5 feet. The available water capacity of the soil is very high and the permeability can be rapid. There is a high water table at or near the surface, on the lower slope of the glacial outwash ridge.

### SECTION 3.2 BIOLOGICAL ENVIRONMENT

**Habitat:** Tallgrass prairie comprises 3,550 acres (60%) of the proposed 5,944 acre refuge. The dominant restored grassland species on the refuge is big bluestem (*Andropogon gerardii*). Other habitat types at the refuge include 2,218 acres (37%) palustrine wetland, 113 acres (2%) woodland, 218 acres (0.5%) of open water, and 173 acres (0.5%) of bare soil and paved areas. The palustrine wetland category includes all growth stages of palustrine vegetation including early successional wetland.

The value of the habitat within Hamden Slough NWR has been recognized at both the state and national levels. Hamden Slough NWR has been named an Important Birding Area by the American Audubon Society due to large water and shorebird populations within the refuge's wetlands.

**Threatened, Endangered and Candidate Species:** Federally listed Threatened Species that occur in Becker County include the bald eagle, gray wolf and piping plover. Although the hunt sites are within the breeding range of the bald eagle, no known eagle nests are located on or in the vicinity of the refuge. The hunt sites are also within the range of the gray wolf. No gray wolves have been observed on or in the vicinity of the refuge in over 40 years. A piping plover was observed once on the refuge, in July, 1999. (U.S. FWS Endangered & Threatened Species List)

The State of Minnesota lists an additional 14 Threatened or Special Concern Species, which have been sighted or nest on the refuge. The 6 nesting species are: Wilson's phalarope, marbled godwit, Nelson's sharp-tailed sparrow, common moorhen, greater prairie chicken, and snapping turtle. (Minnesota DNR: Endangered, Threatened and

Special Concern Species)

**Other Wildlife Species:** Hamden Slough NWR provides habitats for, and subsequently attracts, an abundance of wildlife species. Eleven species of amphibians, 5 species of reptiles, 35 species of mammals, and 223 species of birds have either been recorded or can reasonably be expected to be present on the refuge for a portion of the year.

Deer population densities for Unit #408 (#259 in 2005)(Hamden & Audubon Townships) were estimated at approximately 8.4 deer/sq. mi. by the MN DNR in 2004. This is double their population goal of 3.6 – 4.4 deer/sq. mi. In both 2003 and 2004, Unit #408 was designated as an Intensive Hunt Zone, and harvest numbers did increase. In 2003, a total of 1,353 deer were harvested in the Unit #408, of which 803 were antlerless. During the 2004 season, a total of 1285 deer were harvested in Unit #408, of which 609 were female. Approximately 625 female deer must be harvested in Unit #408 (#259 in 2005) each year, just to hold the population at its current numbers. More must be harvested to reach the MN DNR goal of about 4 deer/sq. mi. Biological data from harvested deer in Unit #408 is collected by the MN DNR to reconstruct basic information on the deer herd (MN DNR Deer Density -2004). Unit #408 is re-designated as Unit #259 for the 2005 and future deer seasons, allowing 3 days of extra gun deer hunting.

Presently, deer in the refuge area appear to be increasing slightly, but with hunter harvests, the population level could be lowered. With Unit #259 deer population double the State goal, and local deer using the refuge as a sanctuary, the elevated number of deer are removing refuge prairie forbs at a higher than normal rate (IV.B). Refuge staff will consult with MN DNR biologists to adjust harvest recommendations for future hunts and sample deer for Chronic Wasting Disease (CWD) and other diseases in conjunction with the state.

### **SECTION 3.3 LAND USE**

Eastern forests rapidly transition to the western prairie grasses at Hamden Slough National Wildlife Refuge (McNabb and Avers 1994). This biological diversity of vegetation is highly attractive to wildlife, especially migratory birds. But intense agriculture and the associated draining of wetlands over the past 100 years has had a cataclysmic effect on this historic wildlife area. In the north central plains, an estimated 99% of the tallgrass prairie has been plowed under, and over 90% of the prairie wetlands drained. Around Hamden Slough refuge, more than 55,000 wetlands have been drained. This loss and fragmentation of the prairie has resulted in a precipitous drop of prairie wildlife populations. Most notable during the last 30 years, has been the decline of migratory prairie bird populations. Many species of waterfowl, including the Eastern Prairie Pothole population of Canada geese, shorebirds, neotropical migrants, and avian predators rely on the shallow-water and prairie habitats that have been restored on the refuge. During the last 7 years, refuge restoration work has resulted in an explosive growth of waterfowl, marsh and shorebird populations.

## **SECTION 3.4 HISTORICAL PROPERTIES AND CULTURAL RESOURCES**

The body of federal historic preservation laws has grown dramatically since the enactment of the Antiquities Act of 1906. Several themes recur in these laws, their promulgating regulations, and more recent Executive Orders. They include:

- 1) each agency is to systematically inventory the historic properties on their holdings and to scientifically assess each property eligibility for the National Register of Historic Places;
- 2) federal agencies are to consider the impacts to cultural resources during the agencies management activities and seek to avoid or mitigate adverse impacts;
- 3) the protection of cultural resources from looting and vandalism are to be accomplished through a mix of informed management, law enforcement efforts, and public education;
- 4) the increasing role of consultation with groups, such as Native American tribes, in addressing how a project or management activity may impact specific archaeological sites and landscapes deemed important to those groups.

The U.S. Fish and Wildlife Service, like other federal agencies, are legally mandated to inventory, assess, and protect cultural resources located on those lands that the agency owns, manages, or controls. The Service's cultural resource policy is delineated in 614 FW 1-5 and 126 FW 1-3. In the FWS's Southeast Region, the cultural resource review and compliance process is initiated by contacting the Regional Historic Preservation Officer/Regional Archaeologist (RHPO/RA). The RHPO/RA will determine whether the proposed undertaking has the potential to impact cultural resources, identify the "area of potential effect," determine the appropriate level of scientific investigation necessary to ensure legal compliance, and initiates consultation with the pertinent State Historic Preservation Office (SHPO) and federally recognized Tribes.

No site listed on the National Register of Historic Places is located on fee title tracts within the designated boundaries of the refuge. A total of 11 potential archaeological sites, and 2 recorded archaeological sites, were located within the refuge's designated boundary, by IMA (Institute for Minnesota Archaeology) Consulting, Inc., in November 1997. The two recorded sites are still in private ownership. IMA Consulting recommended that an archaeological survey of these areas should be performed prior to any planned ground-disturbing activities.

### **SECTION 3.5 LOCAL SOCIO-ECONOMIC CONDITIONS**

In Becker County, four job markets provide the income of most residents. Ranked by economic return they are: light industrial, tourism, agriculture and logging. Agricultural crop production is important in the Hamden Slough area and to the bordering small farm communities of Audubon and Callaway. In recent years, costs of farm crop production have been just below commodity prices, adversely affecting the economic condition of individual farms and farm communities. A number of landowners supplement their farm incomes with jobs off the farm; others commute to larger towns where jobs provided their sole source of income.

The low profit of smaller farms has resulted in increasing property values, until the last 5 years. In the last few years, tracts used for agricultural are being purchased for very large farming partnerships or corporations, or by sportmen's groups who purchased primarily for hunting sites. Agricultural land prices in western Becker County have moved from approximately \$700/acre to \$1450/acre, since 2000. Recreational landowners, moreover, are interested in grass and wetland restorations and easements, and only maintain a limited amount of cropland. In effect, the land functions much like a refuge, but maintains private ownership, and most importantly, the tax base.

Taxes on most agricultural property have held steady, until the last 2 – 3 years. Becker County has been raising appraised land values by about 10% - 15% since 2002.

Soil and vegetative cover determines the use of Becker County land. Extensive amounts of the prairie and associated wetlands, covering the western 1/3 of the county have been converted to agricultural property. Forested areas have been historically logged, but now are protected as a renewable resource or recreational property. About 10.53 percent of Becker County is non-federal tax-exempt property. Fish and Wildlife Service lands represent less than six percent of Becker County's tax forfeit lands. Timber sales and tourism are benefits of the county's natural resources and contribute to the wealth of the county, in addition to agriculture.

## CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

This chapter describes the foreseeable environmental consequences of implementing the four management alternatives in Chapter 2. When detailed information is available, a scientific and analytic comparison between alternatives and their anticipated consequences is presented, which is described as “impacts” or “effects.” When detailed information is not available, those comparisons are based on the professional judgment and experience of refuge staff and Service and State biologists

As described in Chapter 2, four alternatives are being considered:

Alternative A: Proposed Action: Permit hunting on portions of Hamden Slough NWR for a Youth Waterfowl Hunting Day, and white-tailed deer hunting on the whole refuge with muzzleloaders during Minnesota’s muzzleloader season.

Alternative B: No Action: No hunting would be allowed on the refuge.

Alternative C: Depredation Control by Service Personnel: Populations of white-tailed deer would be controlled by Service personnel using firearms.

Alternative D: Permitting general hunting on Hamden Slough NWR as allowed by Minnesota State Regulations: This alternative would allow hunting on Hamden Slough NWR in accordance with the Hunting Seasons and regulations set by the State of Minnesota. Areas of Hamden Slough NWR currently owned in fee title would be hunted for deer, upland game birds, furbearers, and mammals. Waterfowl and migratory game birds would be hunted on 40 % of the refuge fee title lands, in accordance with requirements of the Migratory Bird Conservation Act.

## **SECTION 4.1 ALTERNATIVE A (PROPOSED ACTION)**

**4.1.1 HABITAT IMPACTS:** Hunting access would be by walking only. Parking would be restricted to designated parking lots. Negative impacts on vegetation should be temporary and non-detectable. Development of hunting opportunities for persons with disabilities would utilize existing gravel roads. Deer population data indicates that without harvest, deer will quickly overpopulate areas causing crop depredation and degradation of the quality and quantity of native vegetation.

**4.1.2 BIOLOGICAL IMPACTS:** The limitation of hunting only 40% of the refuge should provide for minimal impact to migratory birds, other than waterfowl. Migratory birds will be able to feed and rest with little to no disturbance on 60% of the refuge. On the hunted portion of the refuge, migratory birds will be disturbed on only the State of Minnesota Youth Waterfowl Hunting Day, in late September. Waterfowl will have the largest disturbance, on 40% of the refuge, for one day. The take of waterfowl on the refuge is expected to be minimal. Canada geese disturbed inside the refuge could fly beyond the refuge boundary and be taken on public and private land, during the Minnesota Special Goose Season. The overall affect of this alternative on migratory birds should be slightly negative.

The white-tailed deer population is expected to decrease as the result of this alternative. The number of hunters utilizing the refuge could be significant during the first 3 or 4 years of muzzleloader season. The State of Minnesota Deer Muzzleloader season is usually approved for 16 days beginning on the last weekend in November. For 2006, the Minnesota Deer Muzzleloader was scheduled for November 25 – December 10. The deer population in the refuge should continue to reflect deer densities within the State Management Units. Currently, Hamden Slough NWR represents less than 2% of Unit #259 (prior #408) and less than 1% of Unit #297 (west White Earth Indian Reservation).

Deer population densities for Unit #408 (#259 in 2005)(Hamden & Audubon Townships) were estimated at approximately 8.4 deer/sq. mi. by the MN DNR in 2004. This is double their population goal of 3.6 – 4.4 deer/sq. mi. In both 2003 and 2004, Unit #408 was designated as an Intensive Hunt Zone, and harvest numbers did increase. In 2003, a total of 1,353 deer were harvested in the Unit #408, of which 803 were antlerless. During the 2004 season, a total of 1285 deer were harvested in Unit #408, of which 609 were female. Approximately 625 female deer must be harvested in Unit #408 (#259 in 2005) each year, just to hold the population at its current numbers. More must be harvested to reach the MN DNR goal of about 4 deer/sq. mi. Biological data from harvested deer in Unit #408 is collected by the MN DNR to reconstruct basic information on the deer herd (MN DNR Deer Density -2004). Unit #408 is re-designated as Unit #259 for the 2005 and future deer seasons, allowing 3 days of extra gun deer hunting.

Presently, deer in the refuge area appear to be increasing slightly, but with hunter harvests, the population level could be lowered. Refuge staff will consult with MN DNR biologists to adjust harvest recommendations for future hunts and sample deer for Chronic Wasting Disease (CWD) and other diseases in conjunction with the state.

When population levels exceed carrying capacity, deer and waterfowl are highly susceptible to disease (e.g., botulism, anthrax, hemorrhagic disease, chronic wasting disease, etc.) outbreaks that result in high mortality. This often results in an abrupt decline in either the deer or waterfowl population, which can adversely affect the genetic structure of the herd or flock. Managing for healthy wildlife populations through harvesting animals supports Hamden Slough NWR goals of providing for the viability of wildlife populations associated with tallgrass prairie.

The hunting season for the Youth Waterfowl Hunting Day is September, with the white-tailed deer muzzleloader season open from late November - early December. Consequently, tracts of Hamden Slough NWR will receive all hunter use during these two limited period. Current information from population and harvest surveys indicates that a limited harvest will not adversely affect population levels of these species. In fact, deer population data indicates that without harvest, deer will quickly overpopulate areas causing crop depredation and degradation of the quality and quantity of native vegetation.

**4.1.3 LISTED SPECIES:** Because of the location and type of activity proposed, hunting will have “no effect” on the bald eagle, gray wolf or piping plover or any other federally listed threatened or endangered species or their critical habitat. An Endangered Species Act Section 7 consultation conducted as part of this assessment was approved, and is attached. No impacts are anticipated for state listed species.

**4.1.4 HISTORIC PROPERTIES AND CULTURAL RESOURCES:** Hunting activities will result in no ground disturbance or disturbance to standing structures, and it would have no effect on any historic properties.

#### **4.1.5 CUMULATIVE IMPACT ANALYSIS**

##### **4.1.5 - A. ANTICIPATED DIRECT AND INDIRECT IMPACT OF PROPOSED HUNT ON WILDLIFE SPECIES**

The Service has allowed public hunting and administered a hunting program on adjacent and nearby Waterfowl Production Areas (WPA's) since the early 1960's. Most recent estimates show that more than 125,000 people visit WPA's located in Minnesota annually for the purpose of hunting. During its history, the Service has not noted any significant adverse effects of this program on the administration of WPA's, and has determined that this use is compatible with the purposes of the WPA's and the NWR System's mission statement. The hunting program for Hamden Slough NWR will be consistent with the program administered by the Service for WPA's.

**RESIDENT WILDLIFE** - The white-tailed deer population is expected to decrease as the result of this alternative. The number of hunters utilizing the refuge could be higher during the first 3 or 4 years of muzzleloader season. The State of Minnesota Deer Muzzleloader season is usually approved for 16 days beginning on the last weekend in November. For 2006, the Minnesota Deer Muzzleloader Season was scheduled for November 25 – December 10. The deer population in the refuge should continue to reflect deer densities within the State Management Units. Currently, Hamden Slough NWR represents less than 2% of Unit #259 (previous #408) and less than 1% of Unit #297 (west White Earth Indian Reservation).

Deer population densities for Unit #259 (previously #408), which includes Hamden & Audubon Townships, were estimated at approximately 8.4 deer/sq. mi. by the Minnesota Department of Natural Resources (MN DNR) in 2004. This is double their population goal of 3.6 – 4.4 deer/sq. mi. In both 2003 and 2004, Unit #408 was designated as an Intensive Hunt Zone, and harvest numbers did increase. In 2003, a total of 1,353 deer were harvested by gun, archery, and muzzleloader in the Unit #408, of which 803 were antlerless. During the 2004 season, a total of 1285 deer were harvested, in Unit #408, of which 609 were female. Approximately 625 female deer must be harvested in Unit #408 (#259 since 2005) each year, just to hold the population at its current numbers. More must be harvested to reach the MN DNR goal of about 4 deer/sq. mi. Biological data from harvested deer in Unit #408 is collected by the MN DNR to reconstruct basic information on the deer herd (MN DNR Deer Density -2004). Unit #408 is re-designated as Unit #259 for the 2005 and future deer seasons, allowing 3 days of extra gun deer hunting.

Presently, deer in the refuge area appear to be increasing slightly, but with hunter harvests, the population level could be lowered. Refuge staff will consult with MN DNR biologists to adjust harvest recommendations for future hunts and sample deer for Chronic Wasting Disease (CWD) and other diseases in conjunction with the state.

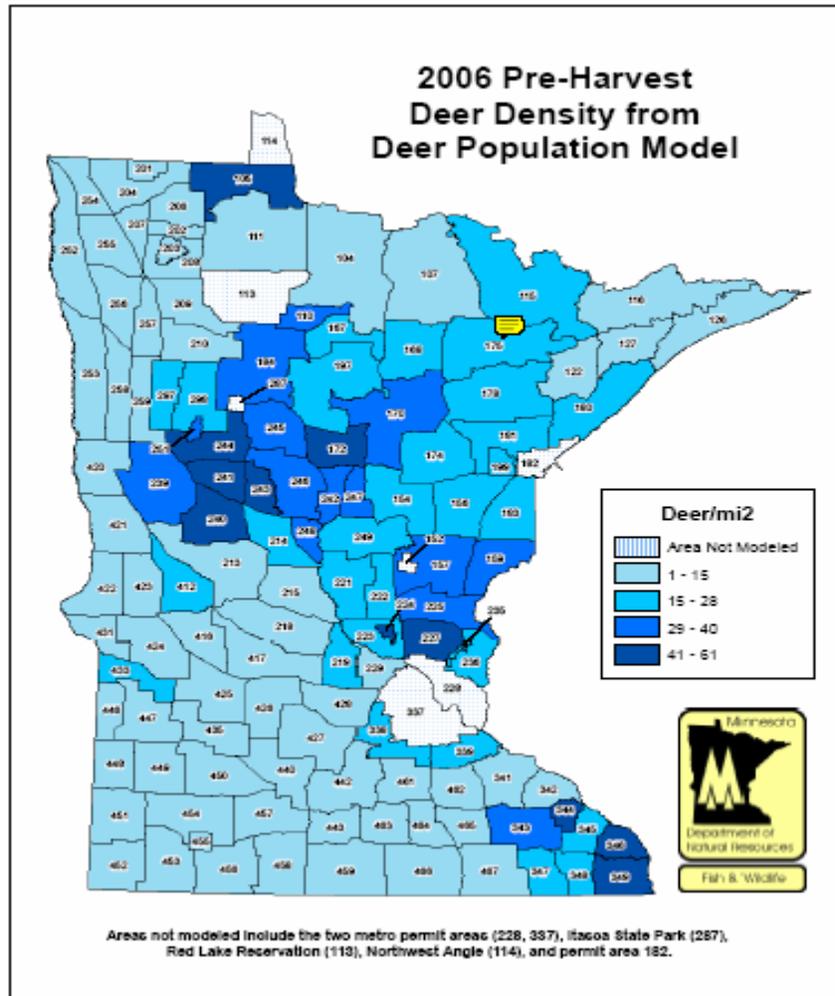
When population levels exceed carrying capacity, deer and waterfowl are highly susceptible to disease (e.g., botulism, anthrax, hemorrhagic disease, chronic wasting disease, etc.) outbreaks that result in high mortality. This often results in an abrupt decline in either the deer or waterfowl population, which can adversely affect the genetic structure of the herd or flock. Managing for healthy wildlife populations through harvesting animals supports Hamden Slough NWR goals of providing for the viability of wildlife populations associated with tallgrass prairie

**The following are 2006 survey results for Hamden Slough NWR and the adjoining area of Becker, Clay, Hubbard, Mahnomen, Norman and Ottertail Counties. (Unit #239, #244, #259, and #297)**

- Hamden Slough NWR is a long and narrow refuge which is divided between Deer Hunting Units # 259 and #297. The north 1/3 of the refuge is in Unit #297, and the southern 2/3's of the refuge is in Unit #259.
- Unit #259 covers portions of Becker, Clay and Norman Counties.
- Unit #297 covers portions of Becker and Mahnomen Counties.
  
- Two miles south of the refuge is Unit #239 (formerly #410), which extends south into Ottertail County.
- Three miles east of the refuge is unit #244, which extends east into Hubbard County.

In 2006, the MN DNR estimated deer density in:

- Unit #297 was 25 deer/mile square
- Unit #259 was 11 deer/mile square
- Unit #239 (formerly #410) was 34 deer/mile square
- Unit #244 was 37 deer/mile square. When compared to 2005, the density is up slightly in Units #239 and #297, and down slightly in Units # 259 and #244. Over the last 10 years, deer populations in all Units around the refuge are stable or increasing, and exceed DNR target goals. **See Figure #1 below.**



**Figure #1**

**The following are additional points to consider when determining the cumulative impacts of a Deer Muzzleloader Hunt on Hamden Slough NWR.**

- Limited Access: Access will be walk-in only. ATV's may be used by disabled hunters, only on refuge gravel roads.
- Species most likely to be harvested: White-tailed deer. No other species are expected to be taken.
- Hunting Pressure: Hunting pressure is expected to be moderate. Muzzleloader hunting numbers on adjacent and nearby WPA's has been light to moderate over the last several years, with an average of 20 - 30 muzzleloader hunters per WPA, during the 16 day season. Muzzleloader hunters typically shoot very few shots. Muzzleloader hunters take less than 7% of the total deer harvested in the 4 local

Units. The maximum estimated number of muzzleloader hunters expected on Hamden Slough is 200 - 225, during the 16 day season. The maximum number of deer harvested is expected to be from 85 – 115, based on the 2005 muzzleloader hunter success rate of 47.4%. (2005 Deer Harvest Report, Table #1)

- Minnesota Population: The number of white-tailed deer in Minnesota was estimated at 800,000 in the fall of 1997. The population has grown steadily since then, to its present estimated state wide population of 1.3 million deer. The survey includes northwest Minnesota where Hamden Slough NWR is located.
- White-tailed Deer Harvest Data
  1. Hamden Slough NWR: There has never been a deer hunt on this refuge. The proposed muzzleloader hunt is expected to attract 200 - 225 hunters with an estimated maximum number of deer harvested at 115.
  2. Minnesota Harvest for 2005: The total number of deer registered for the 2005 harvest by Minnesota hunters was 253,916. Of these, 15,421 deer were taken by muzzleloader hunters. See Table 1 - 2005 Deer Harvest Report.

#### Cumulative Impacts Summary

Comparison of the proposed deer harvest at Hamden Slough NWR compared to the surrounding Hunting Units and State of Minnesota for 2005.

Deer Harvest Area	Deer
Hamden Slough NWR	85 – 115*
Unit #239 (formerly #410)	5173
Unit #244	6162
Unit #259	1327
Unit #297	609
Minnesota	253,916

\*estimated future harvest based on data gathered by FWS on adjoining WPA's.

The cumulative impact of the proposed deer muzzleloader hunt on Hamden Slough NWR and the surrounding counties will be miniscule. The Minnesota Department of Natural Resources has been consulted on this analysis, and concurs with the impact assessment. The reduction in the refuge deer population is expected to increase the density of upland prairie forbs, which should increase the nesting success of migratory birds. Prairie forbs attract insects, which provide a major source of protein for hatched migratory birds in the spring.

**Non-hunted Resident Wildlife:** Non-hunted wildlife would include non-hunted migratory birds such as songbirds, wading birds, raptors, and woodpeckers; small mammals such as voles, moles, mice, and shrews; reptiles and amphibians such as snakes, skinks, turtles, lizards, salamanders, frogs and toads; and invertebrates such as butterflies, moths, other insects and spiders. Except for migratory birds and some species of migratory butterflies and moths, these species have very limited home ranges and hunting could not affect their populations regionally; thus, only local effects will be discussed.

Some species of butterflies and moths are migratory. Cumulative effects to these species at the “flyway” level should be negligible. These species are in torpor or have completely passed through central Minnesota by the hunting seasons in late September and late November - December. Any hunter interaction would be commensurate with that of non-consumptive users.

Disturbance to non-hunted migratory birds could have regional, local, and flyway effects. Regional and flyway effects would not be applicable to species that do not migrate such as most woodpeckers, and some songbirds including nuthatches, finches, chickadees, etc. Disturbance by hunting to non-hunted migratory birds should not have cumulative negative impacts for the following reasons. The Hunting Seasons would not coincide with the nesting season. Long-term future impacts that could occur if reproduction was reduced by hunting are not relevant for this reason. Disturbance to the daily wintering activities, such as feeding and resting, of birds might occur. Disturbance to birds by hunters would probably be commensurate with that caused by non-consumptive users.

Disturbance to non-hunted wildlife would increase slightly. However, disturbance would be unlikely for the following reasons. Small mammals are generally inactive during late November and early December, when the 16 day Deer Muzzleloader season occurs. Many of these species are also nocturnal. Both of these qualities make hunter interactions with small mammals very rare. Hibernation or torpor by cold-blood reptiles and amphibians also limits their activity during the Deer Muzzleloader season when temperatures are low. Hunters would rarely encounter reptiles and amphibians during most of the hunting season. Invertebrates are also not active during cold weather and would have few interactions with hunters during the hunting season. The refuge has estimated current hunter density during the Youth Waterfowl Hunt to be less than 1 hunter per 10 acres. During the longer 16 day, Muzzleloader Hunt, hunter density is expected to be much lower (1 hunter/100 acres). Refuge regulations further mitigate possible disturbance by hunters to non-hunted wildlife. Vehicles are restricted to roads and the harassment or taking of any wildlife other than the game species legal for the season is not permitted. Disturbance to the daily wintering activities, such as feeding and resting, of birds might occur. Disturbance to birds by hunters would probably be commensurate with that caused by non-consumptive users. No indirect impact to non-hunted resident wildlife is expected.

**MIGRATORY WATERFOWL** - The U.S. Fish and Wildlife Service annually prescribe frameworks, or outer limits, for dates and times when hunting may occur and the number of birds that may be taken and possessed. These frameworks are necessary to allow State selections of season and limits for recreation and sustenance; aid Federal, State, and tribal governments in the management of migratory game birds; and permit harvests at levels compatible with population status and habitat conditions. Because the Migratory Bird Treaty Act stipulates that all hunting seasons for migratory game birds are closed unless specifically opened by the Secretary of the Interior, the Service annually promulgates regulations (50 CFR Part 20) establishing the frameworks from which States may select season dates, bag limits, shooting hours, and other options for the each migratory bird hunting season. The frameworks are essentially permissive in that hunting of migratory birds would not be permitted without them. Thus, in effect, Federal annual regulations both allow and limit the hunting of migratory birds.

Migratory game birds are those bird species so designated in conventions between the United States and several foreign nations for the protection and management of these birds. Under the Migratory Bird Treaty Act (16 U.S.C. 703-712), the Secretary of the Interior is authorized to determine when "hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any ... bird, or any part, nest, or egg" of migratory game birds can take place, and to adopt regulations for this purpose. These regulations are written after giving due regard to "the zones of temperature and to the distribution, abundance, economic value, breeding habits, and times and lines of migratory flight of such birds, and are updated annually (16 U.S.C. 704(a)). This responsibility has been delegated to the U.S. Fish and Wildlife Service as the lead federal agency for managing and conserving migratory birds in the United States. Acknowledging regional differences in hunting conditions, the Service has administratively divided the nation into four Flyways for the primary purpose of managing migratory game birds. Each Flyway (Atlantic, Mississippi, Central, and Pacific) has a Flyway Council, a formal organization generally composed of one member from each State and Province in that Flyway. Hamden Slough NWR is within the Mississippi Flyway.

The process for adopting migratory game bird hunting regulations, located in 50 CFR part 20, is constrained by three primary factors. Legal and administrative considerations dictate how long the rule making process will last. Most importantly, however, the biological cycle of migratory game birds controls the timing of data-gathering activities and thus the dates on which these results are available for consideration and deliberation. The process of adopting migratory game bird hunting regulations includes two separate regulations-development schedules, based on "early" and "late" hunting season regulations. Early hunting seasons pertain to all migratory game bird species in Alaska, Hawaii, Puerto Rico, and the Virgin Islands; migratory game birds other than waterfowl (e.g. dove, woodcock, etc.); and special early waterfowl seasons, such as teal or resident Canada geese. Early hunting seasons generally begin prior to October 1. Late hunting seasons generally start on or after October 1 and include most waterfowl seasons not already established. There are basically no differences in the processes for establishing either early or late hunting seasons. For each cycle, Service biologists and others gather,

analyze, and interpret biological survey data and provide this information to all those involved in the process through a series of published status reports and presentations to Flyway Councils and other interested parties (USFWS 2006). Under the proposed action, Hamden Slough NWR estimates a maximum additional 105 – 120 ducks, and 10 Canada geese would be harvested each year.

Because the Service is required to take the abundance of migratory birds and other factors in to consideration, the Service undertakes a number of surveys throughout the year in conjunction with the Canadian Wildlife Service, State and Provincial wildlife-management agencies, and others. To determine the appropriate frameworks for each species, the Service considers factors such as population size and trend, geographical distribution, annual breeding effort, the condition of breeding and wintering habitat, the number of hunters, and the anticipated harvest. After frameworks are established for season lengths, bag limits, and areas for migratory game bird hunting, migratory game bird management becomes a cooperative effort of State and Federal Governments. After Service establishment of final frameworks for hunting seasons, the States may select season dates, bag limits, and other regulatory options for the hunting seasons. States may always be more conservative in their selections than the Federal frameworks but never more liberal. Season dates and bag limits for National Wildlife Refuges open to hunting are never longer or larger than the State regulations. In fact, based upon the findings of an environmental assessment developed when a National Wildlife Refuge opens a new hunting activity, season dates and bag limits may be more restrictive than the State allows. At Hamden Slough NWR, season length is more restrictive for waterfowl and deer than the State regulations.

**Duck Production on Hamden Slough NWR: (Taken from the Hamden Slough NWR Acquisition Proposal Environmental Assessment, Appendix F, Management Plan for Proposed Hamden Slough NWR):**

“Duck production is one of the primary values of the Hamden Slough area. Following development, total production would be 9,000 ducklings, an estimated 70 percent puddle ducks and 30 percent diving ducks. Thirteen species of ducks would nest on the refuge, blue-winged teal being important along with the six National Resource Species ducks (mallards, northern pintail, wood duck, redhead, canvasback and ring-necked duck)”

Duck Production (Brood) Population: The refuge duck production goal was selected as a measurement of sustainability for the Youth Waterfowl Hunting Day, since this hunt occurs on the 3<sup>rd</sup> or 4<sup>th</sup> weekend in September, when few migrant ducks are in the area.

Duck production in 2005 was estimated using the Mallard Management Model, and weekly brood surveys conducted each Monday from May – August. Based on standardized survey methods and correction factors there were 382 broods. Based on average brood sizes of 6 and 5.25 for dabblers and divers respectively the traditional model gives an estimated production of 1,604 dabblers and 602 divers for a total of 2,206

ducklings. This was an 80% increase over the 2004's record cold spring and early summer.

Following are 2006 survey results for Hamden Slough and adjoining WPA's.

1. Hamden Slough NWR 4-Sq mile results for 2006: Hamden Slough NWR is a long and narrow refuge which can not be statistically sampled using the 4 Square Mile Pair Counts system. Immediately adjacent to or within 1.0 mile of the refuge boundary is 15 federal WPA's. Two plots of the Detroit Lakes Wetland Management District's 4 Square Mile sampling sites overlay portions of the refuge. The estimated number of pairs on the Wetland Management District's federal property was 16,800 pairs, for 13 species of ducks. This is up from the 2005 measurement of 15,600 pairs. The 4 square mile survey plots also indicated a District recruitment of 78,400 ducks, for 5 species of waterfowl: mallard, gadwall, blue-winged teal, shoveler, and pintail. This is an increase over the District's 2005's recruitment of 70,800 ducks.
2. Refuge Goose Population: Canada goose populations are expanding state wide and increasingly causing problems in agriculture and urban areas. The state exceeded its goals for Giant Canada Goose restoration by 3% in Northwest Minnesota by 2002. Refuge gosling surveys for 2006 were completed with an estimated production of 722 goslings. Refuge populations are stable.

The following are additional points to consider when determining the cumulative impacts of a 1 day Youth Waterfowl Hunt on Hamden Slough NWR.

- Limited Access: Access will be walk-in or by non-motorized boats only.
- Species most likely to be harvested: Mallard, blue-winged teal, and gadwalls are usually the most abundant species in mid-September in the Riceville and Audubon Township wetlands. All of these species are dabbling ducks. There is some possibility of a few geese being harvested, but hunting experience and weapon size will limit the take.
- Hunting Pressure: Hunting pressure will be light to moderate. Youth Hunting Day numbers on adjacent and nearby WPA's have been low over the last several years, with an average of 2 - 3 youth hunters per WPA. Average number of ducks taken per youth is 1.5. The morning hunt is when most activity occurs as the season closes at 4:00pm. Youth hunters typically shoot a lot of shells but harvest few birds. The maximum estimated number of youth hunters expected on Hamden Slough is 70 – 80. The maximum number of ducks harvested would be estimated from 105 to 120. A total of 10 Canada geese may also be harvested
- National & International Breeding Populations: According to Trends in Duck Breeding Populations, 1955-2006, USFWS, 2006, which focuses on areas encompassed by USFWS and Canadian Wildlife Service Waterfowl Breeding

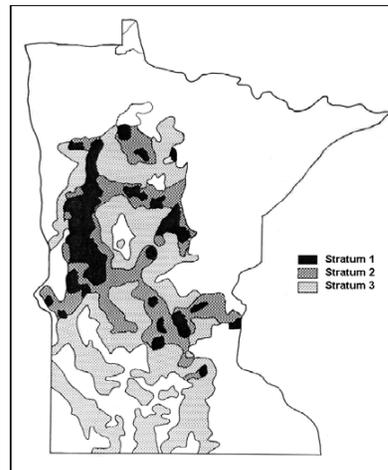
Population and Habitat Survey, the abundance of most waterfowl species increased last year. Specifics on species most likely to be harvested in the Hamden Slough wetlands are as follow:

1. Mallard numbers were similar to last year's estimates and the long-term average.
2. Green-winged teal abundance was 20% greater than last year and 39% above the long-term average.
3. Blue-winged teal abundance was 28% greater than last year and 30% above the long-term average.
4. Gadwall abundance was 30% greater than last year and 67 % above the long-term average.

This survey borders the western and northern boundaries of Minnesota.

- **Minnesota Breeding Population:** The number of breeding waterfowl in a portion of Minnesota (see Figure 2.) has been estimated each year since 1968 as a part of the overall inventory of North American breeding waterfowl. The survey includes northwest Minnesota where Hamden Slough NWR is located.

Figure 2. Location of waterfowl breeding population survey strata in Minnesota.



Results from the 2006 Waterfowl Breeding Population Survey Minnesota, MNDNR, were as follows:

1. Mallard: declined significantly (-33%,  $P = 0.04$ ) from 238,500 last year to 161,000 in 2006 and were well below the 10-year average (-51%) and the long-term average (-28%) and were the lowest recorded since 1983.
2. Blue-winged teal: breeding population (174,000) was below the 2005 estimate (194,000) and both the 10-year (-27%) and long-term (-24%) averages.
3. Other ducks: Excluding scaup, other ducks (187,000), decreased 6% and remained below the 10-year average (-24%) but similar to the long-term average (+5%). Wood ducks (30%), ring-necked ducks (29%), and gadwalls (19%) accounted for most (78%) of the total population of “other” ducks.

Survey timing in 2006, and other factors, may have contributed to lower estimates of duck abundance. Spring phenology (ice-out, leaf-out, duck migration) was well advanced in 2006, up to 10 days earlier than normal. Weather delays resulted in most (80%) of the survey being flown after 15 May. During most years, some migrant ducks are counted during the survey. Few migrant ducks were in the state that spring when most of the survey was flown.

Spring Canada goose population estimates in Minnesota have steadily increased from 285,220 in 2001 to 375,571 in 2006.

- NEPA considerations by the Service for hunted migratory game bird species are addressed by the programmatic document, “Final Supplemental Environmental Impact Statement: Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds (FSES 88– 14),” filed with the Environmental Protection Agency on June 9, 1988. We published Notice of Availability in the Federal Register on June 16, 1988 (53 FR 22582), and our Record of Decision on August 18, 1988 (53 FR 31341). Annual NEPA considerations for waterfowl hunting frameworks are covered under a separate Environmental Assessment, “Duck Hunting Regulations for 2006-07,” and an August 24, 2006, Finding of No Significant Impact. Further, in a notice published in the September 8, 2005, Federal Register (70 FR 53776), the Service announced its intent to develop a new Supplemental Environmental Impact Statement for the migratory bird hunting program. Public scoping meetings were held in the spring of 2006, as announced in a March 9, 2006, Federal Register notice (71 FR 12216).

The U.S. Fish and Wildlife Service annually prescribe frameworks, or outer limits, for dates and times when hunting may occur and the number of birds that may be taken and possessed. These frameworks are necessary to allow State selections of season and limits for recreation and sustenance; aid Federal, State, and tribal governments in the management of migratory game birds; and permit harvests at levels compatible with population status and habitat conditions. Because the Migratory Bird Treaty Act stipulates that all hunting seasons for

migratory game birds are closed unless specifically opened by the Secretary of the Interior, the Service annually promulgates regulations (50 CFR Part 20) establishing the Migratory Bird Hunting Frameworks from which States may select season dates, bag limits, shooting hours, and other options for the each migratory bird hunting season. The frameworks are essentially permissive in that hunting of migratory birds would not be permitted without them. Thus, in effect, Federal annual regulations both allow and limit the hunting of migratory birds.

The Migratory Bird Hunting Frameworks provide season dates, bag limits, and other options for the States to follow based upon Service-prepared annual biological assessments detailing the status of migratory game bird populations. The annual assessments are based upon the distribution, abundance, and flight lines of migratory birds. Thus, the level of hunting opportunity afforded each State increases or decreases in accordance with the annual status of migratory game bird populations.

Each National Wildlife Refuge considers the cumulative impacts to hunted migratory species through the Migratory Bird Frameworks published annually in the Service's regulations on Migratory Bird Hunting. Season dates and bag limits for National Wildlife Refuges open to hunting are never longer or larger than the State regulations. In fact, based upon the findings of an environmental assessment developed when a refuge opens a new hunting activity, season dates and bag limits may be more restrictive than the State allows.

#### **Waterfowl Harvest Data:**

1. Hamden Slough NWR: There has never been a waterfowl hunt on this refuge. The proposed youth hunt on average will probably attract 70 to 80 youth hunters with an estimated maximum number of ducks harvested at 105 to 120. Approximately 10 Canada geese may also be harvested.
2. Minnesota and Mississippi Flyway Harvest for 2004 and 2005: The total number of ducks harvested in Minnesota by adult hunters for 2004 and 2005 were 683,600 and 531,500, respectively. The total number harvested in the Mississippi Flyway were 5,505,500 (2004) and 5,270,000 (2005). See Table 1 for species composition of harvest in 2004 and 2005. See Table 2 for comparison to top ten states in total ducks harvested in 2005. The total number of geese harvested in Minnesota by adult hunters in 2005 was 207,500.
3. Ducks & Geese Harvested in the United States in 2005: The total number of ducks harvest in the U.S by adult hunters in 2005 was 12,510,800. The total number of geese harvested was 3,660,700. See Table 3 for more details.

## Cumulative Impacts Summary

Table 1. Comparison of proposed youth waterfowl harvest at Hamden Slough NWR to State, Flyway, and United States harvest in 2005. See Table 2 & Table 3 below.

Waterfowl Harvest Area	Ducks	Geese
Hamden Slough NWR	105 – 120*	10*
Minnesota	531,500	207,500
Mississippi Flyway	5,270,000	1,275,300
United States	12,510,800	3,660,700

\*estimated future harvest based on data gathered by FWS on adjoining WPA's.

The cumulative impact of the proposed Youth Waterfowl Hunt on Hamden Slough NWR, the State of Minnesota, and the Mississippi Flyway will be miniscule. The Minnesota Department of Natural Resources and the U. S. Fish & Wildlife Service Regional 3 Biologist and Mississippi Flyway Biologist have been consulted on this analysis, and concur with the impact assessment. No indirect impact to non-hunted migratory species is expected.

Table 2. Species composition of the Minnesota waterfowl harvest, 2004 and 2005. (from: Padding, P.I., Richkus, K.D, Moore, M.T., Martin, E.M., Williams, S.S., and Spriggs, H.L. Migratory Bird Hunting activity and harvest during the 2004 and 2005 hunting seasons: preliminary estimates. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Branch of Harvest Surveys, Laurel, Maryland. July 2006. 63 pp).Note: All hunter activity and harvest estimates are preliminary, pending final counts of the number of migratory bird hunters in each state and complete audits of all survey response data.

Species	Minnesota Harvest					Mississippi Flyway Harvest		
	2004	% of Harvest	2005	% of Harvest	% change in Harvest 04-05	2004	2005	% change in Harvest 04-05
Mallard	179,277	26.23	169,582	31.9	-5	2,199,931	2,049,383	-7
Domestic mallard	838	0.12	240	0.04	-71	5,015	4,539	-10
American black duck	279	0.04	719	0.13	+158	35,692	36,365	2
Black x mallard	558	0.08	0	0	-100	2,651	2,849	7
Gadwall	31,276	4.57	15,090	2.84	-52	654,488	635,321	-3
American wigeon	24,574	3.59	13,174	2.48	-46	149,793	121,240	-19
Green-winged teal	44,959	6.58	27,545	5.18	-39	498,019	513,850	3
Blue-winged /cinnamon teal	106,114	15.52	50,539	9.51	-52	365,488	314,079	-14
Northern shoveler	17,313	2.53	13,174	2.48	-24	158,905	195,542	23
Northern pintail	14,242	2.08	9,820	1.85	-31	90,542	107,276	18
Wood duck	127,616	18.67	98,204	18.48	-23	729,608	673,507	-8
Redhead	9,494	1.39	16,767	3.15	+77	35,334	62,051	76
Canvasback	4,747	0.69	8,623	1.62	+82	10,824	32,786	203
Greater scaup	3,072	0.45	1,437	0.27	-53	28,056	24,812	-12
Lesser scaup	12,008	1.76	12,934	2.43	+8	108,534	111,357	3
Ring-necked duck	75,118	10.99	75,689	14.24	+1	233,979	240,090	3
Goldeneye	9,494	1.39	7,186	1.35	-24	30,290	23,420	-23
Bufflehead	8,936	1.31	3,832	0.72	-57	59,789	42,024	-30
Ruddy duck	1,955	0.28	479	0.09	-775	5,227	4,235	-19
Scoters	838	0.12	719	0.13	-14	4,286	4,921	15
Hooded merganser	9,215	1.35	4,790	0.9	-48	47,469	30,454	-36
Other mergansers	1,117	0.16	958	0.18	-14	8,808	4,164	-53
Total Duck Harvest (retrieved kill)	683,600 " 10%		531,500 " 12%		-22	5,505,500 " 5%	5,270,000 " 5%	-4

Table 3. Top 10 states in number of adult duck hunters, 2005, and number of hunter-days and retrieved duck kill, in each (from: Padding, P.I., Richkus, K.D, Moore, M.T., Martin, E.M., Williams, S.S., and Spriggs, H.L. Migratory Bird Hunting activity and harvest during the 2004 and 2005 hunting seasons: preliminary estimates. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Branch of Harvest Surveys, Laurel, Maryland. July 2006. 63 pp). Note: All hunter activity and harvest estimates are preliminary, pending final counts of the number of migratory bird hunters in each state, and complete audits of all survey response data.

State	Number of active duck hunters	Duck hunter days afield	Total duck harvest	Seasonal duck harvest per hunter
Texas	91,500 ± 18%	488,500 ± 25%	1,255,400 ± 23%	13.7 ± 29%
Minnesota	71,000 ± 8%	404,100 ± 11%	531,500 ± 12%	7.5 ± 15%
Arkansas	64,900 ± 9%	462,700 ± 13%	1,080,400 ± 14%	16.7 ± 17%
Wisconsin	56,100 ± 10%	393,900 ± 16%	375,100 ± 12%	6.7 ± 16%
Louisiana	48,400 ± 11%	333,000 ± 15%	877,800 ± 14%	18.2 ± 18%
California	47,000 ± 10%	486,700 ± 15%	1,327,200 ± 15%	28.3 ± 18%
Michigan	40,900 ± 10%	225,200 ± 11%	284,400 ± 12%	7.0 ± 16%
North Dakota	36,300 ± 5%	186,700 ± 7%	519,400 ± 8%	14.3 ± 9%
Illinois	31,600 ± 9%	260,900 ± 10%	380,400 ± 11%	12.0 ± 15%
Missouri	28,700 ± 13%	221,700 ± 20%	465,400 ± 28%	16.2 ± 31%
Mississippi Flyway		3,075,500 ± 5%	5,270,000 ± 5%	
United States		6,479,200 ± 3%	12,510,800 ± 4%	

The limitation of hunting only 40% of the refuge should provide for minimal impact to migratory birds, other than waterfowl. Migratory birds will be able to feed and rest with little to no disturbance on 60% of the refuge. On the hunted portion of the refuge, migratory birds will be disturbed on only the State of Minnesota Youth Waterfowl Hunting Day, in late September. Waterfowl will have the largest disturbance, on 40% of the refuge, for one day, from sunrise to 4:00p.m. The take of waterfowl on the refuge is expected to be 105 – 120 ducks. Canada geese disturbed inside the refuge could fly beyond the refuge boundary and be taken on public and private land, during the Minnesota Special Goose Season. The overall affect of this alternative on migratory birds should be slightly negative.

The hunting season for the Youth Waterfowl Hunting Day is late September, with the white-tailed deer muzzleloader season open from late November - early December. Consequently, tracts of Hamden Slough NWR will receive all hunter use during these two limited periods. Current information from population and harvest surveys indicates that a limited harvest will not adversely affect population levels of these species. The MN DNR and U.S. Fish & Wildlife Regional and Flyway Biologists concur with this conclusion. In fact, deer population data indicates that without harvest, deer will quickly overpopulate areas causing crop depredation and degradation of the quality and quantity of native vegetation.

Based on the similarities between adjacent and nearby WPA's and the refuge, it is expected that the establishment of a hunting program for Hamden Slough refuge should not adversely affect the refuge's purpose or goals.

**ENDANGERED SPECIES** - Federally listed Threatened Species that occur in Becker County include the bald eagle, gray wolf and piping plover. Although the hunt sites are within the breeding range of the bald eagle, no known eagle nests are located on or in the vicinity of the refuge. The hunt sites are also within the range of the gray wolf. No gray wolves have been observed on or in the vicinity of the refuge in over 40 years. A piping plover was observed once on the refuge, in July, 1999. (U.S. FWS Endangered & Threatened Species List)

The State of Minnesota lists an additional 14 Threatened or Special Concern Species, which have been sighted or nest on the refuge. The 6 nesting species are: Wilson's phalarope, marbled godwit, Nelson's sharp-tailed sparrow, common moorhen, greater prairie chicken, and snapping turtle. (Minnesota DNR: Endangered, Threatened and Special Concern Species)

Because of the location and type of activity proposed, hunting will have "no effect" on the bald eagle, gray wolf or piping plover or any other federally listed threatened or endangered species or their critical habitat. An Endangered Species Act Section 7 consultation conducted as part of this assessment was approved, and is attached. No impacts are anticipated for Minnesota State listed species. It was determined that the proposed alternative would not likely adversely affect these endangered species.

#### **4.1.5 - B. ANTICIPATED DIRECT AND INDIRECT IMPACT OF PROPOSED HUNT ON REFUGE PROGRAMS, FACILITIES, AND CULTURAL RESOURCES**

**OTHER REFUGE-WILDLIFE-DEPENDENT RECREATION** - Approximately 6,000 visitors use the refuge each year. Most of these visitations are from May – August for bird and wildlife observation. Visitor numbers drop sharply in early September, after many prairie, marsh and shorebird species have migrated, and parents and students have returned to school and university activities. Disturbance of public use and wildlife would be minimal with one day of Youth Waterfowl Hunting in later September. The muzzleloader hunting season in late November, takes place after wetlands freeze over, and the numbers of migrating birds and public use is absolutely minimal.

**REFUGE FACILITIES** - The Service defines facilities as: "Real property that serves a particular function(s) such as buildings, roads, utilities, water control structures, raceways, etc." Under the proposed action those facilities most utilized by hunters are roads and parking lots. Any needed maintenance or improvement of existing roads and parking areas will cause minimal short term impacts to localized soils and may cause some wildlife disturbances and damage to vegetation. The reader should note that the facility maintenance and improvements described are periodically conducted to accommodate daily refuge management operations and general public

uses such as wildlife observation and photography. These activities are and will be conducted at times (seasonal and/or daily) to cause the least amount of disturbance to wildlife.

Disturbance by vehicles will be limited, as off-road travel will not be permitted. Special access accommodations for persons with disabilities will be allowed, utilizing existing gravel trails on the refuge. Disabled use is expected to be minimal. Access for waterfowl hunting will be limited to walk-in or by non-motorized boats only. Access for deer hunting will be limited to walk-in. Disabled hunters may use motorized vehicles, but must remain on refuge gravel roads. No impact is expected to refuge roads or trails.

**CULTURAL RESOURCES** - No site listed on the National Register of Historic Places is located on fee title tracts within the designated boundaries of the refuge. A total of 11 potential archaeological sites, and 2 recorded archaeological sites, were located within the refuge's designated boundary, by IMA (Institute for Minnesota Archaeology) Consulting, Inc., in November 1997. The two recorded sites are still in private ownership. Hunting activities will result in no ground disturbance or disturbance to standing structures, and it would have no effect on any historic properties.

Hunting, regardless of method or species targeted, is a consumptive activity that does not pose any threat to historic properties on and/or near the Refuge. In fact, hunting meets only one of the two criteria used to identify an "undertaking" that triggers a federal agency's need to comply with Section 106 of the National Historic Preservation Act. These criteria, which are delineated in 36 CFR Part 800, state:

- 1- an undertaking is any project, activity, or program that can alter the character or use of an archaeological or historic site located within the "area of potential effect;" and
- 2- the project, activity, or program must also be either funded, sponsored, performed, licenses, or have received assistance from the agency.

Consultation with the pertinent State Historic Preservation Office and federally recognized Tribes are, therefore, not required.

#### **4.1.5 - C. ANTICIPATED DIRECT AND INDIRECT IMPACT OF PROPOSED HUNT ON REFUGE ENVIRONMENT AND COMMUNITY**

Refuge personnel expect no measurable adverse impacts of the proposed action on the refuge environment which includes soils, vegetation, air quality, water quality and solitude. Some disturbance to surface soils and vegetation would occur in areas selected for hunting; however minimal. Hunting would benefit vegetation as it is used to keep deer populations in balance with the habitat's carrying capacity. The refuge would also control access to minimize habitat degradation.

The Service owns and administers numerous Waterfowl Production Areas (WPA's) that are distributed around and adjacent to the acquisition boundary for Hamden Slough NWR. There is presently over 12,500 acres of fee title WPA lands administered by the Service in Becker County alone. In addition, the Service administers perpetual easement agreements on another approximately 5,000 acres of private lands in this area. WPA's average less than 200 acres in size and are intermingled with private and other public lands. Their relative distribution, size, and habitat characteristics will be highly similar to the tracts of land incorporated into the Hamden Slough NWR land base. All WPA lands are part of the NWR System and the Service's primary purpose for these lands is to provide for waterfowl production and ensure the preservation of migratory birds, threatened and endangered species, and resident wildlife. An additional primary purpose established by the Service for these lands is to provide opportunities for the public to hunt, fish, observe and photograph wildlife, and increase public understanding and appreciation of the tallgrass prairie ecosystem.

Public hunting has been allowed for many years by the Service on WPA's located around and adjacent to the acquisition area for the Refuge. The Service has allowed public hunting and administered a hunting program on WPA's since the early 1960's. Most recent estimates show that more than 125,000 people visit WPA's located in Minnesota annually for the purpose of hunting. During its history, the Service has not noted any significant adverse effects of this hunting program on the goals of the WPA's, and has determined that this use is compatible with the purposes of the WPA's and the NWR System's mission statement. The hunting program for Hamden Slough NWR will be consistent with the program administered by the U.S. Fish & Wildlife Service for WPA's.

Impacts of the Proposed Action on the refuge physical environment would have similar minimal to negligible effects. Some disturbance to surface soils, topography, and vegetation would occur in areas selected for hunting, and is expected to be minimal. The additional acreage would be utilized more by the public (hunters) than has been previously known, during the 16 hunting days, which might cause increased trampling of vegetation. Impacts to vegetation should be minor. Hunter density is estimated to be an average of less than 1 hunter/10 acres for the Youth Waterfowl Hunt, on 40 % of the refuge; and 1 hunter/100 acres throughout the Deer Muzzleloader season on all the refuge. Refuge-regulations would not permit the use of vehicles off of designated refuge roads. Vehicles for disabled hunters would be confined to existing roads and parking lots.

Hunting would benefit vegetation as it is used to keep resident deer populations in balance with the prairie habitat's carrying capacity. The refuge would also control vehicle access to minimize habitat degradation. The biological integrity of the refuge would be protected under this alternative, and the refuge purpose of restoring prairie wetlands – grassland complexes for migratory birds and wildlife would be achieved. The hunting of deer would positively impact prairie habitat by promoting plant diversity.

Impacts to the natural hydrology would have negligible effects. The refuge expects impacts to air and water quality to be minimal and only due to refuge visitor's use of automobiles on adjacent Township and County public roads. The effect of these refuge-related activities on

overall air and water quality in the region are anticipated to be negligible. Existing State water quality criteria and use classifications are adequate to achieve desired on-refuge conditions; thus, implementation of the proposed action would not impact adjacent landowners or users beyond the constraints already implemented under existing State standards and laws.

Impacts associated with solitude are expected to be minimal given the limited time, season, and space management techniques used to avoid conflicts among user groups.

Since the early 1960's, public hunting has not resulted in any significant adverse effects on the soils, vegetation, air and water quality, solitude, or Service management activities associated with the adjacent and nearby WPA's. Since the habitat characteristics, size, distribution, and management activities of tracts that are acquired for Hamden Slough NWR will be similar to existing WPA tracts, public hunting on the refuge should not adversely impact the soils, vegetation, air and water quality, solitude, or Service's management activities for the refuge lands. Based on the similarities between 12,500 acres of WPA's that are adjacent or surround the refuge, the establishment of a hunting program for the refuge should not impact the area's economy either positively or negatively. The Proposed Action would have similar minimal to negligible effects on human health and safety.

With a September Youth Waterfowl Hunting Day and a late November – early December, Deer Muzzleloader 16 day season, there is a potential to have some minimal disturbance on the general public, nearby residents, and refuge visitors. The disturbance factor is considered minimal, as the refuge already has hunting taking place on 12,500 acres of surrounding federal property, and on 100,000's of acres of private and state property. Hunting is a cultural tradition in this part of Minnesota. No adjacent or nearby neighbor is known to oppose hunting or to be disturbed by it. In fact, most residents living near the refuge hold family hunts on their property and on nearby WPA's and state property. It is possible that refuge hunting will increase hunting opportunities on surrounding lands, by increasing the wildlife moving beyond the refuge boundary.

#### **4.1.5 - D. OTHER PAST, PRESENT, PROPOSED, AND REASONABLY FORESEEABLE HUNTS AND ANTICIPATED IMPACTS.**

No past hunting has been allowed on Hamden Slough NWR since it was established in 1989. No hunting is currently allowed on the refuge. Only the Youth Waterfowl Hunting Day and Deer Muzzleloader Season are being proposed. No additional hunting is anticipated or being considered in the foreseeable future. The U.S. Fish & Wildlife Service is in the process of reducing Region 3's staff by 20% over the next 2 years. Very few programs in the Service will be proposed for expansion with a reduced staff to plan, implement and administer these new programs.

If public use levels expand in the unforeseen future, unanticipated conflicts between user groups may occur. Service experience has proven that time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups. The refuge could focus non-consumptive use (mainly birdwatching and other wildlife viewing) in the wetlands with high bird density, and close them for hunting. This would limit conflicts between non-consumptive users during any other future hunting seasons.

#### **4.1.5 - E. ANCIPATED IMPACTS IF INDIVIDUAL HUNTS ARE ALLOWED TO ACCUMULATE.**

National Wildlife Refuges, including Hamden Slough NWR, conduct or will conduct hunting programs within the framework of State and Federal regulations. Hamden Slough NWR proposed action is at least as restrictive as the State of Minnesota and in the case of both proposed hunts more restrictive on waterfowl and deer. By maintaining hunting regulations that are as, or more, restrictive than the State, individual refuges ensure that they are maintaining seasons which are supportive of management on a more regional basis. The proposed hunt plan has been reviewed and is supported by the Minnesota Department of Natural Resources (MN DNR) and the White Earth Indian Reservation Biology Department. Additionally, refuges coordinate with the MN DNR annually to maintain regulations and programs that are consistent with the State management program.

Deer muzzleloader hunting will have minimal impacts to the deer populations in the MN DNR Management Units which overlay and surround the refuge. Deer browsing impacts to prairie communities may be reduced slightly. Other forms of deer hunting, if allowed in the future, would result in more deer harvested on refuge property. The current number of deer harvested during all deer hunting seasons in Unit #259 and Unit #297 is 2.7 and 1.4 deer/mile square, respectively. Refuge personnel expect about the same number of deer would be harvested on refuge lands in those Units, at current population levels.

If a general waterfowl and deer gun hunting are allowed on the refuge in the future, refuge user conflicts could increase. Refuge personnel expect and witness that most hunters respect spacing needs between hunters and blinds and will essentially regulate themselves. User conflicts might occur between non-consumptive users and hunters. This not expected, as hunting seasons take place when non-consumptive uses (wildlife observation, photography) have become minimal, after early September.

**4.1.6 ENVIRONMENTAL JUSTICE:** Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” was signed by President Bill Clinton on February 11, 1994, to focus federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination

in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information and participation in matters relating to human health or the environment. This assessment has not identified any adverse or beneficial effects unique to minority or low-income populations in the affected area. The Proposed Action will not disproportionately place any adverse environmental, economic, social, nor health impacts on minority or low-income populations. Hunting by the White Earth Band of Ojibwa will continue on federal property inside the White Earth Indian Reservation.

The Refuge Recreation Act of 1962 (16 U. S. C. 460K) and the National Wildlife Refuge System Administration Act of 1966 (16 U. S. C. 668-ddee) provide authorization for hunting and fishing on National Wildlife Refuges. The effects of hunting and fishing on refuges have been examined in several environmental review documents, including the Final Environmental Impact Statement on the Operation of the National Wildlife Refuge System (1976), Recommendations on the Management of the National Wildlife Refuge System (1978), and the Draft Environmental Impact Statement on the Management of the National Wildlife Refuges (1988).

The 1988 Hamden Slough Final Environmental Assessment developed for the establishment of the Hamden Slough NWR identified providing compatible wildlife-dependent recreational uses, including "...waterfowl and resident game hunting, wildlife observation and photography.", as public use benefits. It further states "An estimated 50 percent of the public use would be for these activities". Nothing in the establishing authority for the Hamden Slough National Wildlife Refuge (Migratory Bird Conservation Act {16 U. S. C. § 715 } precludes hunting on the refuge.

Hunting accounts for more than half of the visits to WPA's. It is anticipated that visitation at Hamden Slough NWR will follow a similar, but reduced pattern. The allowance of hunting on the refuge will expose public user groups to the prairie habitats and facilitate a better appreciation and understanding of this ecosystem. This will increase the success of prairie preservation and restoration efforts. Also the allowance of public hunting will nurture a cooperative relationship with adjacent landowners by minimizing crop depredation.

The Service owns and administers numerous Waterfowl Production Areas that are distributed around and adjacent to the acquisition area for Hamden Slough NWR. There is presently over 12,500 acres of fee title WPA lands administered by the Service in Becker County alone. In addition, the Service administers perpetual easement agreements on another approximately 5,000 acres of privatelands in this area. WPA's average less than 200 acres in size and are intermingled with private and other public lands. Their relative distribution, size, and habitat characteristics will be highly similar to the tracts of land incorporated into the Hamden Slough NWR land base. All WPA lands are part of the NWR System and the Service's primary purpose for these lands is to provide for waterfowl production and ensure the preservation of migratory birds, threatened and endangered species, and resident wildlife. An additional primary purpose established by the Service for these lands is to provide opportunities for the public to hunt, fish, observe and photograph wildlife, and increase public understanding and appreciation of the tallgrass prairie ecosystem.

As stated, public hunting has been allowed for many years by the Service on WPA's located

around the acquisition area for the Refuge. During this period, public hunting has not resulted in any significant adverse effects on the Service's management activities associated with these WPA's. Since the habitat characteristics, size, distribution, and management activities of tracts that are acquired for Hamden Slough NWR will be similar to existing WPA tracts, public hunting on the refuge should not adversely impact the Service's management activities for the refuge lands.

Potential public use conflicts will be minimized by seeking a balance between the consumptive (hunting) and nonconsumptive uses such as wildlife observation, environmental education and interpretation.

## **SECTION 4.2 ALTERNATIVE B (NO ACTION)**

**4.2.1. HABITAT IMPACTS:** No public use impacts on vegetation are expected with this alternative. Some impact to vegetation is expected when waterfowl and deer populations exceed carrying capacity. Damage to agricultural croplands as well as to native prairie vegetation, particularly wildflowers can result from white-tailed deer and Canada geese, when their population levels increase and exceed their carrying capacity without the control provided by hunting. This alternative is expected to cause increased deer depredation off refuge.

**4.2.2. BIOLOGICAL IMPACTS:** Possible impacts to migratory birds, especially Canada geese, are expected with this alternative. White-tailed deer and Canada geese can increase to levels that result in damage to agricultural croplands, as well as to native prairie vegetation, particularly wildflowers without the population control provided by hunting. When population levels exceed carrying capacity, deer and waterfowl are highly susceptible to disease (e.g., botulism, anthrax, hemorrhagic disease, chronic wasting disease, etc.) outbreaks that result in high mortality. This often results in an abrupt decline in either the deer or waterfowl population, which can adversely affect the genetic structure of the herd or flock.

The white-tailed deer population is expected to increase slightly as a result of this alternative. The deer population in the refuge should continue to reflect deer densities within the State Management Units. Currently, Hamden Slough NWR represents less than 2% of Unit #259 (formerly #408) and less than 1% of Unit #297 (west White Earth Indian Reservation).

Deer population densities for Unit #259 (Hamden & Audubon Townships) were estimated at approximately 8.4 deer/sq. mi. by the MN DNR in 2004. This is double their population goal of 3.6 – 4.4 deer/sq. mi. In both 2003 and 2004, Unit #408 was designated as an Intensive Hunt Zone, and harvest numbers did increase. In 2003, a total of 1,353 deer were harvested in the Unit #408, of which 803 were antlerless. During the 2004 season, a total of 1285 deer were harvested in Unit #408, of which 609 were female. Approximately 625 female deer must be harvested in Unit #408 (#259 in 2005) each year, just to hold the population at its current numbers. More must be harvested to reach the MN DNR goal of about 4 deer/sq. mi. Biological data from harvested deer in Unit #408 is collected by the MN DNR to reconstruct basic information on the deer herd (MN DNR Deer Density -2004). Unit #408 is re-designated as Unit #259 for the 2005 and future deer seasons, allowing 3 days of extra gun deer hunting.

The following are 2006 survey results for Hamden Slough NWR and the adjoining area of Becker, Clay, Hubbard, Mahnomen, Norman and Ottertail Counties. (Unit #239, #244, #259, and #297)

- Hamden Slough NWR is a long and narrow refuge which is divided between Deer Hunting Units # 259 and #297. The north 1/3 of the refuge is in Unit #297, and the southern 2/3's of the refuge is in Unit #259.
- Unit #259 covers portions of Becker, Clay and Norman Counties.
- Unit #297 covers portions of Becker and Mahnomen Counties.
- Two miles south of the refuge is Unit #239 (formerly #410), which extends south into Ottertail County.
- Three miles east of the refuge is unit #244, which extends east into Hubbard County.

In 2006, the MN DNR estimated deer density in:

- Unit #297 was 25 deer/mile square
- Unit #259 was 11 deer/mile square
- Unit #239 (formerly #410) was 34 deer/mile square
- Unit #244 was 37 deer/mile square. When compared to 2005, the density is up slightly in Units #239 and #297, and down slightly in Units # 259 and #244. Over the last 10 years, deer populations in all Units around the refuge are stable or increasing, and exceed DNR target goals. **See Figure #1 in Section 4.1.5. - A.**

**4.2.3. LISTED SPECIES:** No effect is expected for the bald eagle, gray wolf or piping plover or any other federally listed threatened or endangered species or their critical habitat. A consultation pursuant to Section 7 of the Endangered Species Act was conducted as part of this assessment and is attached. No impacts are anticipated for state listed species.

**4.2.4. HISTORIC PROPERTIES AND CULTURAL RESOURCES:** No ground disturbance or disturbance to standing structures is expected, and it would have no effect on any historic properties.

#### **4.2.5 CUMULATIVE IMPACT ANALYSIS**

##### **4.2.5 - A. ANTICIPATED DIRECT AND INDIRECT IMPACT OF NO ACTION ON WILDLIFE SPECIES**

This alternative will continue a non-hunting sanctuary for deer. This sanctuary should increase the deer population on the refuge, providing the non-hunting visitor with an increased chance of seeing deer. It should allow more deer the potential to grow older, increasing the percent of mature bucks, popular with non-hunting visitors. Disturbance to refuge wildlife would continue as is presently caused by non-consumptive users.

Under this alternative, additional acreage would not be opened to deer hunting. When deer populations become excessive, they over browse their habitat, which can change the structure and plant composition of a forest or prairie. The refuge has restored approximately 1,500 acres with native prairie grass and prairie wildflowers, since 1991. The density of prairie wildflowers can be reduced by over browsing. Failure to establish the prairie community would have negative impacts on migratory birds, and resident and non-resident wildlife populations, as well as the purpose of the refuge.

#### **4.2.5 - B. ANTICIPATED DIRECT AND INDIRECT IMPACT OF NO ACTION ON REFUGE PROGRAMS, FACILITIES, AND CULTURAL RESOURCES**

**OTHER REFUGE-WILDLIFE-DEPENDENT RECREATION** - Approximately 6,000 visitors use the refuge each year. Most of these visitations are from May – August for bird and wildlife observation. Visitor numbers drop sharply in early September, after many prairie, marsh and shorebird species have migrated, and parents and students have returned to school and university activities. Potential public use conflicts will not develop between consumptive uses (hunting) and non-consumptive public uses such as wildlife observation, environmental education and interpretation.

The public would not have the opportunity to harvest a renewable resource, participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established, have an increased awareness of Hamden Slough NWR and the National Wildlife Refuge System; nor would the Service be meeting public use demand. Public relations would not be enhanced with the local community. Under this alternative, youth would be unable to experience duck hunting on the National Wildlife Refuge with an experienced adult. This would be a missed opportunity to participate in a partnership program with the Duck's Unlimited to promote youth, wildlife-dependant recreation.

**REFUGE FACILITIES** - The Service defines facilities as: “Real property that serves a particular function(s) such as buildings, roads, utilities, water control structures, raceways, etc.” Under the no action alternative those facilities most utilized by non-consumptive visitors are the refuge office and parking lots. Any needed maintenance or improvement of existing buildings and parking areas will cause minimal short term impacts to localized soils and may cause some wildlife disturbances and damage to vegetation. The reader should note that the facility maintenance and improvements described are periodically conducted to accommodate daily refuge management operations and general public uses such as wildlife observation and photography. These activities are and will be conducted at times (seasonal and/or daily) to cause the least amount of disturbance to wildlife.

Disturbance by vehicles will be limited to existing parking areas. Special access accommodations for persons with disabilities can be allowed, utilizing existing gravel trails on the refuge. Disabled use is expected to be minimal

**CULTURAL RESOURCES** - No site listed on the National Register of Historic Places is located on fee title tracts within the designated boundaries of the refuge. A total of 11 potential archaeological sites, and 2 recorded archaeological sites, were located within the refuge's designated boundary, by IMA (Institute for Minnesota Archaeology) Consulting, Inc., in November 1997. The two recorded sites are still in private ownership. Non-consumptive recreational activities will result in no ground disturbance or disturbance to standing structures, and it would have no effect on any historic properties.

#### **4.2.5 - C. ANCIPATED DIRECT AND INDIRECT IMPACT OF NO ACTION ON REFUGE ENVIRONMENT AND COMMUNITY**

Refuge personnel expect some adverse impacts of No Action on the refuge environment which includes soils, vegetation, air quality, water quality and solitude. Some disturbance to prairie vegetation, particularly wildflower density could occur in restored prairie areas, by over browsing. The local deer population is at least twice the density goal set by the MN DNR, for all Units on and around the refuge. Deer have exceeded the prairie and forest habitat's carrying capacity, and are causing a reduction in the density of forest seedlings and prairie wildflowers.

When deer populations become excessive, they over browse their habitat, which can change the structure and plant composition of a forest or prairie. The refuge has restored approximately 1,500 acres with native prairie grass and prairie wildflowers, since 1991. The density of prairie wildflowers can be reduced by over browsing. Failure to establish the prairie community would have negative impacts on migratory birds, and resident and non-resident wildlife populations, as well as the purpose of the refuge.

#### **4.2.5 - D. OTHER PAST, PRESENT, PROPOSED, AND REASONABLY FORESEEABLE HUNTS AND ANCIPATED IMPACTS.**

No past hunting has been allowed on Hamden Slough NWR since it was established in 1989. No hunting is currently allowed on the refuge. No additional hunting beyond the proposed hunts is anticipated or being considered in the foreseeable future. The U.S. Fish & Wildlife Service is in the process of reducing Region 3's staff by 20% over the next 2 years. Very few programs in the Service will be proposed for expansion with a reduced staff to plan, implement and administer these new programs.

#### **4.2.5 - E. ANCIPATED IMPACTS IF INDIVIDUAL HUNTS ARE ALLOWED TO ACCUMULATE.**

National Wildlife Refuges, including Hamden Slough NWR, conduct or will conduct hunting programs within the framework of State and Federal regulations. Hamden Slough NWR proposed action is at least as restrictive as the State of Minnesota and in the case of both proposed hunts more restrictive on waterfowl and deer. By maintaining hunting regulations that are as, or more, restrictive than the State, individual refuges ensure that they are maintaining seasons which are supportive of management on a more regional basis. The proposed hunt plan has been reviewed and is supported by the Minnesota Department of Natural Resources (MN DNR) and the White Earth Indian Reservation Biology Department. Additionally, refuges

coordinate with the MN DNR annually to maintain regulations and programs that are consistent with the State management program.

**4.2.6. ENVIRONMENTAL JUSTICE:** The lack of hunting of this alternative will not have a negative impact on the human environment. The proposed hunting of this alternative will not have a negative impact on a minority population, ethnic group, or economically disadvantaged. Hunting by the White Earth Band of Ojibwa will continue on federal property inside the White Earth Indian Reservation.

Hunting opportunities proposed on Hamden Slough NWR already exist on state, federal and other public lands in Becker County. Currently, Becker County has nearly 4,500 acres of State Wildlife Management Areas, 74,755 acres of County Administered tax forfeit property, and 12,500 acres of federal Waterfowl Production Areas open for hunting of big game, uplands game and migratory birds.

Maintaining the “Closed to Hunting” status of the refuge does not provide for all the priority public uses identified as goals of the refuge or the National Wildlife Refuge System. The Refuge Recreation Act of 1962 (16 U. S. C. 460K) and the National Wildlife Refuge System Administration Act of 1966 (16 U. S. C. 668-ddee) provide authorization for hunting and fishing on National Wildlife Refuges. The effects of hunting and fishing on refuges have been examined in several environmental review documents, including the Final Environmental Impact Statement on the Operation of the National Wildlife Refuge System (1976), Recommendations on the Management of the National Wildlife Refuge System (1978), and the Draft Environmental Impact Statement on the Management of the National Wildlife Refuges (1988). Nothing in the establishing authority for the Hamden Slough National Wildlife Refuge (Migratory Bird Conservation Act {16 U. S. C. § 715} precludes hunting on the refuge.

Maintaining the “Closed to Hunting” status of the refuge does not provide for all the public uses identified as goals of the refuge. The 1988 Hamden Slough Final Environmental Assessment developed for the establishment of the Hamden Slough NWR identified providing compatible wildlife-dependent recreational uses, including “...waterfowl and resident game hunting, wildlife observation and photography.”, as public use benefits. It further states “An estimated 50 percent of the public use would be for these activities”.

## **SECTION 4.3 ALTERNATIVE C (DEPREDAATION CONTROL OF DEER)**

**4.3.1. HABITAT IMPACTS:** This alternative is expected to reduce or control deer crop depredation on private land, as well as protect native prairie vegetation both on and off the refuge. Depredation Control will be conducted by Service personnel in government vehicles. Impacts on vegetation are expected to be temporary and limited. No public use impacts on vegetation are expected with this alternative. Damage to agricultural croplands as well as to native prairie forbs can result from white-tailed deer, when their population levels increase and exceed their carrying capacity.

**4.3.2. BIOLOGICAL IMPACTS:** Population control of white-tailed deer by Service personnel would be maintained or increased to prevent deer levels that result in damage to agricultural croplands as well as to native prairie vegetation. Population levels would not exceed carrying capacity, reducing the susceptibility of deer to disease (e.g., anthrax, hemorrhagic disease, chronic wasting disease, etc.) outbreaks that result in high mortality. No impacts to migratory birds or resident wildlife are expected with this alternative.

The white-tailed deer population is expected to decrease as a result of this alternative. The deer population in the refuge should continue to reflect deer densities within the State Management Units. Currently, Hamden Slough NWR represents less than 2% of Unit #408 and less than 1% of Unit #297 (west White Earth Indian Reservation).

Deer population densities for Unit #259 (formerly #408)(Hamden & Audubon Townships) were estimated at approximately 8.4 deer/sq. mi. by the MN DNR in 2004. This is double the MN DNR population goal of 3.6 – 4.4 deer/sq. mi. In 2006, the MN DNR estimated deer density in:

- Unit #297 was 25 deer/mile square
- Unit #259 was 11 deer/mile square
- Unit #239 (formerly #410) was 34 deer/mile square
- Unit #244 was 37 deer/mile square.

When compared to 2005, the density is up slightly in Units #239 and #297, and down slightly in Units # 259 and #244. Over the last 10 years, deer populations in all Units around the refuge are stable or increasing, and exceed DNR target goals. **See Section 4.1.5. - A.**

**4.3.3. LISTED SPECIES:** Same as the No Action Alternative

**4.3.4. HISTORIC PROPERTIES AND CULTURAL RESOURCES:** Minimal and limited ground disturbance is expected. No disturbance to standing structures is expected, and depredation control would have no effect on any historic properties.

**4.3.5. CUMULATIVE IMPACTS:**

**4.3.5 - A. ANTICIPATED DIRECT AND INDIRECT IMPACT OF DEPREDAATION CONTROL ON**

**WILDLIFE SPECIES:** Same as the Proposed Action Alternative

**4.3.5 - B. ANTICIPATED DIRECT AND INDIRECT IMPACT OF DEPREDATION CONTROL ON REFUGE PROGRAMS, FACILITIES, AND CULTURAL RESOURCES**

**OTHER REFUGE-WILDLIFE-DEPENDENT RECREATION** - Approximately 6,000 visitors use the refuge each year. Most of these visitations are from May – August for bird and wildlife observation. Visitor numbers drop sharply in early September, after many prairie, marsh and shorebird species have migrated, and parents and students have returned to school and university activities. Disturbance of public use and wildlife would be minimal with depredation control from November - February. The depredation control takes place after wetlands freeze over, and the numbers of migrating birds and public use is absolutely minimal.

**REFUGE FACILITIES** - Same as the Proposed Action Alternative

**CULTURAL RESOURCES** - Same as the Proposed Action Alternative

**4.3.5 - C. ANTICIPATED DIRECT AND INDIRECT IMPACT OF DEPREDATION CONTROL ON REFUGE ENVIRONMENT AND COMMUNITY**

This alternative will continue a non-hunting sanctuary for deer, but would provide population control by Fish and Wildlife Service personnel. The public's perception and reaction to Service personnel taking and harvesting deer in a refuge area would be severe, and adversely affect the Service's credibility and reputation. Potential public use conflicts will be minimized between consumptive uses (hunting) and non-consumptive public uses such as wildlife observation, environmental education and interpretation.

**4.3.5 - D. OTHER PAST, PRESENT, PROPOSED DEPREDATION CONTROL, AND REASONABLY FORESEEABLE HUNTS AND ANTICIPATED IMPACTS:** Same as the Proposed Action Alternative

**4.3.5 - E. ANTICIPATED IMPACTS IF INDIVIDUAL HUNTS ARE ALLOWED TO ACCUMULATE:** Same as the Proposed Action Alternative

**4.3.6 ENVIRONMENTAL JUSTICE:** Same as No Action Alternative

**SECTION 4.4 ALTERNATIVE D  
(OPEN REFUGE TO HUNTING IN ACCORDANCE WITH STATE SEASONS)**

**4.4.1. HABITAT IMPACTS:** Same as the Proposed Action Alternative

**4.4.2 BIOLOGICAL IMPACTS:** Disturbance of upland and small and big game, and resident wildlife will be the same as occurs on the surrounding state Wildlife Management Areas (WMA) and federal Waterfowl Production Areas (WPA). Disturbance of migratory birds will be the same as occurs on the surrounding state WMA's and federal WPA's, but on only 40% of the refuge. The harvest of refuge animals will be in accordance with Minnesota state limits. Other wildlife not being harvested will be disturbed by hunters approaching an animal's site, and flushing or moving the wildlife as the animals avoid human contact. Hunting could affect the abundance of migratory birds which nest on or migrate through the refuge. State of Minnesota seasons for 2006 were as follow:

- **Non-Migratory Birds**
  - Hungarian Partridge - September 16 - December 31
  - Pheasant - October 14 - December 31
  
- **Migratory Birds** (except waterfowl)
  - Mourning Doves - September 1 - October 30
  - Sora & Virginia Rail - September 1 - November 3
  - Common Snipe - September 1 - November 3
  - Crows - March 1 - 31 & July 15 - October 15
  
- **Mammals**
  - Rabbit - mid-September - February 28
  - Gray & Fox Squirrel - mid-September - February 28
  
- **Fur Bearers**
  - Raccoon - Continuous
  - Red Fox - Continuous
  - Coyote, Skunk, & Unprotected - Continuous
  - Grey Fox - mid-September - March 15
  - Badger - mid-September - March 15
  - Bobcat - Late November - Early January

**White-tailed Deer**

The white-tailed deer population is expected to decrease as the result of this alternative. The number of hunters utilizing the refuge could be significant during the first 3 or 4 years of state deer seasons. The deer population in the refuge should continue to reflect deer densities within the State Management Units. Currently, Hamden Slough NWR represents less than 2% of Unit #259 (prior #408) and less than 1% of Unit #297 (west White Earth Indian Reservation).

The State of Minnesota deer seasons for 2006 are as follow:

Deer - Archery	-	September 16	-	December 31
Deer - Muzzleloader	-	November 25	-	December 10
Deer – Firearm	-	November 4	-	12 (Zone 2A)
(Unit #259 & #297)	-	November 4	-	5 (Zone 4A)
	-	November 11	-	14 (Zone 4B)

Deer population densities for Unit #408 (#259 IN 2005)(Hamden & Audubon Townships) were estimated at approximately 8.4 deer/sq. mi. by the MN DNR in 2004. This is double their population goal of 3.6 – 4.4 deer/sq. mi. In both 2003 and 2004, Unit #408 was designated as an Intensive Hunt Zone, and harvest numbers did increase. In 2003, a total of 1,353 deer were harvested in the Unit #408, of which 803 were antlerless. During the 2004 season, a total of 1285 deer were harvested in Unit #408, of which 609 were female. Approximately 625 female deer must be harvested in Unit #408 (now #259) each year, just to hold the population at its current numbers. More must be harvested to reach the MN DNR goal of about 4 deer/sq. mi. Biological data from harvested deer in Unit #408 is collected by the MN DNR to reconstruct basic information on the deer herd (MN DNR Deer Density -2004). Unit #408 is re-designated as Unit #259 for the 2005 and future deer seasons, allowing 3 days of extra gun deer hunting. Presently, deer in the refuge appear to be increasing slightly, but with hunter harvests, the population level could be lowered.

### **Waterfowl**

The disturbance to waterfowl may be severe. The state waterfowl seasons are scheduled from early September through mid-December. These include: a Special Goose season in September and early December, and an Open Waterfowl season from late September through late November. The limitation of hunting waterfowl on only 40% of the refuge should provide some cushion for waterfowl protection. Waterfowl will be able to feed and rest on 60% of the refuge with some limited disturbance from hunters using the refuge for other hunting seasons. The take of waterfowl on the refuge is expected to be above average, even heavy, during the first 2 – 4 years of waterfowl hunting. If, non-hunted areas collect a build up of waterfowl that in turn cause depredation on neighboring farm crops, adjustment could be made to alleviate the problem. The State of Minnesota waterfowl seasons are as follows:

- **Waterfowl**
  - Ducks, Coots, Mergansers & Moorhens - Last week end in September or 1<sup>st</sup> weekend October - 3<sup>rd</sup> week in November
  - Youth Waterfowl Hunt - (1 Day) 3<sup>rd</sup> or 4<sup>th</sup> weekend of September
  - Special Goose Hunt - 1<sup>st</sup> week September - 3<sup>rd</sup> week September
  - Canada Geese - Waterfowl Season
  - Snows, White-front, Brant - Waterfowl Season + 3 weeks in December

When population levels exceed carrying capacity, deer and waterfowl are highly susceptible to disease (e.g., botulism, anthrax, hemorrhagic disease, chronic wasting disease, etc.) outbreaks that result in high mortality. This often results in an abrupt decline in either the deer or waterfowl

population, which can adversely affect the genetic structure of the herd or flock. Managing for healthy wildlife populations through harvesting animals supports Hamden Slough NWR's goal of providing for the viability of wildlife populations associated with tallgrass prairie

**4.4.3. LISTED SPECIES:** Some disturbance of trumpeter swan could be expected in November, but is weather dependent. All other listed species are the same as the Proposed Action Alternative.

**4.4.4. HISTORIC PROPERTIES AND CULTURAL RESOURCES:** Same as Proposed Action Alternative

**4.4.5. CUMULATIVE IMPACTS:**

**4.4.5 - A. ANTICIPATED DIRECT AND INDIRECT IMPACT OF OPEN REFUGE HUNTING ON WILDLIFE SPECIES:** Disturbance of a nationally recognized migratory bird concentration area is probable. Hunting accounts for more than half of the visits to Minnesota WPA's. It is anticipated that hunting visitation at Hamden Slough NWR will be higher, especially during the first 3 – 4 years of the open hunting. The refuge has been closed to hunting since 1990. It also is the lowest elevation in a 42 sq. mile watershed, which provides excellent wetland conditions even in drier periods. Waterfowl and migratory birds concentrations have built on the refuge since 1990, as wetlands and uplands have been restored in a watershed sanctuary. Local and regional hunters will be attracted to excellent habitat conditions and the concentration of migratory game birds, particularly waterfowl.

In September, 2004, Hamden Slough NWR was one of 8 sites in Minnesota selected for Important Bird Area (IBA) designation by the Audubon (Society) Minnesota. Other areas include Hawk's Ridge Nature Reserve near Duluth, Itasca State Park, and the North Shore Peregrine Falcon Aeries on Lake Superior. The refuge lays along a glacial ridge which is a transition line between prairie, broadleaf forest, and pineland. Bird species from the three different vegetative communities overlap on the refuge. Audubon (Society) Minnesota is working with the Minnesota Department of Natural Resources to inventory key locations in Minnesota that support a significant abundance and diversity of birds. Known as the Important Bird Area program, it is part of an international effort to identify, and help protect, critical habitats for birds. The National Audubon Society has been working since 1995 to identify and conserve hundreds of IBA's throughout the United States and currently has programs in 46 states and partnerships throughout the hemisphere.

To qualify for IBA status, an area must qualify in at least one of 4 bird abundance categories. This includes: 1) significant concentrations of breeding or migrating waterfowl, shorebirds, marsh birds or raptors; 2) a concentration of endangered, threatened or species of special concern; 3) rare, threatened or unique habitat; or 4) long-term research or monitoring value. The refuge qualified in categories 1, 2 & 3.

IBA sites in Minnesota were identified by a technical committee made up of ornithologists and bird conservationists from around the state. They collectively represent a broad range of government and non-government organizations. After reviewing bird population and distribution data, habitat quality, and site threats, those areas that are the most important to Minnesota's breeding, wintering, or migrating birds are identified as IBA's. The refuge supports an abundance of bird species of IBA conservation concern, including: bitterns, northern harriers, black terns, marbled godwits, Wilson's phalarope, grasshopper and LeConte's sparrows, prairie chickens, and bobolinks.

**4.4.5 - B. ANTICIPATED DIRECT AND INDIRECT IMPACT OF OPEN REFUGE HUNTING ON REFUGE PROGRAMS, FACILITIES, AND CULTURAL RESOURCES:** Same as Proposed Action Alternative.

**4.4.5 - C. ANTICIPATED DIRECT AND INDIRECT IMPACT OF OPEN REFUGE HUNTING ON REFUGE ENVIRONMENT AND COMMUNITY:** Potential public use conflicts will be moderate. Some compromise will be needed to find a balance between the consumptive (hunting) and non-consumptive uses such as wildlife observation, environmental education and interpretation. This could entail the adjustment of hunting areas and dates and/or the number of public entries (consumptive and non-consumptive users).

The allowance of hunting on the refuge will expose public user groups to the prairie habitats and facilitate a better appreciation and understanding of this ecosystem. This will increase the success of prairie preservation and restoration efforts. Also the allowance of public hunting will nurture a cooperative relationship with adjacent landowners by minimizing crop depredation.

All other impacts are the same as the Proposed Action.

**4.4.5 - D. OTHER PAST, PRESENT, PROPOSED DEPREDATION CONTROL, AND REASONABLY FORESEEABLE HUNTS AND ANTICIPATED IMPACTS:** Same as the Proposed Action Alternative

**4.4.5 - E. ANTICIPATED IMPACTS IF INDIVIDUAL HUNTS ARE ALLOWED TO ACCUMULATE:** Same as the Proposed Action Alternative

**4.4.6. ENVIRONMENTAL JUSTICE:** The proposed hunting of this alternative will not have any negative impact on the human environment. The proposed hunting of this alternative will not have a negative impact on a minority population, ethnic group, or economically disadvantaged.

Hunting by the White Earth Band of Ojibwa will continue on federal property inside the White Earth Indian Reservation.

The Refuge Recreation Act of 1962 (16 U. S. C. 460K) and the National Wildlife Refuge System Administration Act of 1966 (16 U. S. C. 668-ddee) provide authorization for hunting and fishing on National Wildlife Refuges. The effects of hunting and fishing on refuges have been examined in several environmental review documents, including the Final Environmental Impact Statement

on the Operation of the National Wildlife Refuge System (1976), Recommendations on the Management of the National Wildlife Refuge System (1978), and the Draft Environmental Impact Statement on the Management of the National Wildlife Refuges (1988).

The 1988 Hamden Slough Final Environmental Assessment developed for the establishment of the Hamden Slough NWR identified providing compatible wildlife-dependent recreational uses, including "...waterfowl and resident game hunting, wildlife observation and photography.", as public use benefits. It further states "An estimated 50 percent of the public use would be for these activities". Nothing in the establishing authority for the Hamden Slough National Wildlife Refuge (Migratory Bird Conservation Act {16 U. S. C. § 715 } precludes hunting on the refuge.

**SECTION 4.4 SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE**

<b>EFFECT</b>	<b>ALTERNATIVE A (PROPOSED ACTION)</b> Open 40 % of refuge for Youth Waterfowl Hunt Day & total refuge for Deer Muzzleloader	<b>ALTERNATIVE B (NO ACTION)</b> Maintain “Closed to Hunting” Status of refuge	<b>ALTERNATIVE C</b> Depredation Control of deer	<b>ALTERNATIVE D</b> Open total refuge to Big & Small & Upland Game, 40% to Migratory Game Birds, during state seasons
Habitat	Minimal Effect	Depredation of native vegetation and cropland	Minimal Effect	Minimal Effect
Biological	Migratory Birds, particularly waterfowl, disturbed for one day on 40% of the refuge. Deer disturbed during 15 day muzzleloader season on total refuge.	Deer and Canada geese populations remain high and cause depredation. Migratory game birds and upland wildlife populations would benefit from not being hunted.	Decrease deer population, as necessary to reduce cropland depredation problem. Migratory game birds and upland wildlife populations would benefit from not being hunted.	Disturbance of migratory birds, upland & small & big game from Sept. – Dec. Significant disturbance and take of waterfowl from Sept. – Nov. Disturbance of deer during all state deer seasons.
Listed Species	No effect.	No effect.	No effect.	State listed trumpeter swan could be disturbed in November.
Historic and Cultural Resources	No effect.	No effect.	No effect.	No effect.
Cumulative Impacts	The same as hunting on the surrounding state WMA’s and federal WPA’s.	Public use conflicts minimized. Deer viewing opportunity increased	Damage to FWS personnel credibility and reputation.	Disturbance of migratory birds in national recognized Important Bird Area.
Environ. Justice	Hunt authorized by Migratory Bird Conservation Act, Refuge Recreation Act, NWR Admin. Act, and NWR Improvement Act. Listed in refuge establishment EA as public use goals.	Does not provide for priority public uses listed in Acts or refuge establishment EA. Hunting provided on surrounding state and federal public property.	Same as Alternative B.	Same as Alternative A.

## CHAPTER 5. LIST OF PREPARERS

### Submitted by:

Mike Murphy  
Project Leader

Date

### Concur:

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Refuge Supervisor (Area 3)

Date

Nita M. Fuller  
Regional Chief  
National Wildlife Refuge System

Date

### Approve:

Robyn Thorson  
Regional Director

Date

## CHAPTER 6. CONSULTATION AND COORDINATION WITH THE PUBLIC

The Service has sought public involvement in considering refuge hunting through outreach to interested groups, tribal leadership, local and state agencies, and the general public. They were asked to consider opening the refuge to hunting, and the type of hunting desired. The development of the proposed alternative included comments from affected and interested parties.

Several methods were used to solicit public and agency involvement in developing the draft documents:

- **Meeting with partners.** The Refuge Manager discussed refuge hunting and the public meeting with the White Earth Indian Reservation Natural Resource Department, Minnesota State Department of Natural Resources, Natural Resource Conservation Service, Becker County Commissioners and Soil and Water Conservation District, several sportsman and conservation clubs, and refuge volunteers.
- **Refuge letters.** Both the White Earth Natural Resource Department and Minnesota Department of Natural Resources were contacted about the potential for refuge hunting and invited to participate in a November 30, 2004, public meeting. Following the public meeting, letters were sent to both agencies requesting comments on the draft Hunting Plan, draft Environmental Assessment, an draft Compatibility Determination. A reply was received from both the White Earth Natural Resource Department, and the Minnesota Department of Natural Resources. (Attached)

In February, 2007, consultation letters on the cumulative impacts of hunting waterfowl were submitted to the Fish & Wildlife Service Regional Biologist and the Flyway Biologist. A consultation letter was also submitted to the MN DNR for consultation on the impacts of deer hunting on the refuge. FWS and MN DNR personnel concurred that impacts would be minuscule.

- **Contact with Landowners.** The Refuge Manager contacted 6 landowners adjacent to the refuge via phone or visit. The purpose was to inform them about the refuge plans and discuss their concerns.
- **Public Meeting.** The Prairie – Woods Chapter of the Izaak Walton League of America hosted a public meeting for the proposed Hunting Management Plan. The meeting took place at the Detroit Lakes Community and Technical College on Tuesday, November 30, 2004, from 7:00 – 9:00PM. The purpose of the meeting was to provide an opportunity for the refuge to discuss plans for opening the refuge to hunting, and receive comments from citizen who attended. The public was encouraged to provide verbal comments or questions. Comment sheets with a return address were provided for those who did not wish to speak in public. All comments were to be received by December 15, 2004, and

- incorporated in an initial draft Hunt Plan, draft Environmental Assessment, and draft Compatibility Determination.

This document was part of the final draft Hamden Slough National Wildlife Refuge Hunting Plan, final draft Environmental Assessment and final draft Compatibility Determination, which was posted for review at the Detroit Lakes Public Library and refuge headquarters, on November 4, 2005. These locations and other applicable information were posted in the Detroit Lakes Tribune and Becker County Record newspapers. Public review was taken in the form of written comments and phone calls for a period of 35 days. No public comments were received on any of these final draft documents.

Prior to public review of the Hunt Plan, Environmental Assessment, and Compatibility Determination, the public was notified by newspaper, radio and other media regarding a public meeting on November 30, 2004, to review opening the refuge to hunting and also propose various refuge hunting options. At the meeting, the public was given the opportunity to make comments on opening the refuge to hunting, and the types of hunting desired. Following the meeting, a public comment period lasted from November 30, 2004 to December 15, 2004. Comments or letters were received from 23 respondents, of which a majority favored either limited waterfowl hunting or limited deer hunting. Some respondents recommended either the waterfowl or deer hunt, but were opposed to the other. Most expressed concern about wildlife disturbance and the effect on hunting on nearby private and public lands. Recorded public comments and letters are maintained for review at the refuge office. The comments are summarized below:

Public Comment	No. of comments
Maintain No Hunting status	5
Open for general waterfowl hunting	1
Open for restricted waterfowl hunting	14
Maintain no waterfowl hunting status	1
Open for general deer hunting	1
Open for restricted deer hunting	11
Maintain no deer hunting status	1
Open small game and upland bird hunting	1

The restriction on Hamden Slough refuge hunting is perceived by the general public with mixed feelings. Waterfowl and deer hunters, nearby landowners and leasees, and the general public express three concerns about opening the refuge to hunting. First, some members of the general public would like to avoid the wildlife disturbance caused by hunting. Secondly, hunters themselves divide into two groups: 1) those concerned about a reduction in quality of hunting on federal WPA's, state WMA's, and private property which surround Hamden Slough NWR, and 2) those who would like to see some form of limited waterfowl or deer hunting. In only 3 or 4 cases over the last 10 years, has any hunter expressed interest in opening the refuge to general waterfowl, upland game or deer hunting. Most of the local public and hunters believe that the refuge serves as a reservoir or undisturbed site for migratory birds, which provides a longer and

higher quality waterfowl season on surrounding private and public lands. For this reason, it is believed that most of the general public will view the refuge positively, with limited public hunting programs. A public meeting on November 30, 2004 and subsequent written comments indicate that most of the local population will support hunting on the state Youth Waterfowl Day in September, and late season deer hunting.

From public comments received during late November and early December, 2004, the following issues are important to the public.

**Issue/Concern: Traditional public use opportunities, especially limited hunting, should be provided on Service lands.**

Under Alternatives A, there would have a positive impact on this issue since lands would be open to limited hunting.

Under Alternative B, Hamden Slough NWR would essentially represent a sanctuary unavailable to the public for the harvest of wildlife resources. The public desire for public use opportunities would not be met, and actually decrease from levels when private ownership controlled public use. National Wildlife Refuge System goals, the President's Executive Order, and refuge objectives for public use opportunities would not be met.

Under Alternate C: The same as Alternative B

Under Alternative D, there would have a negative impact on this issue, with a significant proportion of the public viewing the general hunting as disturbing wildlife, particularly waterfowl, and adversely affecting hunting on public and private lands surrounding the refuge.

**Issue/Concern: A balance of public uses should be accommodated.**

Under Alternative A, areas open to wildlife observation, environmental education, and interpretation would also be open for limited public hunting. Time and spacing considerations in the Hunting Plan would help accommodate a variety of user groups. Disturbance of public use and wildlife would be minimal with one day of waterfowl hunting in September, and a muzzleloader hunting season in late November, which is after wetlands freeze over.

Under Alternative B, there would be no hunting, thus a negative impact on this issue

Under Alternate C, deer harvest by Service personnel would have negative effects on hunting. It would have a very negative effect on public attitudes toward the Service, since the public would not be permitted to harvest surplus deer.

Under Alternative D, areas open to wildlife observation, environmental education, and interpretation would also be open to public hunting. Refuge general hunting will disturb the high concentration of waterfowl that now use the refuge in September, October and early November.

This will reduce public wildlife viewing opportunity, and reduce the quantity of waterfowl, which are hunted on the surrounding private and public lands. Time and spacing considerations in the Hunting Plan would help accommodate a variety of user groups, but the disturbance of other public use activities would be a factor affecting visitor experience.

**Issue/Concern: A concern by private landowners near or adjacent to Refuge lands is that refuge hunting will reduce the quality of hunting on surrounding property.**

Under Alternative A, there would be some minimal disturbance having a negative impact on this issue. The disturbance factor is considered minimal, as the refuge would be open for only one day of waterfowl hunting in September, and for a 15 day period of muzzleloader deer hunting, in late November and early December. It is also possible that refuge hunting will increase hunting opportunities on surrounding lands, by increasing the wildlife moving beyond the refuge boundary.

Under Alternative B, Hamden Slough NWR would act as a wildlife sanctuary and maintain a reservoir of migratory game birds and white-tailed deer. These animals do move beyond the refuge boundary, and are available for hunting on private and public property. The public's desire for refuge public use opportunities would not be met, and actually decrease from levels when private ownership controlled public use. National Wildlife Refuge System goals, the President's Executive Order, and refuge objectives for public use opportunities would not be met.

Under Alternative C: The same as Alternative B

Under Alternative D, there would be significant negative impact on this issue, with multiple hunting seasons disturbing wildlife, particularly waterfowl, from early September through early December. This could adversely affect hunting on public and private lands surrounding the refuge, by moving migratory game birds to other sanctuary areas.

**Issue/Concern: Hunting programs should be biologically sound from a populations and habitat standpoint.**

Under Alternative A, hunting will result in the removal of game species and a decrease in the populations of these species. However, this loss of individuals from populations, in accordance with specified seasons and regulations, is expected to be compensatory in nature. By compensatory, this means removing part of the population by hunting is only at the level that is lost naturally from predation, injury, disease, weather, competition, and other factors.

Disturbance of non-targeted wildlife species under Alternative A could result in additional stress on these animals, but the impacts are not expected to be significant. Hunter entry and exit will be limited to foot travel, and refuge regulations prohibit the removal of any plant materials. With these constraints on visitor behavior, impacts to wildlife habitat and local plant communities are expected to be minor.

Alternative A would provide a closed migratory bird hunting area (Hamden Township) since that portion of the refuge will be closed to any migratory game bird hunting to comply with the 40% restriction considered in policies of the Migratory Bird Conservation Act.

Under Alternative B, ecological impacts would center on the expected increase of the white-tailed deer population without hunting and the absence of natural predators. Large numbers of deer would degrade the existing refuge and adjacent habitat through over-browsing, having negative impacts on flora and other fauna and deer health.

Under Alternate C, the refuge deer population would be kept inside their carrying capacity, reducing the probability of crop depredation and impacts to native vegetation.

Under Alternative D, hunting will result in the removal of game species and a decrease in the populations of these species. However, this loss of individuals from populations, in accordance with specified seasons and regulations, is expected to be compensatory in nature. By compensatory, this means removing part of the populations of animals by hunting is only at the level that is lost naturally from predation, injury, disease, weather, competition, and other factors.

Disturbance of non-targeted wildlife species under Alternative D will result in additional stress on resident wildlife, particularly migratory birds, over a period from early September through early December. Daily usage of the refuge is expected by multiple hunter groups for any state season. Their entry and exit will be limited to foot travel, and refuge regulations prohibit the removal of any plant materials. Impacts to wildlife populations and local plant communities are expected to be moderate.

Alternative D would provide a closed migratory bird hunting area (Hamden Township) since that portion of the refuge will be closed to any migratory game bird hunting to comply with the 40% restriction considered in policies of the Migratory Bird Conservation Act.

## **CHAPTER 7. PUBLIC COMMENT ON DRAFT EA AND RESPONSE**

This document was part of the Draft Hamden Slough National Wildlife Refuge Hunting Plan, Draft Environmental Assessment and Draft Compatibility Determination. After initial public comments from the November, 2004 public meeting were received, a draft Hunting Plan, and draft Hunting Environmental Assessment and draft Compatibility Determination were placed at the Detroit Lakes Public Library on December 17, 2004. Legal notification and news articles on December 19 & 22, 2004 informed the public that the hunting proposal documents were available for review, and that additional public comments would be received through January 10, 2005. Two comments were received: one by the White Earth Reservation Tribal Council, and one from the Minnesota Department of Natural Resources (See page #29). No comments were received from the general public.

A second comment period was posted for review at the Detroit Lakes Public Library and refuge headquarters, on November 4, 2005. Legal notification and news articles on November 3 and November 6, 2005 informed the public that the hunting proposal documents were available for review, and that additional public comments would be received through December 9, 2005 (Attached). Public review was taken in the form of written comments and phone calls for a

period of 35 days. No public comments were received during this second comment period. With the comments generated during both public comment periods being generally favorable to the proposed Hunting Management Plan, and since no new information was obtained to revise the plan, the refuge proposed to implement the Hunting Plan as written.

A third comment period was posted for review at the Detroit Lakes Public Library and Detroit lakes Wetland Management District headquarters, on February 15, 2007. Legal notification on February 14 and February 17, 2007 informed the public that a revised Environmental Assessment of the hunting proposal was available for review, and that additional public comments would be received through March 17, 2007 (Attached). Public review was taken in the form of written comments and phone calls for a period of 30 days. No public comments were received during this third comment period. With the comments generated during both public comment periods being generally favorable to the proposed Hunting Management Plan, and since no new information was obtained to revise the plan, the refuge will implement the Hunting Plan as written.

Respondent	Comment	Response
<p>Supported Proposed Alternative A</p> <p>(1 response of support from the White Earth Reservation Tribal Council )</p> <p>(1 response of support from the Minnesota Department of Natural Resources )</p>	<p>Support the Proposed Alternative with the following notation:</p> <p>The Hunt Plan does not effect tribal hunting, gathering and fishing.</p> <p>The Hunt Plan recognizes the need for population control to reduce depredation problems.</p>	<p>The Service appreciates the support of the 2 agencies that took the time to read the Environmental Assessment and to respond. The refuge appreciates that the Proposed Alternative A is well received</p>

## CHAPTER 8. REFERENCES CITED

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