

U.S. Fish and Wildlife Service

Environmental Assessment

For The

Proposed Hunt Plan

Neal Smith National Wildlife Refuge

Regional Director

Region 3, U.S. Fish and Wildlife Service

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ABSTRACT

The United States Fish and Wildlife Service (Service) proposes to continue to provide compatible hunting opportunities for upland bird, small and big game species on the Neal Smith National Wildlife Refuge (Refuge) and the Southeast Unit of the Northern Tallgrass Prairie National Wildlife Refuge located adjacent to the Refuge. This draft environmental assessment evaluates three possible alternatives for hunting opportunities on the Refuge. The proposed action alternative will continue compatible hunting opportunities while providing non-hunting visitors and researchers with other priority public use opportunities, i.e. wildlife observation, wildlife photography, environmental education and interpretation. The proposed hunting opportunities will only involve those lands owned in fee title by the Service. The general broad objectives of the hunting program are:

- Provide the public with safe and enjoyable hunts that are compatible with the Refuge purpose.
- Provide quality hunting opportunities that minimize conflict with the other purposes of the Refuge, and that minimize conflict with other public use activities.
- Provide the public with opportunities to hunt upland game birds, small and big game species that are consistent with the state of Iowa, that don't adversely affect localized wildlife populations, and are consistent with the 1997 National Wildlife Refuge Improvement Act.
- Promote a better understanding and appreciation of tallgrass prairie habitats and their associated wildlife species.

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Chapter 1. Purpose and Need for Action

SECTION 1.1 Purpose

Hunting is an existing use on the Neal Smith National Wildlife Refuge (NWR) and on most units of the Northern Tallgrass Prairie NWR. The first hunt plan for Neal Smith NWR (Refuge) was completed in 1992 when the Refuge was first established. Currently the Refuge permits the take of whitetail deer, rooster pheasant, cottontail rabbit, squirrel and Northern Bobwhite quail. The purpose of this assessment is to evaluate the existing hunt plan for the Refuge, evaluate the impacts of opening new areas that are managed as part of the Refuge to hunting (the Southeast Unit of the Northern Tallgrass Prairie NWR), close a small area adjacent to the bison enclosure for the purpose of bison management, and to consider opening the Refuge to additional hunting opportunities. This Environmental Assessment is the first step in the preparation of a revised Hunting Plan for the Draft Comprehensive Conservation Plan for the Refuge. It also amends an existing Hunt Plan for Northern Tallgrass Prairie National Wildlife Refuge.

SECTION 1.2 Need

Providing compatible wildlife-dependent recreation and education activities on units of the National Wildlife Refuge System is a Service priority. The National Wildlife Refuge System Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd et seq.) provides authority for the Service to manage the Refuge and its wildlife populations. In addition, it declares that compatible wildlife-dependent public uses are legitimate and appropriate uses of the Refuge System and that they are to receive priority consideration in planning and management. There are six wildlife-dependent public uses: hunting, fishing, wildlife observation, wildlife photography, environmental education and interpretation. The Act directs managers to increase recreational opportunities, including hunting, on National Wildlife Refuges (NWR) when compatible with the purposes for which the Refuge was established and the mission of the National Wildlife Refuge System.

Hunting programs on Neal Smith NWR and the adjacent Southeast Unit of the Northern Tallgrass Prairie NWR (192 acres) will allow Refuge staff to manage wildlife populations at acceptable levels, provide wildlife-dependent recreational opportunities for the public, and promote a better understanding and appreciation of tallgrass prairie habitats and their associated wildlife resources. Subsequent closure of approximately 80 acres adjacent to the bison enclosure will facilitate management of the Refuge bison herd. Closing this area will minimally detract from the hunting experience as it is currently open to only upland bird and small game. Closure of the Basswood Trail to hunting would remove only a small area from hunting and would provide increased safety for the non-hunting public.

Implementation of the proposed actions will be consistent and compatible with the Refuge Recreation Act, Refuge Administration Act, the draft Environmental Assessment for the Comprehensive Conservation Plan for the Neal Smith National Wildlife Refuge and the Final Environmental Impact Statement and Final Environmental Assessment and Hunt Plan for the Northern Tallgrass Prairie Habitat Preservation Area (Northern Tallgrass Prairie NWR).

SECTION 1.3 Decisions That Need To Be Made

This Draft Environmental Assessment is prepared to evaluate the environmental consequences of continuing a hunt program on the Refuge as well as opening the Southeast Unit of the Northern Tallgrass Prairie NWR to hunting, to provide consistency with state and federal regulations, and to provide additional hunting opportunities to the public by including an additional hunted wildlife species in the hunting regulations.

SECTION 1.4 Background

Neal Smith National Wildlife Refuge (Refuge) lies within twenty miles of Des Moines, Iowa and its surrounding communities with a metro-population of approximately 500,000 combined (CityTownInfo.com 2011). Des Moines is the state capitol and, as such, has residents with diverse interests that provide support for the volunteer program and the Friends of the Neal Smith National Wildlife Refuge. Within about fifty miles radius, the Refuge is surrounded by small farm communities ranging in population size from 1,400 to 26,000 adding another (approximate) 106,000 people within an hour driving distance to the Refuge (CityTownInfo.com 2011). The Refuge is becoming more urbanized as communities surrounding the refuge continue to expand and encroach on the Refuge boundaries. Numbers of visitors have increased from across the country and around the world to view tallgrass prairie reconstruction activities, oak savanna restoration and their associated wildlife species, especially the herd of bison and elk kept within a seven hundred acre enclosure on the Refuge. The public has increased their demand for public uses in the form of dog walking, cross country skiing and snow shoeing, as well as more access to areas of the Refuge. The Refuge represents a small slice of pre-European settlement in the Midwest.

The Refuge was established in 1991 to reconstruct about 8,600 acres of the tallgrass prairie ecosystem on former farmland in south-central Iowa. Priorities for the Refuge include reconstruction and restoration of native plant diversity, wildlife habitat, and the ecological functions and processes that sustain them. A primary function of the Refuge is to conduct research and monitoring related to the reconstruction and restoration activities through the Refuge Biological Program. About 5,500 acres within the approved boundary have been acquired from willing sellers thus far and approximately 3,700 acres have been planted with tallgrass prairie plants. The few remaining remnants of native prairie and savanna, degraded by fire suppression, are under restoration. Reconstruction and restoration will continue on the remaining lands and as new lands are acquired the work will be expanded. It is expected that it will take decades before the prairie begins to fully express itself.

Three alternatives will be considered in this document.

Issues that are common to all alternatives include:

1. Non-toxic ammunition will be required for all small game and upland bird hunting.

Issues that are common to Alternatives B and C include:

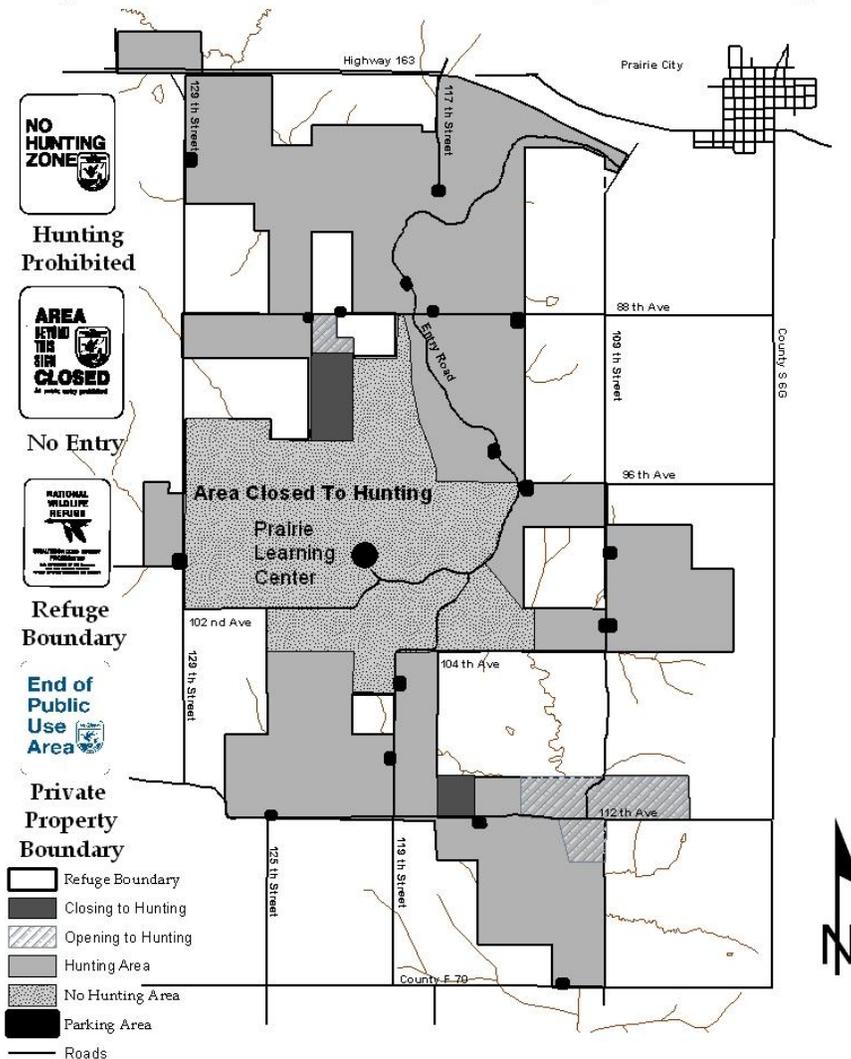
2. The Basswood Trail in the southern portion of the refuge will be closed to hunting for public safety (see Figure 1).
3. The Southeast Unit of the Northern Tallgrass Prairie NWR (192 acres) (Figure 1.) will be open to hunting and managed as part of the Neal Smith NWR.
4. Eighty acres of land adjacent to the bison enclosure will be closed to hunting to facilitate bison herd management (see Figure 1).

Issue only found in Alternative C (the preferred alternative).

5. Non-toxic ammunition will be required for all migratory bird hunting.

Figure 1. Proposed Changes to the Neal Smith NWR Hunt Map

Proposed Neal Smith NWR Hunting Area Changes



Chapter 2. Proposed Action and the Alternatives

SECTION 2.1 Alternatives Eliminated from Detailed Study

1. Hunting is an existing use on the Neal Smith National Wildlife Refuge and provides the public with excellent compatible public use opportunities; therefore an alternative that did not allow hunting was not considered.
2. An alternative that included hunting for all furbearers was not considered because the Refuge is closed from dusk to dawn which precludes hunting for many furbearers.
3. Bobcat hunting was not considered because it is not open in Jasper County according to Iowa state regulations.
4. Alternatives that considered hunting migratory birds such as songbirds, wading birds, raptors, and woodpeckers, gray partridge, ruffed grouse, and jack rabbit were not considered either because these birds are not permitted to be hunted by regulation or they do not occur within the refuge area.
5. The Refuge receives approximately 140,000 visitors per year. All public use activities increase dramatically during the months of February through August. Hunting throughout all seasons was removed from consideration because it would conflict with existing appropriate and compatible uses. All hunting on the refuge will begin on September 1 and end on January 31 which is referred to in this assessment as a Modified Season.

SECTION 2.2 Alternatives Carried Forward for Detailed Analysis

This Environmental Assessment is being prepared to evaluate the environmental consequences of providing additional hunting opportunities for the public on the Refuge as well as to open the Southeast Unit of the Northern Tallgrass Prairie National Wildlife Refuge to hunting.

The following alternatives were selected for detailed analysis:

Alternative A: Maintain Current Hunt Program (No Action Alternative).

Alternative B: Open Refuges to Modified Season, Modified Hunt Program.

Alternative C: Open Refuges to Modified Season, Full Hunt Program (Preferred Alternative).

2.2.1 Alternative A: Maintain Current Hunt Program on Refuge (No Action Alternative).

Under this alternative there would be no change to the current hunt plan. No species will be added to increase hunting opportunities on the Refuge. The species hunted will continue to be whitetail deer, rooster pheasant, Northern Bobwhite quail, squirrel and cottontail rabbit. The Southeast Unit of the Northern Tallgrass Prairie National Wildlife Refuge would remain closed to hunting. The 80 acre portion northwest of the bison enclosure would remain open to upland bird and small game hunting to facilitate bison management. The Basswood Trail would remain open to hunting.

The Refuge would continue to provide for priority public uses, such as wildlife observation, photography, environmental education, interpretation, research and monitoring activities.

2.2.2 Alternative B: Open Refuge to Modified Season, Modified Hunt Program.

Under this alternative, the Refuge would open most units to hunting with a modified season of September 1 through January 31, with most non-migratory species hunted (see exceptions in 2.1) according to state and federal regulations. The Southeast Unit of the Northern Tallgrass Prairie National Wildlife Refuge would open to hunting. The 80 acre portion northwest of the bison enclosure would close to upland bird and small game hunting to facilitate bison management. The Basswood Trail would close to hunting.

This alternative would also define squirrel hunting to gray and fox squirrels. This Alternative would not allow a spring turkey hunt or year-round coyote hunting. Migratory birds such as waterfowl, crow, and mourning dove would not be hunted under this alternative.

The Refuge would continue to provide for priority public uses, such as wildlife observation, photography, environmental education, interpretation, research and monitoring activities.

2.2.3 Alternative C: Open Refuge to Modified Season, Full Hunt Program (Preferred Alternative).

Under this alternative, the Refuge would open most units to hunting with a modified season of September 1 through January 31, with all species hunted (see exceptions in 2.1), including migratory birds, according to state and federal regulations. The Southeast Unit of the Northern Tallgrass Prairie National Wildlife Refuge would open to hunting. The 80 acre portion northwest of the bison enclosure would close to upland bird and small game hunting to facilitate bison management. The Basswood Trail would close to hunting.

This alternative would also define squirrel hunting to gray and fox squirrels. This Alternative would not allow a spring turkey hunt or year-round coyote hunting. Migratory birds such as waterfowl, crow and mourning dove would be hunted under this alternative according to all state and federal regulations.

The Refuge would continue to provide for priority public uses, such as wildlife observation, photography, environmental education, interpretation, research and monitoring activities.

SECTION 2.3 Alternatives Action Table

Table 1: Alternatives Action Table

Action	Alternative A (No Action) Maintain Current Hunt Program	Alternative B Modified Season, Modified Hunt	Alternative C (Preferred Alternative) Modified Season, Full Hunt
<u>Species that will be hunted</u>	<p><u>Upland Game:</u> <u>Upland Game Birds</u> Northern Bobwhite quail Rooster Pheasant</p> <p><u>Small Game:</u> Squirrel Cottontail Rabbit</p> <p><u>Big Game:</u> Whitetail Deer</p>	<p><u>Upland Game:</u> <u>Upland Game Birds</u> Northern Bobwhite quail Rooster Pheasant Wild Turkey Pigeon</p> <p><u>Small Game:</u> Gray and Fox Squirrel Cottontail Rabbit Coyote Red and Gray Fox</p> <p><u>Big Game:</u> Whitetail deer</p>	<p><u>Upland Game & Migratory Birds:</u> <u>Upland Game Birds</u> Northern Bobwhite quail Rooster Pheasant Wild Turkey Pigeon Waterfowl Mourning Dove Crow</p> <p><u>Small Game:</u> Gray and Fox Squirrel Cottontail Rabbit Coyote Red and Gray Fox</p> <p><u>Big Game:</u> Whitetail deer</p>
<u>Compatible with Refuge Goals and Purpose</u>	Yes. Provides for priority public uses and does not interfere with research or other non-consumptive public use activities.	Yes. Provides for priority public uses and does not interfere with research or other non-consumptive public use activities.	Yes. Provides for priority public uses and does not interfere with research or other non-consumptive public use activities.
<u>Provides for Priority Public Uses</u>	Yes.	Yes.	Yes.
<u>Hunting and non-hunting activities segregated</u>	Yes.	Yes.	Yes.
<u>Meets needs identified by public and partners</u>	No. It does not meet needs identified by public and partners for hunting opportunities.	No. It does not meet the needs identified by public and partners for hunting opportunities	Yes. It meets the needs identified by public and partners for hunting opportunities.

Chapter 3. Affected Environment

SECTION 3.1 Physical Characteristics

The south central portion of Iowa is characterized by steeply rolling hills interspersed with generally level hilltops and valley bottoms. It is heavily dissected by drainage systems such as the Walnut Creek basin. The current Refuge boundary of Neal Smith and, including the Southeast Unit of the Northern Tallgrass Prairie NWR, includes about 6.5 miles of the 10-mile-long Walnut Creek. Although tallgrass prairie once covered most of Iowa and much of the central United States and Canada, the ecosystem is now globally endangered due to clearing and development of the land for human use. Less than one percent of this historic mosaic of prairie, savanna, and sedge meadow remains today. Many prairie-dependent wildlife species, including migratory grassland birds, are declining range-wide.

SECTION 3.2 Biological Environment

3.2.1 Habitat

Neal Smith NWR and the Southeast Unit of the Northern Tallgrass Prairie NWR lie within the Prairie Parkland (Temperate) Province as defined by Bailey's ecological classification system (Bailey et al, 1994). The Prairie Parkland (Temperate) Province covers an extensive area from Canada to Oklahoma, with alternating prairie and deciduous forest. Summers are usually hot, winters are cold. Vegetation is characterized by intermingled prairie, groves, and strips of deciduous trees. The prairies seem to be areas that have not yet become forested, either because of frequent fires or because the last glaciation was too recent for final successional stages to have been reached. Due to generally favorable conditions of climate and soil, most of the province is cultivated, and little of the original vegetation remains.

(http://www.fs.fed.us/colormap/ecoreg1_provinces.conf?425,218)

In Bailey's classification system, sections are subdivisions of provinces based on terrain features. The refuge lies within the Central Dissected Till Plain Section which includes southern Iowa and portions of Illinois, Missouri, Kansas, and Nebraska.

(<http://www.fs.fed.us/land/pubs/ecoregions/ch28.html#251C>)

Key characteristics:

- Moderately dissected, glaciated, flat to rolling plains that slope gently toward the Missouri and Mississippi River valleys.
- An estimated 60% of the land surface was tallgrass prairie, with bur oak and white oak savannas interspersed. Upland forest (white oak-shagbark hickory) occurred on more dissected land, grading into bottomland forests and wet bottomland prairies along rivers.
- A well-developed dendritic drainage network is carved into the land surface. Natural lakes and ponds are rare or non-existent. Many streams now are straightened by channelization and silted-in from agricultural run-off. A few bottomland wetlands have been preserved from drainage enterprises.
- Fire and grazing by herds of bison and elk were the most important disturbance regimes in creation and maintenance of this landscape.

3.2.2 Wildlife

Birds

Although restoration on the Refuge is still in its infancy, many birds that had been extirpated from the refuge, such as Henslow's sparrow, dickcissel, and upland sandpiper, are already returning as habitat improves. More than 200 bird species now use the Refuge, including more than 80 species during breeding season. Many bird species have returned as the ecosystem undergoes restoration. Grassland birds began showing up soon after plantings began, and as the refuge has grown the species of grassland birds have increased.

Mammals

Avian diversity is complemented by more than 40 mammal species documented on the refuge including the endangered Indiana bat. White-tailed deer, eastern cottontail, thirteen-lined ground squirrel, plains pocket gopher and raccoon are the most frequently seen mammals on the refuge. Badgers and bobcats have also been found. Bison and elk are confined to a 700-acre fenced enclosure. The refuge has suitable habitat to support the spotted skunk although the species is thought to be extirpated from the state. Although somewhat south of its normal range, the white-tailed jack rabbit could potentially occupy grazed areas of the refuge in the future but is not currently present on the Refuge.

Reptiles and Amphibians

There are currently 10 amphibian species (8 toads and frogs, 2 salamanders) documented and 19 reptile species (4 turtles, 15 snakes) listed as likely to occur on Refuge.

Invertebrates

Nearly 90 butterfly species have been documented on the refuge, including the regal fritillary which has been the subject of refuge reintroduction and research efforts. At least 29 species of ants have been documented from the refuge, including *Formica montana* and *Formica exsectoides*, two species that build large mounds. Prairie crayfish (*Procambarus gracilis*) is another species that engineers the prairie by building burrows.

Fish

Thirty-one species of fish from eight families were collected from Walnut Creek between 1995 and 2005, but the overall number of fish collected was low. The fish community was dominated by minnows (Cyprinidae) most of which are considered abundant to common in Iowa streams. Sunfishes (Centrarchidae) were often found in Walnut Creek, but in small numbers. Seven species of suckers (Catostomidae) were collected, generally in fairly low numbers.

3.2.3 Threatened, Endangered and Candidate Species

Federally endangered Indiana bats (*Myotis sodalis*) migrate from central Missouri to southern Iowa during the spring months to raise their young. Jasper County is at the northern edge of the species' range. Two monitoring seasons (1992 and 1993) on the refuge resulted in successful mist-netting of lactating females and juveniles from one localized area just north of Thorn Valley

Savanna. A third monitoring season resulted in capture of one adult male. The species prefers large dead trees with loose bark during breeding season.

In 1994, seeds of the federally threatened prairie bush clover (*Lespedeza leptostachya*) were sown on the refuge. No plants have been observed as yet on this 35-acre site. Seeds and/or seedlings may have perished, but it is also possible that the seeds are still lying dormant in the soil. Some species of the genus *Lespedeza* require seed scarification to begin the germination process but it is uncertain whether or not prairie bush clover is one of those species.

In 2001, seedlings of the federally threatened western prairie fringed orchid (*Platanthera praeclara*) were transplanted to two sites on the refuge. Seedlings existed as a single green shoot or leaf per plant. Though the shoot stayed green on some orchid plants, others could not be found again later in the year.

SECTION 3.3 Land Use

Northern Area

The northern portion of the Refuge centers along the Walnut Creek watershed, beginning near the Visitor Center and reaches northward to the edge of the Skunk River watershed. This area consists almost entirely of private, high quality agricultural lands that are used to produce corn and soybeans. Other land uses include a county landfill to the west, and small towns to the east and southwest, (Prairie City, Runnells). Most of these lands, because they are privately owned, would be closed to the general public for recreational uses including hunting.

Southern Area (including the Southeast Unit of the Northern Tallgrass Prairie NWR)

Walnut Creek watershed exits through the south end of the refuge and flows into Red Rock Lake. The southern portion of the watershed, beginning at the Visitor Center and reaching southward, consists primarily of privately-owned land in agricultural production and woodlands. Some of these woodlands are remnant savannas that have become overgrown and are currently left fallow or used for grazing providing excellent turkey and deer habitat. Most of these lands, because they are privately owned, would be closed to the general public for recreational uses including hunting. The Southeast Unit of the Northern Tallgrass Prairie NWR that is managed as part of the Refuge, is found in this area.

Red Rock Lake serves as a flood control reservoir on the Des Moines River managed by the Corps of Engineers. Most of the publicly-owned land surrounding the reservoir is managed by the Iowa DNR for wildlife and recreational purposes including hunting.

SECTION 3.4 Cultural Resources and Historical Properties

Pre-History

Archeological records show evidence that nomadic hunter-gatherers were present in Iowa from the earliest generally accepted cultural period, the Paleo-Indian tradition, that began about 12,000 years before present (BP). Archeologists hypothesize that these hunter-gatherers roamed widely through the post-glacial boreal forest of the Midwest in search of mastodon, woolly mammoth, and other resources.

Native American History

Prior to 1821, the Ioways and Missouris were in control of the lower and central Des Moines River valley. The prehistoric remains of these tribes are well represented in the nearby Red Rock Reservoir area. It is possible that the ancestral Ioway, Missouri and/or Oto lived in large villages very near the Refuge area as early as A.D. 1000. Their hunting grounds, collecting locations, campsites and gardens were probably located in the Walnut Creek drainage although there is little specific documentation in the historic record. Later, the Sauk and Fox moved into the central Des Moines valley and became the principal Native Americans in residence there until they ceded all Iowa territory to the U.S. and left for reservations to the west.

Euro-American Settlement

Jasper County was created in 1840 even before there were any permanent residents. Settlement began in 1843 and by 1846 permanent white settlement was sufficient to merit establishment of formal county government. The state capital was established in Des Moines by 1876. By the summer of 1847, there was evidence of various settlement activities in southwest Jasper County, where the Refuge is located. Prairie City was founded in 1851 and soon became a stop along the old Territorial Road. Farms and communities developed rapidly, fueled by the developing agricultural economy.

SECTION 3.5 Local Socio-Economic Conditions **Population, income, employment, demographics**

The Refuge lies in the southwest quadrant of Jasper County. Jasper County is primarily rural in nature. Polk County includes the city of Des Moines, located about 18 miles west of the Refuge. The Des Moines metropolitan area (population 500,000) is one of the fastest growing regions of the state. The town of Prairie City (population 1,400) lies just northeast of the Refuge boundary.

The area population increased by 12.8% from 1995 to 2005, compared with a 3.4 percent increase for the state of Iowa and an 11.4 percent increase for the U.S. as a whole. Per capita income in the area increased by 8.6 percent over the 1995-2005 period, while the state of Iowa and the U.S. increased by 14.6 and 13.2 percent respectively (Carver and Caudhill, 2007).

The median household income in Jasper County in 2009 was \$48,439 with 10% of residents living below the poverty level. The population is about 97% white (U.S. Census Bureau Quick Facts). Manufacturing is the largest category of private sector employment in Jasper County, followed by retail trade, leisure/hospitality, and education/health services (Iowa Workforce Development <http://iwin.iwd.state.ia.us/iowa>).

Refuge Economics

Neal Smith NWR (including the Southeast Unit) affects the local economy through the visitor spending that it generates and the employment that it supports. The refuge currently supports 10.5 full-time permanent employees and receives about 140,000 recreational visits per year. About 14% of visitors come from Jasper County, 24% from the Des Moines metropolitan area, 36% from other parts of Iowa, and 22% from other parts of the United States. The Refuge also receives a number of foreign visitors that are interested in tallgrass prairie. Neal Smith NWR was one of the sample refuges investigated in a national study of the economic benefits to local

communities of national wildlife refuge visitation (Carver and Caudhill 2007). This study found that, in 2006, resident and non-resident visitors to Neal Smith NWR spent about \$2.3 million with non-residents accounting for about 90% of total expenditures. When this spending had cycled through the economy, refuge visitation had generated \$982,200 in job income, 36 jobs, and about \$325,400 in total tax revenue for local communities.

Chapter 4. Environmental Consequences and Cumulative Impacts Analysis

This chapter describes the foreseeable environmental consequences of implementing the 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.

SECTION 4.1 Alternative A: No Action Alternative – Maintain Current Hunt Program

4.1.1 Habitat Impacts

Hunting is an existing use on the Neal Smith NWR but not on the Southeast Unit of the Northern Tallgrass Prairie NWR. No known negative impacts to habitat are currently encountered with this activity as currently managed and no additional impacts on habitat are expected by continuing to implement this alternative within the boundaries of the Neal Smith NWR. The Southeast Unit of the Northern Tallgrass Prairie NWR will not be opened to hunting under this alternative. The 80 acre area adjacent to the bison enclosure and the Basswood Trail would remain open to hunting.

4.1.2 Biological Impacts

Hunting is an existing use on the Refuge. No additional effect is expected for any of the wildlife species found within the boundaries of the Neal Smith NWR by continuing to implement this alternative. Refer to 4.1.5.A Resident Wildlife for analysis of current harvest on populations. Other wildlife not being harvested will be disturbed by hunters approaching an animal’s site, and flushing or moving the wildlife as the animals try to avoid human contact. Expansion of bison enclosure to manage the 80 acre site would hinder research and bison management needs.

4.1.3 Listed Species

No effect is expected for any federally listed threatened or endangered species or their critical habitat. The only federally listed species on the Refuge is the Indiana bat. Hunting activities will not take place during the period of time that the bat is present on the refuge. A consultation pursuant to Section 7 of the Endangered Species Act was conducted as part of this EA and the updated Hunt Plan. A finding of “No Effects” was determined. No impacts are expected for the prairie bush clover or prairie fringed orchid through hunting activities and incidental foot traffic on either refuge. No impacts are anticipated for state listed species.

4.1.4 Historic Properties and Cultural Resources

There are no historical properties documented on current Refuge lands. Hunting is not expected to cause ground disturbance or disturbance to standing structures and will have no effect on any historic properties located on lands acquired in the future.

4.1.5 Cumulative Impact Analysis of Alternative A: No Action Alternative – Maintain Current Hunt Program

4.1.5.A Anticipated Direct and Indirect Impact on Wildlife Species

Resident Wildlife

Resident wildlife populations in Iowa are actively managed by the Iowa Department of Natural Resources. Through surveys and monitoring of harvest numbers, the state develops density figures when determining the next year's harvest (see analysis for each species). The resident wildlife populations at Neal Smith NWR may decrease slightly or remain stable as a result of continuing to implement this alternative. The number of hunters per square mile should stay about the same. The wildlife populations on Refuge units should continue to reflect densities in the surrounding area.

Agricultural practices that affect wildlife populations and hunting opportunity may continue on some portion of the refuge, but at lower levels over time. With the acquisition of new lands, agricultural production may be introduced, but quickly phased out over the duration of this hunting plan. Eventually, all the lands within the Refuge boundary will be converted from row crops to tallgrass prairie, sedge meadows or oak/hickory savanna. The final plan that will be developed from this environmental assessment (EA) will replace an existing hunt plan in response to changes in habitat and species distribution as well as the changing emphasis on research, environmental education and other public uses of the Refuge. The final plan will meet the needs of the Refuge through the next fifteen years as outlined in the 2012 Comprehensive Conservation Plan.

- Whitetail Deer (*Odocoileus virginianus*): Management of deer populations in the state of Iowa has played an important role in allowing deer numbers to return to the levels enjoyed today (Litchfield 2011). Unchecked, Iowa's deer herd could grow at a rate of 20% to 40% each year, doubling the current population within three years (Litchfield 2011). With agricultural crops providing abundant food, densities could exceed 100 or more deer per square mile in year-round deer habitat before natural regulatory mechanisms would begin to affect deer health and slow the rate of growth (Litchfield 2011).

A whitetail deer hunt program currently exists on the Refuge. Using harvest reports from Iowa DNR, the average number of deer killed in 2010/2011 season within Jasper County is equal to 1.8 per square mile, with 54% of those animals harvested being does (Litchfield 2011) Using this estimate it is expected that approximately 16 deer would be annually harvested from the Refuge with 9 of those being does. The current population level of whitetail deer on the Refuge has not produced overall negative impacts to habitat or restoration/reconstruction activities. Whitetail deer are often viewed on the Refuge in sufficient number to provide visitors with a wildlife observation experience.

One sizable herd of whitetail deer resides primarily within the bison enclosure, where hunting is not permitted, and has been estimated to be approximately sixty head.

Ring-necked Pheasant (*Phasianus colchicus*): Two factors determine abundance and distribution of pheasant populations in Iowa: weather and habitat (Bogenschutz, et.al.

2011). Monitoring and management of ring necked pheasant indicate that there is a pattern of population declines after severe winter weather with recoveries occurring in years with milder winters (Bogenschutz, et.al. 2011). Winter 2010-2011 was the fifth consecutive winter with above normal snowfall (Bogenschutz et. al 2011). In addition, the state has lost 2,496 square miles of habitat in the form of Conservation Reserve Program acres between 1990 and 2005 (Bogenschutz et.al. 2011).

Pheasant are abundant on the Refuge probably due to the large areas of relatively undisturbed grassland habitat and cover provided for the birds which improves nest success for hens (Riley et. al. 1998, Clark et.al. 1999). Hunting of hen pheasant is not permitted. Hunting cock pheasant on the refuge will not negatively impact their numbers (Rick Trine, Central District Wildlife Supervisor, IDNR, Personal Communication 2011). Populations of pheasant, although not native, do not pose a threat at this time to native wildlife species. However, future plans to introduce prairie chicken to the Refuge may have to consider pheasant populations as possible competitors for food and nesting habitat.

The August roadside surveys generate data from approximately 215 thirty mile-long routes for multiple species, including pheasant. August surveys in 2011 reported a statewide index of 6.8 birds per route, with 10.2 birds per route in the Central Zone where the refuge is located, setting a new all-time low count for Iowa (Bogenschutz et.al. 2011). Based on these numbers, Iowa pheasant hunters should harvest approximately 150,000 to 200,000 roosters this fall throughout the state (Bogenschutz et.al. 2011). Bag limits for rooster pheasant in Iowa is 3 roosters per day with a 12 in possession after the first day (Iowa DNR 2011).

- Northern Bobwhite quail (*Colinus virginianus*): Iowa native bobwhites were probably never very abundant throughout Iowa until after European settlement (Bogenschutz 2011). Conversion of virgin prairie to farm fields, the use of Osage hedges in early farming, and weedy crop fields created an artificial boom in the populations until the early 1930s (Bogenschutz 2011). The decline has continued steadily to present day and the IDNR has adjusted bag limits accordingly. Like pheasant, quail populations decline after severe winters with recoveries occurring in the years following milder winters.

Also, quail are not abundant on the Refuge primarily because the Refuge is located on the northern fringe of their range. In addition, quail do not favor the conversion of farm fields and pastures to dense tallgrass prairie habitats. The bison enclosure has a relatively open, patchy vegetative canopy and good forb diversity providing habitat that may be preferred by quail that cannot currently be found throughout most of the refuge (Potter et.al.2009). As the Refuge continues to convert row crops to prairie, particular attention will be paid to providing and managing prairie that is less dominated by grass species and which will provide better habitat for a broad range of wildlife. Quail populations will come and go depending on the winter weather patterns, therefore, hunting quail on the refuge will have no impact on those populations. (Todd Bogenschutz, Upland Wildlife Research Biologist, IDNR, Personal Communication). In addition, hunter interest for this species is also declining (Todd Bogenschutz, Upland Wildlife Research Biologist, IDNR, Personal Communication).

Statewide Northern Bobwhite quail numbers declined by 36% over the 2010 counts which was expected due to the severity of the winter (Bogenschutz et.al. 2011). This decrease continues a trend of a 10 year 63% decrease and a 84% decrease below the long term average. (Bogenschutz et.al. 2011). No data exists for quail for the Central Zone survey in 2011 where the refuge is located but 2010 indicated 0.3 birds per road survey route (Bogenschutz 2010). Hunting for quail has declined as populations have declined decreasing hunting impact on the species (Todd Bogenschutz, Upland Wildlife Research Biologist, IDNR, Personal Communication). Approximately 11,620 quail were harvested statewide during the 2010 season (Bogenschutz 2011).

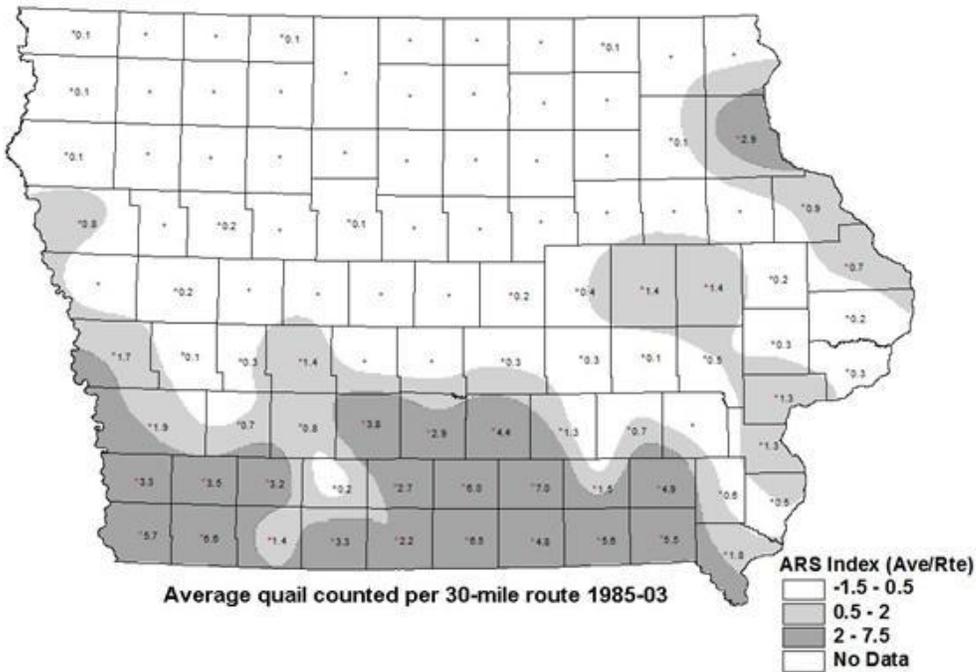


Figure 1. Quail populations. Bogenschutz 2010

- Eastern Cottontail (*Sylvilagus floridanus*): Iowa Department of Natural Resources roadside counts show a long term stable trend in cottontail populations, but while long term populations remain strong, hunter numbers and harvest have declined (Todd Bogenschutz, Upland Wildlife Research Biologist, IDNR, Personal Communication; Bogenschutz 2010). Cottontail rabbits are regularly seen throughout the year on the Refuge. Iowa DNR reported an average of 2 rabbits per 30 mile survey route in 2011 and hunters are being encouraged to focus their efforts in the southern counties along the Missouri border (Bogenschutz et.al. 2011).
- Squirrel: Research has demonstrated that hunting has little impact on squirrel populations (Todd Gosselink, Forest Wildlife Research Biologist, IDNR, Personal Communication). Squirrel populations are most impacted by hard mast production (acorns, hickory nuts), but in Iowa squirrels often have access to waste grain (corn), and this food source helps maintain more dense populations (Todd Gosselink, Forest Wildlife

Research Biologist, IDNR, Personal Communication). In Iowa, hunter interest in squirrel hunting is also declining (Bogenschutz 2010). Estimates of 119,590 squirrels were harvested in 2010 with a ten year average of 171,447 and a long term average going back to 1963 of 653,093 per year (Bogenschutz 2011).

Non-hunted migratory birds: Non-hunted migratory birds include songbirds, wading birds, raptors, and woodpeckers. 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, and chickadees. Disturbance by hunting to non-hunted migratory birds should not have cumulative negative impacts since the hunting seasons (September 15 through January 31) would not coincide with the nesting season, and disturbance to the daily wintering activities, such as feeding and resting, of birds would probably be similar to that caused by non-consumptive users.

4.1.5.B Anticipated Direct and Indirect Impact on Refuge Programs, Facilities, and Cultural Resources Other Refuge Wildlife-Dependent Recreation.

Approximately 140,000 visitors came to the Refuge in 2010. Wildlife observation visits, particularly bison and bird watching, account for the highest wildlife-dependent recreational use recorded for the Refuge.

Under the No Action alternative, the public would have the opportunity to continue to participate in hunting, which is one of the priority public uses, and compatible with the purposes for which the Refuge was established. Hunting is also a way for the public to gain an increased awareness of Neal Smith NWR and the National Wildlife Refuge System. By continuing to allow hunting, the Service would meet public use demand and public relations would be enhanced with the local community. However, hunting will not be permitted on the Southeast Unit of the Northern Tallgrass Prairie NWR. Approximately 80 acres adjacent to the bison enclosure will remain open to upland bird and small game hunting. The Refuge does not have a dedicated law enforcement officer on station. A Zone Law Enforcement Officer is located at the Refuge and does provide part-time law enforcement coverage. Additional law enforcement assistance from IDNR will continue to be required during the hunting season from September 15 through January 31.

Refuge Facilities. No additional impacts to Refuge facilities (roads, parking lots, trails) will occur with this alternative. Under this alternative, Refuge facilities would continue to be used by consumptive and non-consumptive visitors. Maintenance or improvement of existing roads and parking areas will cause minimal short term impacts to localized soils and may cause some temporary wildlife disturbance. Maintenance of brochure boxes and signs will continue and production of brochures and other outreach materials will continue to be provided to the public.

Cultural Resources. This alternative will not have any additional impacts to cultural resources. No sites listed on the National Register of Historic Places are located on fee title tracts within the designated boundaries of the Refuge.

4.1.5.C Anticipated Direct and Indirect Impact on Refuge Environment and Community

The No Action alternative will have little if any change in the amount or kinds of impacts on soils, air quality, water quality or solitude.

This alternative will continue provide hunting opportunities in the local area. Over the last 15 years it has become increasingly difficult for hunters to acquire access to hunt on private land throughout Iowa. If private land owners allow the public to hunt on their lands, more landowners are either leasing their land for an entire season, charging hunters a daily fee, or selling their land for recreation use. This change in land use has increased the importance of public land to hunters.

4.1.5.D Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts

Public hunting was closed on private lands before they became part of the Neal Smith NWR. This alternative would continue to allow hunting, an existing use on the Refuge, and therefore there would be no anticipated additional impacts from this alternative.

4.1.5.E Cumulative Impact Analysis of Alternative A: No Action Alternative – Maintain Current Hunt Program.

Impacts have been described for each species currently hunted on Neal Smith NWR. It is unlikely that current hunting activities will add negative cumulative impacts to the overall hunted populations throughout the state of Iowa since it is an existing activity. Take of approximately 16 deer from the refuge will not impact state populations. A statewide harvest of 200,000 pheasant equates to approximately 2.8 birds per square mile within Jasper County, with a refuge harvest of approximately 23 cock pheasant on the refuge. The harvest of approximately 23 cock pheasant will not impact statewide populations. Using the same sort of calculations, less than 2 Northern Bobwhite quail and 13 squirrels are expected to be harvested from the less than 8 square miles within the refuge which will not impact state populations of these species. The Refuge does provide good habitat for those species that can benefit from grassland and savanna habitats and will continue to provide habitat to benefit hunted species. The Refuge works closely with the Iowa DNR to assure that hunts on the Refuge are regulated and that state population objectives are maintained.

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 for any alternative unique to minority or low-income populations in the affected area. None of the alternatives will disproportionately place any adverse environmental, economic, social, nor health impacts on minority or low-income populations.

SECTION 4.2 Alternative B: Open Refuge to Modified Season, Modified Hunt Program.

Under this alternative, the Refuge would open hunting to upland bird, small and big game hunting in accordance with Federal regulations and laws consistent with laws of the State of Iowa as well as open the Southeast Unit of the Northern Tallgrass Prairie National Wildlife Refuge (NTGP) to hunting under the same regulations and opportunities provided by the Refuge. The Refuge currently permits hunting for whitetail deer, rooster pheasant, Northern Bobwhite quail, squirrel and cottontail rabbit. The species that will be added under this alternative include wild turkey, pigeon, coyote, red and gray fox. This alternative would also define squirrel hunting to gray and fox squirrels. Hunting seasons would extend from September 1 through January 31 according to all state and federal regulations. This Alternative would not allow a spring turkey hunt or allow coyote hunting to continue throughout the year. This alternative would also allow the closing of 80 acres to upland bird and small game hunting adjacent to the bison enclosure to facilitate bison management and closure of the Basswood Trail for safety and compatible uses conflicts.

Table 2: IOWA DNR HUNTING INFORMATION 2011-2012

Deer Hunting		
Season	Season Dates	
Youth Season	Sept. 17– Oct.2	
Disable Hunter Season	Sept. 17 – Oct. 2	
Archery Season-Early Split	Oct. 1 – Dec. 2	
Archery Season-Late Split	Dec. 19 – Jan. 10, 2012	
Early Muzzleloader	Oct. 15-23	
Late Muzzleloader	Dec. 19 – Jan. 10, 2012	
Shotgun-Season 1	Dec. 3-7	
Shotgun-Season 2	Dec. 10-18	
November Antlerless Season	Nov. 25-27	
January Antlerless Season	Jan. 11 – Jan.29, 2012	
Nonresident Holiday Season	Dec. 24 – Jan. 2, 2012	
Turkey Hunting		
Season	Type of License	Season Dates
Fall Season	Combination Gun/Bow	Oct. 10- Dec. 2, 2011
Fall Archery	Archery Only	Oct. 1-Dec. 2 & Dec. 19- Jan. 10, 2012
Upland Game Hunting		
Species	Season	
Youth Rooster Pheasant	Oct. 22-23	
Rooster Pheasant	Oct. 29 – Jan. 10, 2012	
Northern Bobwhite quail	Oct. 29 – Jan. 31, 2012	
Pigeon	Oct. 1 – Mar. 31, 2012	
Rabbit (Cottontail)	Sept.3 – Feb. 28, 2012	
Squirrel (Fox and Gray)	Sept.3 – Jan. 31, 2012	
Fox (Red and Gray)	Nov. 5 – Jan. 31, 2012	
Coyote	Nov. 5 – Jan. 31, 2012	

4.2.1 Habitat Impacts

Habitat impacts for this alternative would be the same as for Alternative A: No Action – Maintain Current Hunt Program. No additional impacts on habitat are expected by implementing this alternative within the boundaries of the Neal Smith NWR and the Southeast Unit of the NTGP. The numbers of hunters on the Refuge are not expected to increase but the period of time in which they spend on the Refuge is likely to increase with the added species that are permitted to be hunted. Habitat on the Refuge consists of tallgrass prairie and savanna habitats that are not likely to be damaged by foot traffic incurred by hunting activities.

Approximately 30 acres of the Southeast Unit are planted according to Conservation Reserve Program standards (grasses), another 30 acres were recently planted to a diverse prairie mix, while the rest of the Unit will remain in farming, but only for a short time. Plans to reconstruct tallgrass prairie on the remainder of the Southeast Unit will be phased in over the next 3 to 5 years as funding and seed supplies allow.

4.2.2 Biological Impacts

No additional effects are expected for the wildlife species currently hunted on Neal Smith NWR already described under Alternative A. Additional analysis is provided in Section 4.2.5.A for wild turkey, pigeon, red and gray fox, and coyote, which are added species that would be hunted under this alternative. Other wildlife not being harvested will be disturbed by hunters approaching an animal's site, and flushing or moving the wildlife as the animals try to avoid human contact. Research and management of the 80 acre unit adjacent to the bison enclosure and bison herd would be better facilitated.

4.2.3 Listed Species

Same as Alternative A: No Action Alternative. No additional impacts or effects are expected.

4.2.4 Historic Properties and Cultural Resources

Same as Alternative A: No Action Alternative. No additional impacts or effects are expected.

4.2.5 Cumulative Impacts of Alternative B: Modified Season; Modified Hunt Alternative

4.2.5.A Anticipated Direct and Indirect Impact on Wildlife Species

Resident Wildlife

- White-tailed Deer: Same as Alternative A: No Action Alternative.
- Ring-necked pheasant: Same as Alternative A: No Action Alternative
- Northern Bobwhite quail: Same as Alternative A: No Action Alternative
- Rabbit (cottontail) and Squirrel Populations: Same as Alternative A: No Action Alternative
- Non-hunted migratory birds: Same as Alternative A: No Action Alternative
- Wild turkey (*Meleagris gallopovo*): The first release of eastern wild turkeys in Iowa was in 1966 in Lee County and the population response of these turkeys was phenomenal with survival of released birds, reproduction, and poult survival all excellent (Gosselink 2011). Since the initial 1966 release, 3,578 eastern wild turkeys have been trapped and released at 259 sites at a stocking rate of approximately 3 adult gobblers and 10 hens per site (Gosselink 2011). Most sites were opened to hunting after populations were established, usually about 5 years post-stocking. Restorations by the IDNR during the last 2 decades have returned wild turkeys to about 95% of the remnant timber stands in the state and restoration efforts ended in 2001 with the last release site occurring in Linn County (Gosselink 2011).

Turkey hunting could have the most impact to the local population when conducted during the fall season because it allows the take of both male and females. An adverse effect would occur if more female turkey were harvested than male. A spring hunt would

be less likely to impact the local population because only males are harvested. However, the fall hunt is less popular among hunters and take is more likely to occur as incidental to other hunting, such as whitetail deer hunting. IDNR has recommended that the Refuge limit the number of days for the season to avoid local impacts to turkey populations and to monitor take of the species. Changes to the length of season can be made later if the data shows that turkey populations can be sustained under hunting pressure.

Iowa DNR defines quality turkey hunting as a chance to hunt reasonably free of interference from other hunters and the primary method to reduce hunter interference is to control hunter densities through quotas (Gosselink 2011). In 2010, quotas or number of shotgun/bow licenses issued for fall turkey hunting was 3,305 in Zone 4, where the refuge is located, with an estimated 291 turkeys harvested (8% success rate) (Gosselink 2011). Providing turkey hunting to the public on the refuge, with an expected 8% success rate of harvest throughout the 32 county area covered by Zone 4, far below the established quota, is not likely to impact overall state-wide population numbers but could, at least temporarily, negatively impact local populations (Todd Gosselink, IDNR Forest Wildlife Research Biologist, personal communication). This success rate equates to approximately 9 birds per county or 1.25 birds per 100 square miles. Telemetry studies conducted in the southern portion of the state, coupled with computer modeling of southern Iowa turkey mortality and hatching data, suggested that as much as 10% of the populations could be removed during fall hunting without reducing long-term turkey populations (Gosselink 2011). All successful hunters are required to report their harvest to IDNR.

- Pigeon (*Columba livia*): Pigeons are hunted year round in Iowa, with no restrictions and no limit. Very few, if any, pigeons reside on the refuge and therefore their take would be incidental.
- Red and Gray Fox (*Vulpes fulva*; *Urocyon cinereoargenteus*): Red and gray fox are in decline in Iowa based on fur dealer reports (Evelsizer 2011). Iowa DNR requires fur dealers to report the number of raw furs purchased from Iowa trappers and hunters by May 15 of each year offering a retrospective view of the status of fox populations throughout the state (Evelsizer 2011). During the 1980s and 1990s, red fox harvests stabilized between 12,000 and 20,000 pelts reported per year (Evelsizer 2011). An outbreak of mange in the 1980s is believed to have suppressed the fur market greatly as well as reduce the red fox population in the state (Evelsizer 2011). Coyotes have also moved into the fox rich portions of the state exacerbating fox declines and will likely keep populations near modern day lows (Evelsizer 2011). Fur dealer reports for gray fox may be near record low levels as well and Iowa DNR remains cautiously concerned about both fox species, believing that there has been a major reduction in both red and gray fox populations in recent years (Evelsizer 2011). Fox hunters generally have greater impacts on populations when snow conditions exist allowing for easier sighting of foxes with mild open winters being less successful (Evelsizer 2011). Furbearer harvest reports indicate that in the 2009/2010 season, 1,792 red fox and 13 gray fox were harvested statewide (Evelsizer 2011). Red and gray fox may occur on the refuge. Hunting of these species would be incidental with other hunting activities. The average take of fox (red and gray) throughout Jasper County is approximately 18, or 2.5 fox per 100 square miles.

The refuge provides some area where hunting is not permitted which would allow avoidance areas for some animals. Any take of fox may have a negative impact on statewide populations since actual population numbers on the Refuge are not known. The Refuge will begin a fox monitoring program under this alternative.

- Coyote (*Canis latrans*): Coyote densities, like fox, are determined retrospectively through fur dealer reports. Coyote populations are believed to be growing throughout most of the state (Evelsizer 2011). Harvest figures for the 2010-2011 season was 8,089 statewide (Evelsizer, 2011). Using statewide reports, it is estimated that 1.1 coyotes would be harvested per 100 square miles within Jasper County. Coyotes are hunted year round in Iowa, with no restrictions and no limit. Coyotes are known to populate the refuge, but those numbers are unknown. It is not likely that the incidental take of coyote on the refuge will have an impact on statewide populations.

4.2.5.B Anticipated Direct and Indirect Impact on Refuge Programs, Facilities, and Cultural Resources Other Refuge Wildlife-Dependent Recreation. Refuge Programs

One of the primary goals of the Neal Smith NWR is to provide a variety of year-round wildlife dependent recreational and educational opportunities for visitors to experience so that they may learn to treasure the native tallgrass prairie heritage, ecological processes, and cultural resources. The refuge conducts environmental education related to the reconstruction of tallgrass, sedge meadow and savanna habitats throughout the year but most activities during the winter months occur along trails or near the visitor center where hunting is prohibited. Some research and biological monitoring activities, which do not involve the public, do extend into the fall and winter when hunting would occur, but to a much lesser extent. Researchers and staff wear hunter orange for safety purposes when conducting activities in the field between September 1 and January 31.

Refuge Facilities. Same as Alternative A: No Action Alternative. No additional impacts or effects are expected.

Cultural Resources. Same as Alternative A: No Action Alternative. No additional impacts or effects are expected.

4.2.5.C Anticipated Direct and Indirect Impact on Refuge Environment and Community

Implementing Alternative B may have direct and indirect impacts for the refuge environment and community. This alternative addresses public and partner interests to increase hunting opportunities on the refuge and may garner more support for other refuge programs.

4.1.5.D Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts

Same as Alternative A: No Action Alternative. No additional impacts or effects are expected.

4.2.5.E Cumulative Impact Analysis of Alternative B.

Cumulative impacts of this alternative is the same as for some species as described in Alternative A. Additional analysis is included here for impacts to locally hunted wildlife populations as described in 4.2.5.A.

Hunting pressure is often high on public areas due to the low availability of public hunting areas statewide. Hunting pressure would normally be expected to be high for turkey on Neal Smith NWR, especially if the season were open for the spring hunt, when turkey hunting is the most popular. Fall hunting is less popular because hunters must track the turkeys and use of a call is not effective. Hunting for wild turkey in the fall is likely to occur as incidental to deer hunting and take is expected to be low. Statewide wild turkey populations are not likely to be impacted by the implementation of this alternative. Local impacts would be short term, if harvest exceeds the expected 9 birds, since any decreases in refuge populations during the fall would be mitigated by turkeys on adjacent private lands, or areas of the refuge that are closed to hunting, repopulating the area at the end of the hunt season. In addition, since no hunting for turkey will occur between January 31 and September 1, wild turkey will have an opportunity to take refuge during the April hunting season.

Pigeon do not occur throughout the refuge and would not be impacted locally or at statewide level if hunted here.

Coyote, red and gray fox may occur on the refuge but little is known about their numbers within the refuge area. Hunters are most likely to shoot them as incidental during deer hunts. The refuge provides areas that are closed to hunting and provide heavy cover habitat for these species. Negative impacts to statewide coyote populations should be negligible. Impacts to hunting fox on the refuge are generally unknown. The Refuge will establish a monitoring program to determine take of these species and in retrospect, population numbers on the Refuge.

4.2.6. Environmental Justice

Same as Alternative A: No Action Alternative. No additional impacts or effects are expected.

SECTION 4.3 Alternative C: Open Refuge to Modified Season, Full Hunt Program (Preferred Alternative).

Under this alternative, the Refuge would open hunting to upland and migratory birds, wild turkey, some furbearers, small and big game in accordance with Federal regulations and laws consistent with laws of the State of Iowa as well as open the Southeast Unit of the Northern Tallgrass Prairie NWR to hunting under the same regulations and opportunities provided by the Refuge. The species currently hunted include Northern Bobwhite quail, rooster pheasant, gray and fox squirrel, and cottontail rabbit. Under this alternative, wild turkey, pigeon, waterfowl, mourning dove, crow, coyote and fox (red and gray) will be added.

As in Alternative B, hunting seasons would be modified so that they would not extend throughout the year but would begin on September 1 and end on January 31. This Alternative would not allow a spring turkey hunt or year-long coyote hunting.

4.3.1 Habitat Impacts

Same as Alternatives A and B. No additional impacts or effects to habitat are expected with the implementation of this preferred alternative.

4.3.2 Biological Impacts

As in Alternatives A and B, the harvest of all wildlife species will be in accordance with Iowa state and Federal regulations. Other wildlife not being harvested will be disturbed by hunters approaching an animal's site, and flushing or moving the wildlife as the animals try to avoid human contact. No additional biological impacts or effects are expected to occur to resident wildlife species other than those described in Alternative A and B. Individual impacts will occur to individual migratory birds, including waterfowl, mourning and Eurasian Collared doves, and crows but nationwide and statewide populations will have minimal effects. Research and management of the 80 acre unit adjacent to the bison facility and the bison herd would be better facilitated.

4.3.3 Listed Species

Same as Alternatives A and B. No additional impacts or effects to habitat are expected with the implementation of this preferred alternative.

4.3.4 Historic Properties and Cultural Resources

Same as Alternatives A and B. No additional impacts or effects to habitat are expected with the implementation of this preferred alternative.

4.3.5 Cumulative Impact Analysis of Alternative C: Modified Season; Full Hunt.

4.3.5.A Anticipated Direct and Indirect Impact of Proposed Hunt on Wildlife Species

As in Alternatives A and B, the harvest of Refuge wildlife species will be in accordance with Federal regulations and Iowa 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 try to avoid human contact.

Resident Wildlife

- White-tailed Deer: Same as Alternative A: No Action Alternative.
- Ring-necked pheasant: Same as Alternative A: No Action Alternative
- Northern Bobwhite quail: Same as Alternative A: No Action Alternative
- Rabbit (cottontail) and Squirrel Populations: Same as Alternative A: No Action Alternative
- Wild Turkey: Same as Alternative B: Modified Season; Modified Hunt
- Pigeon: Same as Alternative B: Modified Season; Modified Hunt

- Red and Gray Fox: Same as Alternative B: Modified Season; Modified Hunt
- Coyote: Same as Alternative B: Modified Season; Modified Hunt

Migratory Birds

- **Migratory Birds:** Migratory game birds are those bird species 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). Under this Act, 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 (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. Neal Smith NWR and the Southeast Unit of the Northern Tallgrass Prairie NWR are located in the Mississippi Flyway.

The process for adopting migratory game bird hunting regulations, located in 50 CFR part 20, is constrained by three primary factors: 1) Legal and 2) administrative considerations dictate how long the rule making process will last. 3) 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.

Because the Service is required to take an 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 framework 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. The waterfowl season on Neal Smith NWR and Southeast Unit of the Northern Tallgrass Prairie NWR will follow the frameworks set in place for Iowa.

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 53376), 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). More information may be obtained from: Chief, Division of Migratory Bird Management, U.S. Fish and Wildlife Service, Department of the Interior, MS MBSP-4107-ARLSQ, 1849 C Street, NWR., Washington, DC 20240.

Breeding population estimates are made each year for 10 key species of ducks in the principal breeding areas of Alaska, Canada, and the north central United States. Surveys are conducted in May and early June by the Service, Canadian Wildlife Service, and provincial and state conservation agency personnel. Ducks are counted from fixed-wing aircraft on the same transects each year. Estimates of ducks and ponds seen from the air are corrected for visibility bias by conducting ground counts on a sample of transects. Although numbers of breeding ducks have fluctuated substantially from year to year, trend analysis suggests that total duck numbers are stable. This stable trend, however, is the result of increasing numbers of some species (e.g., gadwall, green-winged teal, shovelers and blue-winged teal) and decreasing numbers of others (e.g., pintails and scaup). Despite the improvements in duck numbers in the 1990's, there are still concerns about the long-term loss of both wetland and upland habitat in the prairie pothole region and the long-term outlook for duck populations in the future. Duck populations have

fluctuated substantially over time. Duck populations will continue to fluctuate in the future as the numbers of wetlands on the landscape in north-central North America rise and fall with the varying weather.

Table 3. Breeding population estimates for 10 species of ducks (in thousands) and percent change from previous year in the USFWS traditional survey region in N. America. (Source: Raftovich et.al. 2011 & Zenner 2011).

YEAR	Mallard	Gadwall	American Wigeon	G-W Teal	B-W Teal	Northern Shoveler	Northern Pintail	Redhead	Canvasback	Scaup
2011	9,183	3,257	2,084	2,900	8,949	4,641	4,429	1,356	692	4,319
Change from 2010	9%	9%	-14%	-17%	41%	14%	26%	27%	18%	2%

In the July 2011 *Migratory Bird Hunting Activity and Harvest During the 2009 and 2010 Hunting Seasons* report, the Service estimates the seasonal duck harvest per active hunter in Iowa to be 10.3 to 11.1. The document estimates the seasonal goose harvest per hunter to be 4.6 birds. Given that Refuge units have little if any suitable waterfowl habitat it is difficult to estimate the number of ducks and geese will be harvested on Refuge units during these seasons. Hunting could occur on the remaining 450 acres of farm field that are in the farming program and along the sloughs on Neal Smith NWR. However, those farm fields are expected to be planted to tallgrass prairie within the next 5 years. Some wood duck hunting may be possible by walking the length of Walnut Creek and “jumping” the birds, but the hunt would be more about an outdoor experience than a serious attempt to harvest waterfowl. Waterfowl harvest on the refuge is not expected to exceed the Average Seasonal Duck Bag for the state of Iowa (Table 4.) Waterfowl harvest on Neal Smith NWR and the Southeast Unit of the Northern Tallgrass Prairie NWR would not likely affect local, state, or flyway populations or harvest numbers, primarily because hunting opportunity is low.

Table 4. Waterfowl harvest and hunter activity estimates (in thousands) and percent change from previous year for Iowa. Raftovich et. al. 2011

YEAR	Mallard	Woodduck	B-W Teal	G-W Teal	ALL DUCKS	Canada Geese	Snow Geese	Days Hunted	Average Seasonal Duck Bag	Active Adult Hunters
2010	68.3	55.5	46.8	20.3	245.5	65.8	0.2	149.1	11.1	25,200
Change from 2009	51%	23%	32%	-9%	35%	6%	-	14%	8%	29%

- Crow (*Corvus brachyrhynchos*): American crows are hunted throughout the state of Iowa between October 15 and November 30; and then again from January 14 through March 31. There is no limit on daily bag limits or possession. The refuge hunting season ends on January 31 of each year which would shorten the season for hunting crows to 60 days. There are no specific surveys conducted by the refuge or by Iowa DNR to monitor crow populations. The only standardized data that is available is from Christmas Bird Counts or Breeding Bird Surveys. During Christmas Bird Counts on the Refuge in 2011 there were 106 American Crows counted within the 7½ mile radius count circle. Nearly 70 crows were counted within the refuge boundary. During the 2011 breeding season bird counts on the refuge, there was one crow counted within the 100-meter radius point counts. Extrapolating this density to the refuge, it comes out to 6.74 crows within the refuge boundary. At that level of harvest, hunting of crows on the refuge would not have a cumulative negative impact on local or statewide populations.
- Mourning Dove (*Zenaida macroura*): Starting in 2011, Iowa began a hunting season for mourning doves. Dove hunting provides an opportunity for hunters of any age or experience level to participate due to an abundance of birds, simple equipment needs and moderate physical activity. More than 22,000 hunters registered to hunt doves in 2011 and at the time of this writing, numbers of harvest were unknown. The season in 2012 will begin on September 1 and run through November 9. Mourning doves are not monitored on the refuge. Harvest of mourning doves on the refuge would most likely be very low and would not have a negative impact on overall statewide populations.

4.3.5.B Anticipated Direct and Indirect Impact of Proposed Hunt on Refuge Programs, Facilities, and Cultural Resources.

Other Refuge Wildlife-Dependent Recreation

Implementation of the Preferred Alternative will avoid conflict or impacts, positive or negative, on environmental education and interpretation, wildlife observation, and biological research and monitoring.

Refuge Facilities

Same as Alternatives A and B. No additional impacts or effects on refuge facilities are expected with the implementation of this preferred alternative.

Cultural Resources

Same as Alternatives A and B. No additional impacts or effects to cultural resources are expected with the implementation of this preferred alternative.

4.3.5.C Anticipated Direct and Indirect Impact of Proposed Hunt on Refuge Environment and Community.

Same as Alternatives A and B. No additional impacts or effects to the refuge environment or community are expected with the implementation of this preferred alternative.

4.3.5.D Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts

Same as Alternatives A and B. No additional impacts or effects are expected with the implementation of this preferred alternative.

4.3.5.E Cumulative Impact Analysis of Alternative C: Modified Season; Full Hunt.

Cumulative impacts of this alternative are the same as for some species as described in Alternatives A and B. Additional analysis is included here for impacts to migratory birds as described in 4.3.5.A.

Migratory waterfowl hunting is well regulated at both the federal and state levels. Waterfowl, crow and dove populations are low on the refuge due to the low occurrence of suitable habitat and take of these species is not expected to impact statewide population levels. An average of 11 ducks per season per hunter is expected to be harvested on the refuge and given that there is less than 700 acres of suitable waterfowl habitat available on the refuge, the number of hunters is not expected to exceed that of other public areas where hunting occurs. This level of harvest will have no impact on statewide population levels. Tallgrass prairie is not conducive to harboring large populations of dove or crow and hunting of these species is likely to be incidental to other hunting activities. Take of these species is expected to be extremely low and therefore will not negatively impact statewide populations.

4.3.6. Environmental Justice

Same as Alternatives A and B. No additional impacts or effects to habitat are expected with the implementation of this preferred alternative.

SECTION 4.4 Summary of Environmental Consequences by Alternative

EFFECT	Alternative A (No Action) Maintain Current Hunt Program	Alternative B Modified Season Modified Hunt	Alternative C (Preferred Alternative) Modified Season Full Hunt
Habitat	No effect.	No effect.	No effect.
Biological	Some disturbance of migratory birds, upland/small game and big game species	Some disturbance of migratory birds, upland/small game and big game species	Some take of migratory birds, upland/small game and big game species
Listed Species	No effect.	No effect.	No effect.
Historic and Cultural Resources	No effect.	No effect.	No effect.
Cumulative Impacts	Some impacts and effects on specific hunted species, but no impact on populations.	Some impacts and effects on specific hunted species, but no impact on populations	Some impacts and effects on specific hunted species, but no impact on populations
Environmental Justice	Hunting is authorized by Migratory Bird Conservation Act, Refuge Recreation Act, NWR Administration Act, and NWR Improvement Act.	Hunting is authorized by Migratory Bird Conservation Act, Refuge Recreation Act, NWR Administration Act, and NWR Improvement Act.	Hunting is authorized by Migratory Bird Conservation Act, Refuge Recreation Act, NWR Administration Act, and NWR Improvement Act.

Chapter 5. Consultation and Coordination

Consultation with IDNR dates back to 1992 when the original Walnut Creek NWR Hunting Plan was developed. In 2010 the Refuge began the formal Comprehensive Conservation Plan process and the Refuge began a series of meetings with IDNR to develop a vision for Refuge programs, specifically hunting and wildlife monitoring. Since then the Refuge has continued consulting with the state on an informal basis. IDNR was integral to the preparation of this environmental assessment and supports Alternative C: Modified Season; Full Hunt, the preferred alternative described.

Following the adoption of this Environmental Assessment and the subsequent Hunting Plan, consultation and coordination with IDNR regarding its annual implementation will continue.

Chapter 6. Regulatory Compliance

The Refuge Recreation Act of 1962 (16 U.S.C 460k) authorizes the Secretary of the Interior to administer National Wildlife Refuges for public recreation as an appropriate incidental or secondary use (1) to the extent that is practicable and consistent with the primary objectives for which an area was established, and (2) provided that funds are available for the development, operation, and maintenance of permitted recreation.

The National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 688dd-ee) authorizes the Secretary of the Interior to permit the use of any area within the NWR System for any purpose, including but not limited to hunting, fishing, and public recreation whenever those uses are determined to be compatible with the purposes for which the area was established. The Improvement Act of 1997 is the latest amendment to the NWR System Administration Act. It supports the NWR System Administration Act's language concerning the authorization of hunting and other recreational uses on Refuge lands. The NWR Improvement Act substantiates the need for the NWR System to focus first and foremost on the conservation of fish, wildlife, and plant resources and their habitats and states that other uses will only be authorized if they are determined to be compatible with this mission statement and the purposes for which the Refuge was established.

Neal Smith NWR was established under the authority of the National Wildlife Refuge System Administration Act of 1966, the Fish and Wildlife Act of 1956 and its purpose is to provide for the development, advancement, management, conservation, and protection of fish and wildlife resources [16 U.S.C. 742f(a)(4)]; and the Emergency Wetlands Resources Act of 1996 to conserve wetlands of the Nation in order to maintain the public benefits they provide...[16 U.S.C. 3901(b)]. An Environmental Assessment for the opening of the Walnut Creek NWR (later renamed Neal Smith NWR) to public hunting and an interim hunt plan were completed in 1992. Hunting has been a priority public use on the Refuge since its establishment. The Service has determined that this use is compatible with the purpose of the Refuge and the mission statement of the NWR System.

CHAPTER 7. LIST OF PREPARERS

Submitted by:

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Date

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Date

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Date

Rick Schultz
Regional Chief
National Wildlife Refuge System

Date

Approve:

Thomas Melius
Regional Director

Date

CHAPTER 8. CONSULTATION AND COORDINATION WITH THE PUBLIC

The Service will seek public involvement and send out copies of the Draft EA for the Hunting Plan for the Neal Smith NWR with the Draft Comprehensive Conservation Plan for the Refuge. The groups and individuals that will receive the draft EA include elected officials, state and federal agencies, numerous NGOs, libraries and interested individuals. The time period for public review will be the same as that set for the Draft Comprehensive Conservation Plan.

CHAPTER 8. LITERATURE CITED

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APPENDIX A. RESPONSE TO PUBLIC COMMENTS

The following summarizes comments given during the public comment period for the Comprehensive Conservation Plan for the Neal Smith National Wildlife Refuge 2012. A total of seven comments were received for the Draft Environmental Assessment for the Hunt Plan for Neal Smith National Wildlife Refuge. All comments supported some level of hunting at the Refuge, with several preferring to maintain the current hunt program.

Those that preferred to maintain the current hunt program, rather than expand it, were primarily concerned with disturbance to wildlife, researchers, volunteer activities, and visitors. The Refuge has taken into consideration the issues of law enforcement coverage, seasons, and disturbance to wildlife and other non-consumptive uses of the Refuge. The Refuge believes that expanding the hunt program will not negatively impact the value of the Refuge by expanding the hunt program. Providing compatible wildlife-dependent recreation and education activities on units of the National Wildlife Refuge System is a Service priority. The National Wildlife Refuge System Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd et seq.) provides authority for the Service to manage the Refuge and its wildlife populations. In addition, it declares that compatible wildlife-dependent public uses are legitimate and appropriate uses of the Refuge System and that they are to receive priority consideration in planning and management actions. There are six wildlife-dependent public uses: hunting, fishing, wildlife observation, wildlife photography, environmental education and interpretation. The Act directs managers to increase recreational opportunities, including hunting, on National Wildlife Refuges (NWR) when compatible with the purposes for which the Refuge was established and the mission of the National Wildlife Refuge System.

Safe and lawful hunting on any wildlife refuge is of course dependent in part on the presence of law enforcement personnel. The Refuge has a Zone LE Officer has an office at the Refuge and shares duties with state game officers as well as the local sheriff. Refuge staff is available to respond to reports from visitors or sightings by calling law enforcement directly. In addition, clear signage, permits and the Code of Federal Regulations are carefully crafted to ensure the regulatory integrity of hunting on national wildlife refuges.

Other concerns expressed in the comments focused on fox hunting, and the manner or season in which we allowed turkey hunting.

The State of Iowa manages fox populations and worked with the Refuge to determine the feasibility of hunting. Trapping has accounted for 75% of fox take in Iowa over the past two years (Rick Trine, Central District Wildlife Supervisor, personal communication). Since traditional fox hunting (horses and hounds) and trapping is not permitted on the Refuge, take of fox of any kind on the Refuge would be light to non-existent and would not impact statewide populations (Rick Trine, Central District Wildlife Supervisor, personal communication). Hunting of these species would be incidental with other hunting activities. Monitoring mammals, particularly fox, on the Refuge will assist in future decisions about fox hunting.

The Refuge has worked very closely with Iowa DNR biologists to establish turkey hunting on the Refuge. Iowa DNR recommends that since we have not allowed turkey hunting on the Refuge in the past, and we are opening only a fall season, that we limit the time frame for the hunt and monitor harvest success. The Refuge will continue to consult with IDNR to determine if turkey hunting should be continued or its time frame expanded.