

Draft Environmental Assessment

for Hunting and Fishing on Crescent Lake National Wildlife Refuge

March 2020

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Date: March 2020

This Environmental Assessment (EA) is being prepared to evaluate the effects associated with this proposed action and complies with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] 1500–1509) and Department of the Interior (43 CFR 46; 516 DM 8) and United States (U.S.) Fish and Wildlife Service (Service) (550 FW 3) regulations and policies. NEPA requires examination of the effects of proposed actions on the natural and human environment.

1.0 Introduction

1.1 Proposed Action

The Service is proposing to open new hunting opportunities for doves, snipes, rails, crows, porcupines, and prairie dogs on Crescent Lake National Wildlife Refuge (NWR). The Service is also proposing to expand hunting opportunities from the current 5,145 acres to 15,039 acres for ducks, coots, dark geese, and light geese. The Service is proposing to extend hunting dates from January 31 (current) to March 15, establishing the period between September 1 and March 15 as open to hunting according to state and federal regulations.

The Service is proposing to expand fishing opportunities on Crane Lake and Smith Lake, currently open from November 15 through February 15, to year-round fishing.

This proposed action is often iterative and may evolve during the NEPA process as the agency refines its proposal and gathers feedback from the public, tribes, and other agencies. Therefore, the final proposed action may be different from the original. The proposed action will be finalized at the conclusion of the public comment period for the EA.

1.2 Background

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (Refuge System), the purposes of an individual refuge, Service policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act of 1966 (NWRSA), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act), Refuge Recreation Act of 1962, and selected portions of the CFR and U.S. Fish and Wildlife Service Manual.

The refuge was established on March 16, 1931 pursuant to Executive Order 5597, which defined the legal purpose as an area reserved and set apart as a refuge and breeding ground for birds and wild animals.

The mission of the Refuge System, as outlined by the NWRSA, as amended by the Improvement Act (16 U.S. Code 668dd et seq.), is:

“ . . . to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

The NWRSAA mandates the Secretary of the Interior in administering the System to (16 U.S. Code 668dd[a][4]):

- provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System;
- ensure that the biological integrity, diversity, and environmental health of the Refuge System are supported for the benefit of present and future generations of Americans;
- ensure that the mission of the Refuge System described at 16 U.S. Code 668dd(a)(2) and the purposes of each refuge are carried out;
- ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the states in which the units of the Refuge System are located;
- assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the Refuge System and the purposes of each refuge;
- recognize compatible wildlife-dependent recreational uses as the priority public uses of the Refuge System through which the American public can develop an appreciation for fish and wildlife;
- ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses;
- monitor the status and trends of fish, wildlife, and plants in each refuge.

Therefore, it is a priority of the Service to provide for wildlife-dependent recreation opportunities, including hunting and fishing, when those opportunities are compatible with the purposes for which the refuge was established and the mission of the Refuge System.

1.3 Purpose and Need for the Proposed Action

The purpose of this proposed action is to provide compatible wildlife-dependent recreational opportunities on the refuge. The waterfowl hunting unit would be expanded to 15,039 acres from 5,145 acres. New opportunities would be opened to allow hunting of pronghorn, doves, snipes, rails, crows, porcupines, and prairie dogs. The hunting season for coyotes would be expanded to September 1 through March 15.

The need of the proposed action is to meet the Service's priorities and mandates as outlined by the NWRSAA to "recognize compatible wildlife-dependent recreational uses as the priority general uses of the Refuge System" and "ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses" (16 U.S. Code 668dd[a][4]). The need of the proposed action also meets the Service's implementation of Secretarial Order (S.O.) 3347, Conservation Stewardship and Outdoor Recreation, and S.O. 3356, Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories, by expanding hunting opportunities and aligning Service regulations with state regulations.

Hunting waterfowl, prairie grouse, furbearers, and deer are currently permitted on the refuge. This action was authorized and found compatible in the 2002 Crescent Lake NWR

Comprehensive Conservation Plan (CCP) and was further refined in the 2007 Crescent Lake NWR Hunting Plan.

Objective: Expand hunting and fishing opportunities to better align with state regulations. Expand acres open for waterfowl hunting. Open new opportunities to hunt more migratory bird species, including doves, snipes, rails, and crows. Reestablish opportunities to hunt pronghorn. Expand the date range for hunting of coyotes and furbearers.

The refuge is now open to hunting for sharp-tailed grouse, pheasants, and deer. Expanding hunting to include waterfowl would provide more public enjoyment without interfering with the sense of isolation so important to many users. It would also make hunting on the refuge more consistent with two other national wildlife refuges in the state. According to the CCP, this expansion would require a compatibility determination and the development of a hunting plan with more public involvement being part of the process.

The relatively small amount of public use (about 10,000 visitors per year) is concentrated in time and space. For instance, seasonal hunting and fishing account for about 70 percent of this use. Most hunting occurs on a few opening weekends in the fall and the largest concentration occurs on opening weekend of deer season (about 80 hunters in recent years). Fishing is limited to three lakes. Aside from these concentrations, the refuge is underutilized.

Strategies: Expand the waterfowl-hunting unit from 5,145 acres to 15,039 acres. Open hunting opportunities for doves, snipes, rails, and crows on this same 15,039-acre unit. Open most of the refuge to pronghorn hunting. Extend hunting season ending dates from January 31 to March 15. Extend fishing season on Crane Lake and Smith Lake to year-round fishing.

Objective: Limit overall hunting to fewer than 150 hunters on any one day; support the present aesthetic qualities of the hunting experience.

While current peak use is about half of this estimated maximum figure, growth should not be allowed to continue until a problem exists. Aesthetics are important to most hunters now using the refuge and an integral part of refuge objectives.

Strategies: Monitor all public use, obtain continuous feedback from hunters, and amend the Hunt Plan to include specific procedures.

Objective: Continue to provide the year-round, warm-water fishing in a largely natural setting presently offered on Island Lake and Blue Lake and proposed on Crane Lake and Smith Lake.

Strategies: Enter into a formal agreement with the Nebraska Game and Parks Commission (NGPC) to identify their involvement in fisheries management. Conduct public use surveys to assure the number of anglers does not detract from the natural setting and feeling of relative isolation.

2.0 Alternatives

2.1 Alternatives Considered

Alternative A – Proposed Action Alternative

As described in the 2020 hunting and fishing plan, besides current authorized hunting and fishing opportunities, the Service proposing opening the refuge to new hunting opportunities for doves, snipes, and rails; expanding the hunting opportunities from 5,145 acres to 15,039 acres for ducks,

geese, and coots; and reopening hunting opportunities for pronghorn. The hunting and fishing plan also proposes to establish hunting dates of September 1 through March 15 to better align with state season dates. Coyote hunting would be allowed through March 15 and archery pronghorn would be open September 1.

Waterfowl and coot hunting is currently permitted on 5,145 acres. This waterfowl-hunting unit would be expanded to 15,039 acres with the addition of the North Moore Valley and western portions of the proposed wilderness area. This newly designated 15,039-acre unit would also be opened to new hunting opportunities for doves, snipes, rails, and crows. This unit is approximately 33 percent of the total refuge.

Hunting of furbearers and coyotes is currently permitted until January 31. The hunting and fishing plan proposes to extend the hunting season for coyotes and furbearers (badgers, beavers, bobcats, minks, muskrats, opossums, raccoons, red foxes, gray foxes, striped skunks, and long-tailed weasels) to March 15 to better align with State of Nebraska hunting season dates. Hunting for furbearers is permitted in all units open to hunting, totaling 41,299 acres and approximately 91 percent of the total refuge.

Hunting opportunities would be reopened for pronghorn. The refuge was previously open to pronghorn hunting but was closed in 1989 due to the low population of antelope on the refuge, which is still the case today. All hunting units would be open to pronghorn hunting. Hunting for pronghorn is permitted in all units open to hunting, totaling 41,299 acres and approximately 91 percent of the total refuge. No changes to deer hunting are proposed and deer hunting would continue to be allowed on these same 41,299 acres.

Fishing is currently offered at Island Lake, Smith Lake, Crane Lake, and Blue Lake. Most of Blue Lake is on private land accessible to the public via NGPC's Open Fields and Waters Program. Year-round fishing is currently offered at Island Lake and winter season fishing (November 1 through February 15) is allowed at Smith Lake and Crane Lake. The hunting and fishing plan proposes to expand fishing opportunities at Smith Lake and Crane Lake by offering year-round fishing opportunities.

Proposed Regulation Changes

Allow the use of nonmotorized boats on waters open to hunting and fishing. Allow electric boat motors only on Island Lake, Smith Lake, and Crane Lake. Prohibit the use of internal combustion (gas-powered) boat motors on Island Lake, Smith Lake, and Crane Lake and only allow it on Blue Lake.

Biological Conflicts

Waterfowl hunting would only occur on approximately 33 percent of the refuge, leaving other areas relatively undisturbed to meet refuge objective of providing resting and feeding areas for migratory birds. The closed area of the refuge would remain closed to all public use except for the headquarters (HQ) nature trail. Nontoxic shot would be required for hunting when shotguns are used. Vehicle access would be limited to public use roads, and no other public use roads would need to be established to accommodate this hunting and fishing plan.

Public Use Conflicts

Wildlife viewing, fishing, and deer hunting are the most common public uses on the refuge. Currently, fishing occurs on four refuge lakes (Island, Crane, Blue, and Smith), and hunting is

allowed on Island Lake and Crane Lake. The proposed changes of allowing year-round fishing at Crane Lake and Smith Lake and opening Smith Lake to waterfowl hunting add the potential for conflicts between waterfowl hunters and anglers. Also, allowing the use of boats (electric motors only) on Crane Lake and Smith Lake add potential conflict between hunters and anglers. All hunting would be limited to daylight hours only to remain consistent with day public use only on the refuge. Dog use in the aid of coyote and furbearer hunting would continue to be prohibited due to the running nature of this activity and the impacts it could have on other visitors and nongame wildlife.

Administrative Conflicts

The hunting program has been set up in a way that is compatible with the current administrative setup at the refuge. Added law enforcement necessary to support this hunting program would be extremely limited. All of the hunting seasons are running concurrently with the existing hunting seasons that are open at the refuge. More hunting use on the refuge can be expected due to the added hunting opportunities, and this would require more coordination between refuge law enforcement officers and state conservation officers.

More money would be required to update refuge brochures, signs, and website upon implementation of the hunting and fishing plan.

Alternative B – No Action Alternative

Continue current hunting and fishing opportunities for small game, big game, furbearers, and waterfowl on refuge lands as described in the 2007 hunting plan. New hunting and fishing opportunities identified in the 2020 hunting and fishing plan would remain closed to hunting and fishing. All other existing public uses would remain unchanged.

Under this alternative, current refuge hunting opportunities for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across those portions of the refuge. The refuge would continue to serve as habitat for fish and wildlife, as well as provide outdoor recreational opportunities for all six priority wildlife-dependent public uses: hunting, fishing, wildlife observation, photography, environmental education, and interpretation.

Opportunities to create more outdoor recreation experiences by adding more species would be lost. In addition, the refuge's ability to connect with certain segments of the public would potentially be diminished since hunting for some popular game species would not be permitted. Hunters would pursue these species off-refuge, and the refuge's ability to reach those members of the public and promote natural resources conservation, environmental education, and natural resources stewardship may be more limited.

Conversely, the refuge would continue to provide hunting opportunities for the public, offering reasonable opportunities for the refuge to promote natural resources conservation, environmental education, and natural resources stewardship. Under this alternative, the public would have slightly more limited access to hunt certain species on public lands in the general area. As no changes would occur, the 2007 hunting plan would still be implemented. The species that would be open for hunting include ducks, geese, coots, deer, pheasants, grouses, coyotes, furbearers, and rabbits. All other public uses on the refuge would not change and would continue to be managed as described in current plans.

2.2 Alternative(s) Considered, But Dismissed from Further Consideration

The expansion of fishing season dates on Smith Lake and Crane Lake are the only proposed changes related to fishing addressed in this plan. The Sandhills Refuge Complex would seek to gather information and data to inform refuge management regarding a future fishing plan and associated EA. Much like the current EA and hunting and fishing plan, this would be an integrated approach involving information, participation, and input from state and nongovernmental agencies and the American public interested in national wildlife refuges.

3.0 Affected Environment and Environmental Consequences

3.1 Affected Environment

The refuge lies on the southwestern edge of the 19,300-square-mile Nebraska Sandhills, the largest sand dune area in the Western Hemisphere and one of the largest grass-stabilized regions in the world. The Sandhills are characterized by rolling, vegetated hills and interdunal valleys that are oriented in a northwest to southeast direction. Many shallow lakes and marshes are interspersed in the lower valleys. Native grasses predominate. Wildlife diversity, except large ungulates and their predators, has been relatively unchanged since early settlement.

Approximately 177,000 acres of open water lakes, shallow marsh and fens, and nearly 1,130,000 acres of wet meadows remain in the Sandhills. Most wetlands are freshwater with about 10 percent alkaline. Wetlands range in size from 0.1 to 2,300 acres with 80 percent less than 10 acres. Many wetlands have been drained in attempts to increase hay production. Estimates of the numbers of wetlands drained range from 15 percent to 46 percent (USFWS 1986). Wetland drainage continues to this day.

Climate of the Sandhills is characteristic of the central Great Plains—cold winters, hot summers, and frequent thunderstorms from spring to late summer. Annual precipitation ranges from 17 to 23 inches and is coupled with high evapotranspiration rates. The refuge has run a National Weather Service weather station since 1935. Precipitation on the refuge averages 16.8 inches, and temperatures have ranged from minus 46 to 109 degrees Fahrenheit. Since 1976, relatively high precipitation has resulted in positive net moisture balances (annual precipitation minus open pan evaporation) in most years.

The refuge covers 45,849 acres of native sandhills prairie and natural lakes and wetlands. Habitat types found on the refuge are primarily broken down into the following categories:

Wetlands: Wetlands, lakes, and marshes constitute about 18 percent of the total refuge. There are 15 named lakes and more than 100 other wetlands of varying sizes that provide a wide range of habitats for migratory birds and other wildlife.

Subirrigated Range Sites: These are meadows close to the groundwater level where soil moisture can support deep-rooted, warm-season native grasses even during drought. They make up about 9 percent of the refuge and are dominated by tallgrass species, such as switchgrass and sand bluestem.

Sand Range Sites: These include the dry meadows (the edge between wet meadows and the sandhills) and the gently undulating sandhills, making up about 76 percent of the refuge. Predominate grasses include both cool season species such as needle-and-thread and western wheat grass, and warm season species such as prairie sand reed, sand bluestem, sand love grass and sand dropseed. Common nongrass species include prairie sunflower, yucca, lead plant, and prairie rose.

Choppy Sand Range Sites: These are the characteristic dunes for which the Nebraska Sandhills are named and make up about 11 percent of the refuge. They support a wide variety of vegetation but also contain many, relatively small, unvegetated areas, commonly called blowouts, that are subject to wind erosion. The numbers of blowouts vary with terrain but, overall, these open sand areas make up about 3 percent of the choppy sand range sites. Blowout penstemon, a federally listed endangered species, is endemic to the Sandhills and its characteristic habitat includes the blowouts and open sand areas. Predominate grasses include blue gramma, sand bluestem, sand dropseed, blowout grass, sand love grass, little bluestem, and sandhills muhly. Nongrass species include yucca, sand cherry, prairie rose and prairie sunflower.

There are no official visitor counts for visitation associated with hunting on the refuge.

The refuge offers a variety of public use opportunities, including hunting, fishing, wildlife viewing, photography, hiking, and environmental education. About 9,000 to 12,000 people visited the refuge in recent years, a drop of over 30 percent from the 13,000 recorded in 1987. Counting methods varied somewhat throughout the period and may be the reason for this drop.

Most visitors engage in more than one activity, but the primary reason for visits in recent years can be broken down as follows: 3 percent for hunting, 67 percent for fishing, 28 percent for wildlife viewing and photography, and 2 percent for education and interpretation.

Prior to 2007, the refuge was only open to hunting for mule and whitetail deer, prairie grouses, and ring-necked pheasants. More opportunities for waterfowl and furbearers were added. The refuge was previously open to antelope hunting, but this ended in 1989 due to the low population of antelope on the refuge, which is still the case today. The 5-year average for deer hunting is 300 visits; the average for upland game is also 300 visits. Some hunters hunt for both deer and upland game during the same visit.

Fishing on Island, Smith, and Blue Lakes is the most popular use of the refuge. In recent years, fishing visits averaged about 5,000, of which 20 percent occurred during winter months. Supporting facilities are limited to two graveled boat ramps and two fishing piers on Island Lake. Boats are only allowed on Island Lake, and gas-powered engines are prohibited.

Formal education/interpretation facilities are limited to one auto tour route along the County Road and modest information kiosks and displays at Headquarters. The refuge is available as an outdoor classroom, but the isolated location, sparse local population, and distances to schools limit use to about 200 students per year.

Tables 1 through 6 provide additional, brief descriptions of each resource affected by the proposed action.

For more information regarding the affected environment, please see the refuge's CCP, which can be found here: http://www.fws.gov/mountain-prairie/refuges/refugesUpdate/completedPlanPDFs_A-E/crl_2002_ccpfinal_all.pdf.

3.2 Environmental Consequences of the Action

This section analyzes the environmental consequences of the action on each affected resource, covering direct and indirect effects. This EA has the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an “affected resource” or are otherwise considered important as related to the proposed action. Any resources that would not be more than negligibly affected by the action and have been identified as not otherwise important as related to the proposed action have been dismissed from further analyses.

Tables 1 through 5 provide:

- a brief description of the affected resources in the proposed action area;
- impacts of the proposed action and any alternatives on those resources, including direct and indirect effects.

Table 6 provides a brief description of the anticipated cumulative impacts of the proposed action and any alternatives.

Impact Types:

- *Direct effects* are those caused by the action and occur at the same time and place.
- *Indirect effects* are those caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.
- *Cumulative impacts* result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

Table 1. Affected Natural Resources and Anticipated Direct and Indirect Impacts of the Proposed Action and Any Alternatives.

<p>Affected Resources</p>	<p><u>Alternative A (Proposed Action)</u> <i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p><u>Alternative B (No Action)</u> <i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p>Hunted Wildlife</p>		
<p><i>Waterfowl</i> Thirty-two species of waterfowl use the refuge during some portion of the year, including 15 species that nest on the refuge. Historically, between 1,000 and 3,500 ducks are hatched per year from pair counts that average 650–700 pairs. Another 150–175 Canada goose goslings are hatched from an estimated 80–100 nesting pairs. Peak numbers during the fall migration occur in October and have averaged 15,115 per day, during the most recently sampled timeframe. Peak numbers during the spring migration occur in April and have averaged 12,600 over the same period.</p> <p><i>Deer</i> The refuge units are small, and deer move on and off the refuge throughout the year; peak numbers occur during winter and average about 150–200 mule deer and 150–200 white-tailed deer.</p>	<p><i>Estimated Hunter Numbers</i> Waterfowl hunters: 5–10 Big game hunters: 100–150 Dove hunters: 0 Coyote hunters: 5–10 Small game hunters: 0–10 Upland bird hunters: 30–80</p> <p><i>Estimated Harvest Numbers</i> Duck harvested: 0–100 Goose harvest: 0–5 Mourning dove harvest: 0 Rail harvest: 0 Deer harvest: 30–70 Pronghorn harvest: 0 Pheasant harvest: 30–70 Prairie grouse harvest: 10–20 Coyote harvest: 5–10 Furbearer, all species: 0–5 Small game, all species: 0–5</p>	<p><i>Estimated Hunter Numbers</i> Waterfowl hunters: 10–20 Big game hunters: 100–150 Dove hunters: 5–20 Coyote hunters: 5–10 Small game hunters: 0–10 Upland bird hunters: 30–80</p> <p><i>Estimated Harvest Numbers</i> Duck harvest: 100–300 Goose harvest: 5–30 Mourning dove harvest: 5–20 Rails harvest: 0–2 Deer harvest: 30–70 Pronghorn harvest: 0–2 Pheasant harvest: 30–70 Prairie grouse harvest: 10–20 Coyote harvest: 5–10 Furbearer, all species: 0–5 Small game, all species: 0–5</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p><i>Pronghorn</i> There are bands that spend time in five areas of the refuge. Population estimates are 20–50.</p> <p><i>Small Game</i> Mammals include raccoons, striped skunks, coyotes, red foxes, black-tailed prairie dogs, badgers, eastern fox squirrels, and eastern cottontails.</p> <p><i>Upland Birds</i> Ring-necked pheasants and mourning doves are common on the refuge in acceptable habitats. Sharp-tailed grouse range between 200–300 males on leks during spring surveys. Prairie chickens have reestablished on the eastern portion of the refuge with 30–60 males on booming grounds.</p>		

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p><i>Pronghorn</i> There are bands that spend time in five areas of the refuge. Population estimates are 20–50.</p> <p><i>Small Game</i> Mammals include raccoons, striped skunks, coyotes, red foxes, black-tailed prairie dogs, badgers, eastern fox squirrels, and eastern cottontails.</p> <p><i>Upland Birds</i> Ring-necked pheasants and mourning doves are common on the refuge in acceptable habitats. Sharp-tailed grouse range between 200–300 males on leks during spring surveys. Prairie chickens have reestablished on the eastern portion of the refuge with 30–60 males on booming grounds.</p>	<p>Under this alternative, hunting for deer species, pheasants, and prairie grouses would continue. This form of hunting has taken place on the refuge for nearly 40 years and has been found compatible with refuge purposes as well as other public use programs. Even though there would be limited mortality to individual hunted species under this alternative, it would such that the healthy population levels of these species would be supported and continue to thrive. Disturbance by hunters to hunted wildlife would also continue to occur, as would disturbance caused by other public use activities. This disturbance would be localized, temporary, and during limited times of the day. In these types of short disruptions, wildlife would quickly return to the area and resume normal activity.</p>	<p>Under this proposal, hunting for waterfowl, coyotes, furbearers, and rabbits would continue. Additional mortality specifically directed at these wildlife species has been documented. Casual hunter and law enforcement contacts have reported the annual harvest for these species as follows: waterfowl (ducks: 100–300, Canada geese: 0–30, and coots 0–5); furbearers (all species, 0–5); coyotes: 5–12; and rabbits (whitetail jackrabbits: 0–2, black-tailed jackrabbits: 0–2, and eastern cottontails: 0–2).</p> <p>Disturbance to wildlife associated specifically with these hunts is minimal; however, when combined with other hunting opportunities, the disturbance levels are even less apparent. Increased public use associated with this proposal has been minimal thus far. However, in the future, as more visitors become aware of the available hunting opportunities and access to private land becomes more difficult, more increases are anticipated.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p>Nonhunted Wildlife</p>		
<p><i>Birds</i> Nebraska has 413 species on its official bird list, 279 of which occur on the refuge.</p> <p><i>Shorebirds, Gulls, Terns, and Allied Species</i> Thirty-one shorebird species, 7 gull species, and 5 tern species occur on the refuge. Of these, 11 species nest on the refuge. The most abundant species in this group include the American avocet, lesser yellowlegs, northern phalarope, Baird’s sandpiper, and long-billed dowitcher.</p> <p><i>Marsh and Water Birds</i> A rail call survey was initiated in 1997 and yields only trend information. Virginia rail calls average 23 birds per survey, while sora rails averaged 5 from 1997 to 2011.</p> <p>Eared grebes, double-crested cormorants, great blue herons, black-crowned night herons, and white-faced ibises all have had breeding colonies on the refuge.</p> <p><i>Raptors</i> The open grasslands of the Sandhills, interspersed with small areas of trees, provide excellent habitat and food sources for raptors. Twenty-seven species have been recorded on the refuge.</p>	<p>Impacts to nonhunted wildlife species does occur as a result of the refuge’s historic hunting program. However, the closed area of the refuge does provide wildlife with a sanctuary where disturbances related to public uses are nonexistent. Hunter numbers are typically very low (1–10 individuals) on an average daily basis, resulting in very little overall disturbance across the refuge. Nonconsumptive public uses would likely result in a similar disturbance to wildlife.</p> <p>In addition, large portions of the refuge are limited either by access or refuge-specific regulation. For instance, the refuge has a 24,502-acre proposed wilderness area that is accessible to foot traffic only. Due to the size of this area and challenging sandy terrain, most of the public use, including hunting, takes place along the edges of the unit, leaving thousands of acres undisturbed.</p> <p>Hunter Interaction with small mammals, reptiles, and amphibians is typically low since many of these species are either nocturnal or tend to be less prevalent during cool or cold weather periods.</p>	<p>Disturbance to nonhunted wildlife species has virtually mimicked those impacts described in the No Action Alternative. The closed area and proposed wilderness area would continue to provide an adequate buffer for wildlife even during high public use periods (50–75 individuals) per day.</p> <p>Expanded hunting opportunities for coyotes and furbearers may contribute to decreased predation rates for snapping turtles, songbirds, and other migratory bird species and their nests.</p>

<p align="center">Affected Resources</p>	<p align="center"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p align="center"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p><i>Mammals</i></p> <p>The Sandhills provide habitat for a variety of mammals. Presettlement mammalian fauna included 59 species. Ten carnivores and ungulates were probably extirpated by 1900, including the bison, elk, and bighorn sheep. Ten mammals have been introduced or their natural ranges extended, including the black-tailed jackrabbit and raccoon.</p> <p><i>Amphibians and Reptiles</i></p> <p>The most common reptiles and amphibians are the box turtle, bullsnake, tiger salamander, and garter snake. The yellow mud turtle is considered a refuge species of special interest and is discussed under the endangered/threatened species portion of this document.</p> <p><i>Fishery Resources</i></p> <p>Fisheries have been cooperatively managed by NGPC under an agreement with the refuge since 1991. Island Lake has been open to sport fishing since 1931. Carp were recently eliminated in 2005, and the lake has been restocked with warm-water species, including the largemouth bass, bluegill, and yellow perch. Fishing opportunities are currently limited due to the recent restocking efforts; however, this is anticipated to change as fish mature and grow.</p>		

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p>Threatened and Endangered Species and Other Special Status Species</p>		
<p>Blowout penstemon is the only endangered endemic plant in Nebraska. The refuge has been inventoried for blowout penstemon since 1987. Numbers have declined since the inception of the survey, until transplanting began in 1997. Native plants have decreased to 329 plants from a high of 1,959 in 1987. Transplanting has gone well and resulted in another 1,699 plants through 2019. The total population for 2019 was 2,028 plants. Habitat has been found, and several subunits would be managed specifically for this endangered plant.</p> <p>The yellow mud turtle is a candidate species of special interest and would be treated as a listed species for planning purposes. The primary population estimated at 4,000–5,000, is located at Gimlet Lake, with a second unknown number at Goose Lake and a few historic records on Roundup and Hackberry Lakes. There is also a population off the refuge at Rush Lake. The turtles spend the winter in the hills primarily on south-facing hills. Males emerge in late April and move down to the lake. Females and young follow in May. During mid-to late June, females return to the hills to lay their eggs.</p>	<p>Impacts to threatened and endangered species are very minimal or have no effect, primarily because hunting activities and critical life cycle requirements of these species do not coincide.</p> <p>The yellow mud turtle (candidate species) is found only in refuge lakes that are located in closed portions of the refuge. This species emerges from refuge lakes in mid-May through late June and lays eggs in the soft sandhills directly next to the lakes. Adult turtles return to the lakes shortly after egg laying and remain there until the following spring.</p> <p>Hunters do have a reasonable opportunity of encountering blowout penstemon plants. However, most of the penstemon plants are found growing in sand blowouts, which typically do not harbor many, if any, hunted wildlife species. Since the habitat requirements of blowout penstemon do not coincide well with the habitat requirements of any of the refuge’s hunted wildlife, the probability of any impacts are minimal.</p> <p>Likely, the only disturbance caused by a hunter is possible trampling as a result of traversing through a blowout in search of game species in neighboring habitats. The plant would recover from minimal trampling, and the sufficient quantities and populations would ensure that limited trampling would have no impact on the population.</p>	<p>Hunter disturbance and impacts to threatened and endangered species as a result of implementing the expanded hunting opportunities have been very minimal and have not resulted in any other conflicts over and above those mentioned as part of the No Action Alternative. Hunting associated with this proposal occurs concurrently in the same portions of the refuge as other historical hunts.</p> <p>Prior to implementing these hunts in 2004, a Section 7 consultation was prepared and evaluated to determine any possible impact to threatened and endangered species. The final assessment of that document showed that the proposed hunts did not adversely affect these species.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p>Vegetation</p>		
<p>Habitat types found on the refuge are primarily broken down into the following categories:</p> <p><i>Subirrigated Meadows</i></p> <p>These sites are typically characterized by their close relationship to groundwater, where soil moisture can support deep-rooted, warm-season native grasses even during drought. They make up about 9 percent of the refuge and are dominated by tallgrass species such as switchgrass, Indiangrass, and sand bluestem.</p> <p><i>Sand and Choppy Sand Sites</i></p> <p>These sites have the gently undulating sandhills and characteristic dunes for which the Nebraska Sandhills are named. These sites comprise approximately 73 percent of the refuge.</p> <p>Predominate grasses within the sand sites have both cool-season species, such as needle-and-thread and western wheat grass, as well as warm-season species, such as prairie sandreed, sand bluestem, sand love grass, and sand dropseed. Common forb species include prairie sunflower, yucca, lead plant, and prairie rose.</p> <p>Choppy sand sites support a wide variety of vegetation but also contain many, relatively small, unvegetated areas commonly called blowouts. Blowouts are caused by wind erosion and vary with terrain.</p>	<p>Under this alternative, those portions of the refuge currently available for public hunting would remain open. Hunting opportunities for deer species, pheasants, and prairie grouse would still be available. Impacts to habitat directly attributed to hunting are minor in nature and are typically associated with trampling, which may cause damage to individual plants as hunters traverse across the refuge.</p> <p>However, plants quickly rebound from the trampling and populations are robust enough that the impacts are negligible. Our experience during the past several decades has shown that impacts to habitat caused by hunting are no greater than those caused as a result of implementing other nonconsumptive public use programs. Furthermore, because of the dispersed and temporary nature of hunters, there are no permanent impacts on habitat and wildlife.</p>	<p>Impacts to the habitat condition of the refuge have not changed since the implementation of expanded hunting opportunities on the refuge in 2004. Increases in the number of hunters using the refuge have been small and somewhat localized.</p> <p>However, these impacts are no different than one might expect from increases in other areas of our public use program.</p> <p>For example, a similar increase in the number of bird watchers would likely have the same impact to refuge habitats.</p> <p>More acreage was not opened to accommodate the added hunts, and hunters are still required to follow refuge-specific regulations regarding parking and the use of refuge roads.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p>The blowout penstemon, a federally listed endangered species, is endemic to the Sandhills and its characteristic habitat includes the blowouts and adjacent open sand areas.</p> <p>Predominate grasses include blue gramma, sand bluestem, sand dropseed, blowout grass, sand love grass, little bluestem, and Sandhills muhly. Forb species include yucca, sand cherry, prairie rose, and prairie sunflower.</p>		
<p>Geology and Soils</p>		
<p>Most soils are wind-laden sands that have not been held in place long by vegetation. They are light-colored and have little organic matter.</p> <p>Soils in basins, valleys, and wet meadows have thicker and darker surface layers and more organic matter than soils found in the hills. The main soil types are dune sand, Valentine sands, Valentine loamy sands, and Gannett loamy sands. Rainfall is quickly absorbed and causes little erosion; soil evaporation rates are low. Native grasses grow well under these conditions, but soil exposed by overgrazing or plowing is subject to wind erosion (Layton et al. 1956).</p>	<p>Impacts of each alternative on the physical environment of the refuge would be very similar. These effects have proven to be minimal and frequently result in less impact than some routine refuge management operations. Some disturbance to surface soils and vegetation does occur, but these effects are minimal.</p>	<p>Same as the Proposed Action Alternative.</p>

Affected Resources	<u>Alternative A (Proposed Action)</u> <i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i>	<u>Alternative B (No Action)</u> <i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i>
<p>During the Cretaceous era, a shallow sea covered the area of the Sandhills. When the sea receded, large valleys were formed, which today are covered with sand. The geological processes are not well understood because of that sand cover. The exact time is debated, but somewhere between 8,000 and 21,000 years ago, water deposited sand, which later began shifting as a result of climatic changes.</p> <p>This blowing sorted the alluvial deposits, fine material was carried out of the area, and coarse material was left behind, resulting in the uniform particle size typical of wind deposited dunes (An Atlas of the Sandhills 1989).</p>		
Water Resources		
<p>Annual precipitation, evaporation, and long-term wet and dry cycles naturally support most of the refuge's wetlands. However, with the Sandhills becoming more stabilized, there is an increased chance of these lakes filling over the long term and becoming meadows.</p> <p>The refuge also has water management capability for a chain of lakes and wetlands, with most located in the Moore Valley. Management of these areas is conducted using a series of earthen embankments and water control structures to benefit migrating waterfowl and shorebirds.</p>	<p>Impacts to natural hydrology and air and water quality have been unchanged since the implementation of expanded hunting opportunities in 2004. Due to the remote nature and low visitation of the refuge, impacts to the solitude and overall enjoyment of the refuge by all visitor groups is likely to remain unaffected.</p>	<p>Same as the Proposed Action Alternative.</p>

Affected Resources	<u>Alternative A (Proposed Action)</u> <i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i>	<u>Alternative B (No Action)</u> <i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i>
Wilderness		
<p><i>Proposed Wilderness Area</i></p> <p>The 24,502-acre proposed wilderness area, until accepted or rejected by Congress, must be managed as if it was wilderness; only “minimum tools can be used” (see Section IV and Appendix G).</p> <p>In 1972, 24,502 acres of the refuge were proposed for inclusion in the National Wilderness Preservation System.</p> <p>Two Research Natural Areas (RNAs) were established in 1955 by a Director’s Order and included on a national list of research areas (see Map 3). The Goose Lake RNA is 904 acres and the Hackberry RNA 172 acres. The purposes of the RNAs are: (1) to preserve examples of undisturbed ecosystems for comparison with those influenced by man; (2) to provide educational and research areas for scientists to study ecology, successional trends, and other aspects of the natural environment; and (3) to serve as gene pools and preserves for rare and endangered species of plants and animals.</p>	<p>Impacts associated with solitude are expected to be minimal given time and space zone management techniques used to avoid conflicts among user groups. The remote location and difficult access to large portions of the refuge also play a role in preserving the esthetic quality and solitude.</p> <p>These lands are to be managed under the Wilderness Act of 1964 “for the use and enjoyment of the American people in such manner as would leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness...” The Wilderness Act also states that areas should be managed and protected to provide “outstanding opportunities for solitude or a primitive and unconfined type of recreation ... and that each agency administering an area designated as wilderness shall be responsible for preserving the wilderness character of the area.” All hunting activities would be done without the aid of motorized vehicles to aid in the quality and integrity of the wilderness character.</p>	<p>Same as the Proposed Action Alternative.</p>

Key: RNA = Research Natural Areas

Table 2. Affected Visitor Use and Experience and Anticipated Direct and Indirect Impacts of the Proposed Action and Any Alternatives.

Affected Resources	<u>Alternative A (Proposed Action)</u>	<u>Alternative B (No Action)</u>
<p>Portions of the refuge have always been open for hunting, fishing, wildlife observation, and general nature-oriented activities. Public trapping can be authorized under Special Use Permits. The refuge is isolated (Oskosh, population 1,100, is the nearest town and 28 miles away) and accessible by few and relatively rough roads. This isolation limits the number of visitors but is an important and desirable quality for most who do come. Public use averages about 8,000 visitors per year.</p>	<p><i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p> <p>Most of the land in western Nebraska is privately owned, leaving very few remaining areas available for public hunting activities. The refuge is one of the largest public land holdings in western Nebraska and consequently attracts hunters from throughout Nebraska as well as from several adjoining states. This alternative satisfies some of the public’s demand for public hunting; however, it falls short in providing this opportunity to the broadest spectrum of the public.</p> <p>Hunting is enjoyed by a large portion of the neighboring public. This statement is supported by our public use documentation, which shows that 50 percent of the public use that takes place on the refuge evolves around hunting. In addition, CCP scoping meetings with the public and other interested entities showed a strong desire for more public hunting opportunities on the refuge.</p> <p>Hunting under this alternative provides the public with a quality wildlife-oriented experience. Hunters have also reported having an enjoyable experience where overcrowding is not an issue. Other public uses typically do not coincide with peak hunting periods, which occur in late October through early November when cold temperatures are the norm. Peak periods for fishing and wildlife observation typically occur during the spring and early summer months prior to the extreme summer heat. This separation in time seems to resolve most of the conflicts; however, at times, conflicts may still arise between user groups. The closed area of the refuge also helps provide limited nonconsumptive use opportunities by the public. Besides a separation in time, the closed area also provides a separation in space, further reducing conflicts between users.</p> <p>Even with limited hunting opportunities, the refuge would fail to maximize public use opportunities requested by the visiting public and other entities.</p>	<p><i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p> <p>Since implementing this alternative 3 years ago, the Service has observed only a small increase in the overall number of hunters using the refuge. One point of interest is that new clientele have been attracted to the refuge to participate specifically in these new hunts. As a result, a broader spectrum of the public has been exposed to the refuge and the Refuge System.</p> <p>Public response to these hunts has been very positive. Relations between neighboring cattle ranchers and the refuge have improved with the addition of coyote hunting. This proposal has also created opportunities for more youth participation on the refuge through waterfowl hunting by observing the state youth waterfowl season. This alternative appears to have satisfied most of the public demand for hunting at the refuge.</p> <p>Inevitably, unanticipated conflicts between public uses and user groups may occur. Our experience has shown that at current hunter levels, increased conflicts are highly improbable due to the mitigating circumstances described in the No Action Alternative.</p> <p>Future increases in the number of hunters attributed directly to this proposal are unlikely due to the remote nature and limited access of the refuge. However, should significant increases in hunter numbers or added conflicts between or within user groups occur, the refuge would evaluate solutions to resolve conflicts and support a high-quality public use program for all user groups.</p>

Key: CCP = Comprehensive Conservation Plan

Table 3. Affected Cultural Resources and Anticipated Direct and Indirect Impacts of the Proposed Action and Any Alternatives.

<p>Affected Resources</p>	<p><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p>Little formal archaeological work has been conducted within the Nebraska Sandhills. Collections by avocational archaeologists report the area has a long prehistoric record and that artifacts are widely distributed; however, because of the unique nature of the Sandhills, settlement and subsistence patterns are difficult to predict (Nickle and Burgett 1999). No systematic surveys have been conducted on the refuge, and there are no known Native American sites.</p> <p>Historic use of the Sandhills is better documented. Only a few fur trade and ranching operations existed prior to the federal Government’s decision to survey the region and make it available for homesteading in 1904. Nearly all early attempts at farming failed and homesteads were aggregated into efficient and successful ranching operations. There are no farm or ranch buildings remaining on the refuge, but old dump sites are still scattered across the area. Two refuge buildings and two fire towers built by the Civilian Conservation Corps and the Works Progress Administration in the 1930s are subject to conditions of federal laws protecting historic resources.</p> <p>A review of existing information about archaeological and other cultural resources was conducted in 1999 (Nickel and Burgett 1999).</p>	<p>There have been no known impacts to cultural resources as a result of hunting and fishing activities.</p> <p>Future impacts would also likely remain low or unchanged. Hunting by nature does not pose any threat to cultural resources or historic properties. Adjustments would be made to hunting and fishing programs as needed to preserve any future identified cultural resources.</p> <p>Because of the temporary and superficial use of refuge habitats during hunting activities, and because there would be no ground disturbance or changes to access, infrastructure, or other existing environmental conditions, there would be no direct impacts to cultural resources under this alternative from visitors engaged in hunting.</p>	<p>Same as the Proposed Action Alternative.</p>

Table 4. Affected Refuge Management and Operations and Anticipated Direct and Indirect Impacts of the Proposed Action and Any Alternatives.

<p>Affected Resources</p>	<p><u>Alternative A (Proposed Action)</u> <i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p><u>Alternative B (No Action)</u> <i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p>Land Use</p>		
<p>Existing refuge facilities include roads, parking lots, boat ramps, boat docks, and signs.</p> <p>Existing facilities are used by a host of visitor groups enjoying the refuge. It is difficult to assess any increased maintenance directly attributed to this proposal. Our experience has shown that maintenance of existing facilities (roads, parking areas, and boat ramps) has not increased due to the expansion of added hunting opportunities.</p>	<p>Impacts to refuge facilities under this alternative have been minor. Most of the public use roads and trails are graveled or sand and can, during extremely wet conditions, become damaged by normal travel. However, precipitation during the hunting season (September through January) is typically less than during other months, and refuge roads tend to freeze during the winter months, making them more resistant to damage.</p> <p>Other public use enthusiasts and refuge visitors are also permitted to utilize these same facilities, placing them at the same level of risk for detrimental impacts.</p> <p>Under this alternative, fishermen would provide the largest impact to boat launch facilities at Island Lake. Historically, fishing has accounted for the largest user group on the refuge; however, recent drought conditions accompanied by poor fishing and fisheries renovation work, have resulted in a significant reduction in the number of fishermen.</p>	<p>Past experience has shown that any added impacts to refuge facilities caused as a result of implementing this proposal would be very small. Many hunters use refuge roads and trails for access to hunt multiple species, resulting in no appreciable increase attributed directly to this proposal.</p> <p>The number of hunters using the boat launch site on Island Lake is significantly fewer than the number of fishermen using this facility. Most of the waterfowl hunting takes place along the shore of the lake by hunters who typically carry in their equipment without the aid of a boat. Impacts to this facility would be negligible.</p>

<p>Affected Resources</p>	<p><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p style="text-align: center;">Administration</p>		
<p>The refuge is currently managed as part of the Sandhills National Wildlife Refuge Complex. There are three full-time employees at the refuge, and this staff also administers North Platte NWR. There are currently no law enforcement officers on staff at Crescent Lake NWR or North Platte NWR.</p>	<p>Maintenance or improvement of existing facilities (such as parking areas, roads, and fences) would cause minimal short-term impacts to localized soils and vegetation and may cause some short-term wildlife disturbances. Maintenance of such facilities would be similar under either alternative. More money is needed to provide necessary law enforcement. Coordination with the State of Nebraska conservation officers is critical.</p>	<p>Additional use and damage to roads and parking areas due to hunter use would not occur; however, other users would still be using the refuge, thereby necessitating periodic facilities maintenance and continued law enforcement presence. Additionally, costs associated with a hunting program in the form of instructional sign needs and law enforcement would not be applicable.</p> <p>There are some costs associated with the program in the form of instructional sign needs and law enforcement. These costs are minimal relative to total refuge operations and maintenance costs and do not diminish resources dedicated to other management programs.</p>

Key: NWR = National Wildlife Refuge

Table 5. Affected Socioeconomics and Anticipated Direct and Indirect Impacts of the Proposed Action and Any Alternatives.

<p>Affected Resources</p>	<p><u>Alternative A (Proposed Action)</u> <i>The refuge would expand hunting opportunities for doves, snipes, and rails from 5,145 acres to 15,039 acres for ducks, geese, and coots; and would reopen hunting opportunities for pronghorn. Hunting dates would be changed to September 1 through March 15 to better align with state season dates.</i></p>	<p><u>Alternative B (No Action)</u> <i>Current refuge hunting opportunities and dates for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across the refuge.</i></p>
<p>Local and Regional Economies</p>		
<p>The refuge is located in Garden County on the eastern edge of the Nebraska Panhandle, an 11-county, 14,000-square-mile region with a population of about 90,000 people. Basic economic activities in Garden County include irrigated and dryland farming, cattle feeding, and ranching.</p> <p>According to the Nebraska Panhandle Economic Development Report, the population of Garden County decreased from 2,460 in 1990 to 2,224 in 1997, a decrease of about 10 percent (Panhandle Area Development District, undated, circa 1998). The population in 2018 was at 1,897, a decrease of more than 20 percent from 1997; similar trends are projected for much of the surrounding rural area. Only the major population centers, such as Scottsbluff/Gering (100 miles to the west), project growth of any significance.</p>	<p>The refuge would continue to work closely with private partners and neighbors to reduce impacts to adjacent lands resulting from refuge operations and public programs. As a result, no indirect or direct impacts have been noticed nor are anticipated. The Service expects that the new hunts would result in a net gain of public hunting opportunities, positively impacting the public, nearby residents, and refuge visitors. The refuge expects increased visitation and tourism to bring added revenues to the local community but not a significant increase in overall revenue in any area.</p>	<p>Same as the Proposed Action Alternative.</p>
<p>Environmental Justice</p>		
<p>Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities.</p>	<p>The service has not identified any potential high and adverse environmental or human health impacts from this proposed action or any of the alternatives. The Service has identified no minority or low-income communities within the impact area. Minority or low-income communities would not be disproportionately affected by any impacts from this proposed action or any of the alternatives.</p>	<p>Same as the Proposed Action Alternative.</p>

3.3 Cumulative Impact Analysis

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). The implementation of this alternative would have no significant cumulative impacts on the wildlife populations, either hunted or nonhunted species, the natural environment, cultural resources, social and economic resources, or recreational opportunities. This determination is based on an analysis of potential environmental impacts of hunting on the refuge together with other projects and actions.

Cumulative Impacts of Proposed Hunt on Wildlife Species

Migratory Birds (Ducks, Geese, Coots)

Under the proposed action alternative, the refuge estimates 100–300 ducks, 5 American coots, and 10-30 Canada geese would be harvested each year. This harvest represents an additive increase of 0.25 percent for ducks and 0.027 percent for Canada geese when averaged over the past 5-year harvest (2014–2018) of 119,673 ducks and 111,299 Canada geese for Nebraska (USFWS 2005). Cumulative impacts drop significantly when refuge harvest rates are evaluated at the central flyway level (0.043 percent for ducks and 0.005 percent for Canada geese) (Dubovsky 2019).

Coot harvests are not calculated at either the state or central flyway levels. However, using data collected for the local coot population at the refuge, population (1988–1997) and harvest data show an additive increase in the number of coots harvested at 0.07 percent. Professional biological opinions concur that the cumulative impacts to the coot population become even less apparent when viewed at the state or central flyway levels.

Estimated duck production rates for the refuge during a 53-year period (1947–2000) show that an average of 1,804 ducks are produced annually, with blue-winged teal and mallards having the highest annual production. Production estimates for Canada geese from 1997–2006 show that an average of 159 goslings are also produced annually.

Table 6 illustrates average refuge waterfowl production and the cumulative estimated increase in waterfowl harvested at the state and central flyway levels as a result of opening the refuge to waterfowl hunting. Table 7 illustrates the cumulative impacts of hunting dove and rail on the refuge.

Table 6. Cumulative Impact Data for Hunting Waterfowl on Crescent Lake National Wildlife Refuge.

Species	Estimated Annual Refuge Duck Production 1947–2000	*Expected Annual Range of Harvest	Nebraska Harvest 2014–2018 Average	Range in Percentage Increase in Nebraska Harvest	Central Flyway Harvest 2014–2018 Average	Range in Percentage Increase in Central Flyway Harvest
Mallard	373	57–170	68,000	0.084–0.251	9,701,159	0.008–0.024
Gadwall	215	97–215	18,535	0.084–0.251	495,283	0.002–0.006
Pintail	153	2–7	42,746	0.084–0.251	94,094	0.002–0.007
Green-Winged Teal	50	17–50	19,800	0.084–0.251	320,325	0.006–0.017
Blue-Winged Teal	532	24–73	29,138	0.084–0.251	280,687	0.006–0.019
Cinnamon Teal	0	0–2	**	0.084–0.251	**	**
American Wigeon	33	5–14	5,543	0.084–0.251	198,795	0.004–0.011
Northern Shoveler	149	2–6	2,343	0.084–0.251	110,260	0.002–0.005
Wood Duck	4	0–22	3,203	0.2–51.039	93,590	0.004–0.011
Redhead	129	4–5	1,518	0.084–0.251	64,880	0.001–0.003
Ring-Necked Duck	16	1–4	1,605	0–0.045	79,797	0.002–0.005
Canvasback	52	0–1	287	0.084–0.251	15,728	0.001–0.003
Lesser Scaup	32	0–2	183	0.084–0.251	66,080	0.000–0.001
Common Goldeneye	0	0–1	439	0.084–0.251	6,966	0.005–0.016
Bufflehead	60	0–2	**	0	**	**

Species	Estimated Annual Refuge Duck Production 1947–2000	*Expected Annual Range of Harvest	Nebraska Harvest 2014–2018 Average	Range in Percentage Increase in Nebraska Harvest	Central Flyway Harvest 2014–2018 Average	Range in Percentage Increase in Central Flyway Harvest
Ruddy Duck	220	0–1	184	0–0.2513	3,641	**
Canada Goose	159	0–30	111,300	0–0.250	649,403	0.000–0.008
Snow, Ross Geese		0–1	3,591	0	196,167	0
White Front Geese		0–1	598	0	48,857	0
American Coot (Refuge***)	**	9–5	6,789***	0	**	**

*Minimum/Maximum Average Annual Duck Harvest = 100/300; Minimum/Maximum Average Annual Goose Harvest = 10/30

**Data is unavailable

***Refuge data only

Table 7. Cumulative Impact Data for Hunting Dove and Rail on Crescent Lake National Wildlife Refuge.

Species	Average Annual Statewide Harvest	Expected Annual Refuge Harvest	Percentage Increase in Statewide Harvest
Dove	150,162	<	0.033
Rail	No data	<2	0.004

Source: Dove 2017–18 Nebraska Game and Parks Data

The Service annually prescribes 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 gamebirds; 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 gamebirds are closed unless specifically opened by the Secretary of the Interior, the Service annually promulgates regulations (50 CFR 20) establishing the frameworks from which states may select season dates, bag limits, shooting hours, and other choices for each migratory bird-hunting season. The frameworks are essentially permissive in that the 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 gamebirds are those bird species designated in conventions between the U.S. and several foreign nations for protection and management. Under the Migratory Bird Treaty Act (16 U.S. Code 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 gamebirds 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. Code 704(a)). This responsibility has been delegated to the 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 gamebirds. 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. The refuge is within the central flyway.

The process for adopting migratory gamebird hunting regulations, located in 50 CFR 20, is constrained by three primary factors. Legal and administrative considerations dictate how long the rulemaking process would last. Most importantly, however, the biological cycle of migratory gamebirds 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 gamebird hunting regulations has two separate regulations-development schedules, based on “early” and “late” hunting season regulations. Early hunting seasons pertain to all migratory gamebird species in Alaska, Hawaii, Puerto Rico, and the Virgin Islands; migratory gamebirds other than waterfowl (such as doves and woodcocks); 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).

Because the Service is required to take an abundance of migratory birds and other factors into 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 gamebird hunting, migratory gamebird management becomes a cooperative effort of the 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 refuges open to hunting are never longer or larger than the state regulations. In fact, based upon the findings of an EA developed when a refuge opens a new hunting activity, season dates and bag limits may be more restrictive than the state allows. Table 8 illustrates the cumulative impacts of hunting furbearers and small game on the refuge and Table 9 illustrates the cumulative impacts of hunting pronghorn on the refuge. Table 10 is more summative and discusses the cumulative impacts of the proposed action and any alternatives.

NEPA considerations by the Service for hunted migratory gamebird 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. The Service published a Notice of Availability in the Federal Register on June 16, 1988 (53 Federal Register 22582), and our Record of Decision on August 18, 1988 (53 Federal Register 31341). Annual NEPA considerations for waterfowl-hunting frameworks are covered under a separate EA, "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 Federal Register 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 Federal Register 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.

Table 8. Cumulative Impact Data for Hunting Furbearers and Small Game on the Crescent Lake National Wildlife Refuge.

Species	Average Annual Statewide Harvest	Expected Annual Refuge Harvest	Percentage Increase in Statewide Harvest
Mink	813	<2	0.3
Opossum	25,386	<1	0.004
Cottontail	14,915	<5	0.03
Jackrabbit	365	<1	0.3
Red Fox	3,391	<1	0.029
Badger	3,741	<1	0.027
Skunk	12,361	<1	0.008
Coyote	46,311	<2	0.004
Raccoon	108,744	<2	0.002

Source: Furbearer 2017–18 Nebraska Game and Parks Data.; Pheasant 2018–19 Nebraska Game and Parks Data.

Table 9. Cumulative Impact Data for Hunting Pronghorn on the Crescent Lake National Wildlife Refuge.

Species	2018 Garden County, Nebraska Harvest	Expected Annual Refuge Harvest	Percentage Increase in Statewide Harvest
Pronghorn	86	<2	2.3

Source: Hunter Baillie, Nebraska Game and Parks Commission, 2019

Table 10. Anticipated Cumulative Impacts of the Proposed Action and Any Alternatives.

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
Hunting and Fishing	<p>Migratory bird populations throughout the country are managed through an administrative process known as flyways. The refuge is located in the central flyway. In North America, the process for establishing hunting regulations is conducted annually. In the United States, the process involves a number of scheduled meetings (Flyway Study Committees, Flyway Councils, Service Regulations Committee) where information on the status of migratory bird populations and their habitats is shared with individuals of agencies responsible for setting hunting regulations. In addition, public hearings are held, and the proposed regulations are published in the Federal Register to allow public comment.</p> <p>Annual waterfowl assessments are based upon the distribution, abundance, and flight corridors of migratory birds. An Annual Waterfowl Population Status Report is produced each year and has the most current breeding population and production information available for waterfowl in North America (USFWS 2018b). The report is a cooperative effort by the Service, the Canadian Wildlife Service, various state and provincial conservation agencies, and private conservation organizations. An Annual Adaptive Harvest Management Report provides the most current data, analyses, and decision-making protocols (USFWS 2017a).</p> <p>These reports are intended to aid the development of waterfowl harvest regulations in the United States for each hunting season. Coot, moorhen, and rail species are also counted and analyzed.</p> <p>Each state selects season dates, bag limits, shooting hours, and other options using guidance in these reports. The refuge follows the regulations set by the State of Nebraska.</p> <p>The Service believes that hunting on the refuge would not add significantly to the cumulative impacts of migratory bird management on local, regional, or central flyway populations because the percentage likely to be taken on the refuge, though possibly additive to existing hunting takes, would be a very small fraction of the estimated populations.</p> <p>In addition, overall populations would continue to be observed and future harvests would be adjusted as needed under the existing flyway and state regulatory processes. Several points support this conclusion:</p> <ul style="list-style-type: none"> • The proportion of the national waterfowl harvest that occurs on refuges is only 6 percent (USFWS 2013c). • There are no populations that exist wholly and exclusively on refuges.

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
	<ul style="list-style-type: none"> • Annual hunting regulations within the United States are established at levels consistent with the current population status. • Refuges cannot permit more liberal seasons than provided for in federal frameworks. • Refuges purchased with money derived from the Federal Duck Stamp must limit hunting to 40 percent of the available area. <p>As a result, changes or additions to hunting on the refuge would have minor effects on wildlife species in Nebraska. Although the Proposed Action Alternative would increase hunting opportunities compared to the No Action Alternative, the slight increase in hunter activity would not rise to a significant level.</p>
Use of Lead for Hunting and Fishing	
<p>Lead ammunition is permitted for big game and furbearers. It is prohibited for migratory birds, upland birds, and all shotgun hunting.</p> <p>Research has shown that lead can be present in gut piles left by deer hunters after field dressing. Bald eagles and other raptors feed on the gut piles and may ingest the lead, leading to poisoning.</p>	<p>Under these alternatives, the refuge represents a small portion of hunting that would allow the use of lead ammunition (deer and furbearers). The continued allowance of toxic shot for the hunting of some species is estimated to have a negligible impact on the cumulative impacts of lead in the environment. The Service’s hunt program can be adjusted to ensure that it does not contribute further to the cumulative impacts of lead on refuge habitats or wildlife.</p>
Climate Change	
<p>Based on the National Oceanic and Atmospheric Administration’s summary of potential climate change effects in Nebraska (https://statesummaries.ncics.org/chapter/ne/), since the beginning of the 20th century, temperatures in Nebraska have risen approximately 1 degrees Fahrenheit. Temperatures in the 2000s have been warmer than the long-term average and comparable to the previous record warmest period of the early 1930s Dust Bowl era, when drought and poor land management likely exacerbated the hot summer temperatures. The recent warming has been concentrated in the winter and spring, while summers have not warmed substantially in the state, a characteristic of much of the Great Plains and Midwest. This is reflected in a below average occurrence of extremely hot days and no overall trend in the number of warm nights since the 1960s. The winter warming trend is reflected in a below average number of very cold nights since 1990.</p>	<p>The Service adjusts management based on changing environmental conditions. Hunt programs and mitigation measures would adapt with changing conditions to continue to conserve natural resources and balance compatible recreational uses.</p>

3.4 Monitoring

Inventory and the observing of wildlife and their habitats would be done on the refuge in conjunction with our state and federal partners. Refuge staff would work in close cooperation with NGPC in sharing, evaluating, and discussing available population and harvest data, making recommendations for regulation changes and any other actions necessary to ensure that viable populations of resident and migratory wildlife are supported. In addition, the refuge would stay knowledgeable on the status of threatened and endangered species through consultation and local studying.

3.5 Summary of Analysis

The purpose of this EA is to briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact.

Alternative A – Proposed Action Alternative

The 2020 hunting and fishing plan, besides current authorized hunting and fishing opportunities, opens new hunting opportunities for doves, snipes, rails, and crows. The plan expands hunting opportunities from the current 5,145 acres to 15,039 acres for ducks, geese, and coots. The Service also proposes to reopen hunting opportunities for pronghorn. The hunting and fishing plan proposes to establish hunting dates of September 1 through March 15 to better align with state seasons dates. Coyote hunting would be allowed through March 15, and archery pronghorn would open September 1.

As described above, more opportunities are likely to draw a slightly higher number of hunters to the refuge. This increase could potentially lead to conflicts with other refuge visitors. If conflicts develop after the plan is implemented, the impact would be mitigated. Impacts associated with solitude are expected to be minimal, given time and space zone management techniques used to avoid conflicts among user groups. The remote location and difficult access to large portions of the refuge also play a role in preserving the aesthetic quality and solitude. Waterfowl hunting would only be expanded to approximately 33 percent of the refuge, leaving other areas relatively undisturbed so as to meet the refuge objective of providing resting and feeding areas for migratory birds. The closed area of the refuge would remain closed to all public use with the exception of the HQ nature trail. Nontoxic shot would be required for hunting when shotguns are used. Vehicle access would be limited to public use roads, and no other public use roads would need to be established to accommodate this hunting and fishing plan.

There is not likely to be an adverse effect on endangered or threatened species, and the effects on wildlife and habitat would be negligible.

This alternative helps to meet the purpose and needs of the Service as described above because it provides more wildlife-dependent recreation opportunities on the refuge, meeting the Service's priorities and mandates. This alternative also helps to further align Service regulations with state regulations and provides more public land that is accessible for hunting by the American public. The Service has determined that the proposed action is compatible with the purposes of the refuge and the mission of the Refuge System.

Alternative B – No Action Alternative

Under the No Action Alternative, the refuge would continue hunting and fishing opportunities for small game, big game, furbearers, and waterfowl on refuge lands as described in the 2007 hunting plan. New hunting and fishing opportunities identified in the 2020 hunting plan would remain closed. All other existing public uses would remain unchanged.

Under this alternative, current refuge hunting opportunities for specific small game, big game, furbearers, and migratory bird species would continue and remain the same across those portions of the refuge. The refuge would continue to serve as a habitat for fish and wildlife as well as provide outdoor recreational opportunities for all six priority wildlife dependent public uses: hunting, fishing, wildlife observation, photography, environmental education, and interpretation.

Opportunities to create more outdoor recreation experiences by adding more species would be lost. In addition, the refuge’s ability to connect with certain segments of the public would potentially be diminished since hunting for some popular game species would not be permitted. Hunters would pursue these species off-refuge and thus the refuge’s ability to reach those members of the public and promote natural resources conservation, environmental education, and natural resources stewardship may be more limited.

This alternative also meets the purpose and needs of the Service as described above because it would provide wildlife-dependent recreation opportunities. However, it does not allow for the Service’s implementation of S.O. 3347, Conservation Stewardship and Outdoor Recreation, and S.O. 3356 Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories, by expanding hunting opportunities and aligning Service regulations with state regulations.

3.6 List of Sources, Agencies, and Persons Consulted

The following agencies and organizations were consulted during the development of this EA:

- Nebraska Game and Parks Commission
- USFWS Staff: Sandhills National Wildlife Refuge Complex Staff

3.7 List of Preparers

Name	Position	Work Unit
Brian DeVries	Refuge Manager	Crescent Lake NWR
Marlin French	Wildlife Biologist	Crescent Lake NWR

3.8 State Coordination

The NGPC – Wildlife, Fisheries, and Law Enforcement Divisions was consulted in accordance with this draft EA.

National wildlife refuges, including Crescent Lake NWR, conduct hunting programs within the framework of state and federal regulations. The refuge has developed this EA and hunting plan

based upon earlier formal coordination with the commission and intervening informal discussions.

The results of this coordination are reflected in this draft EA and hunting and fishing plan. The refuge will continue to consult and coordinate with NGPC annually to support regulations and programs that are consistent with the state, as well as to monitor populations of game species and set harvest goals. The refuge will strive to support consistent regulations with NGPC whenever applicable.

On July 10, 2018, NGPC leadership provided suggestions for expanded hunting opportunities on Service lands in Nebraska. Their input was consistent with S.O. 3356, Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories. The refuge reviewed the operations and regulations for neighboring state wildlife management areas, public lands administered by other agencies (such as the U.S. Forest Service), and other national wildlife refuges in Nebraska to find consistency where possible. More conversations have occurred with local NGPC biologists in development of this draft EA and hunting and fishing plan. The Service will be sending a letter to the state summarizing efforts to increase hunting opportunity and align with state hunting regulations. We, the Service, will continue to consult and coordinate on specific aspects of the hunting and fishing plan to ensure safe and enjoyable recreational hunting opportunities. In the near future, we will send a letter and the draft EA to the state asking to coordinate with them to adjust the hunting and fishing plan to align, where possible, with state management goals.

3.9 Tribal Consultation

The Service mailed an invitation for comments to all tribes potentially affected by initiating an EA to open the refuge to new hunting opportunities. The Service extended an invitation to engage in government-to-government consultation in accordance with Executive Order 13175.

3.10 Public Outreach

Public input was sought regarding hunting and fishing opportunities on the refuge as a recreational opportunity several times as part of public outreach and open comment period during the planning stages for the 2007 hunting plan and the 2002 CCP. Public meetings will be held in the area during the public review period for this EA. During a 30-day public comment period, the Service will accept comments in writing, in person, electronically, or in any other form the public wishes to present comments or information. Upon close of the comment period, all comments and information will be reviewed and considered. The final EA will address the comments submitted.

3.11 Determination

This section will be filled out upon completion of any public comment period and at the time of finalization of the Environmental Assessment.

- The Service’s action will not result in a significant impact on the quality of the human environment. See the attached “**Finding of No Significant Impact.**”
- The Service’s action **may significantly affect** the quality of the human environment and the Service will prepare an Environmental Impact Statement.

Preparer Signature: _____ Date: _____

Name/Title/Organization: _____

Reviewer Signature: _____ Date: _____

Name/Title: _____

3.12 References

Burgett, G., Nickel, R. 1999. Archeological Overview and Assessment for Crescent Lake National Wildlife Refuge, Nebraska. 30-32 p.

Dubovsky, J. A. 2019. Central flyway harvest and population survey data book 2019. Lakewood CO: U.S. Fish and Wildlife Service. 97 p.

[NGPC] Nebraska Game and Parks Commission. 2007. Unpublished furbearer and small game harvest data. Lincoln, Nebraska: Nebraska Game and Parks Commission.

———. 2018–2019. Hunter Success Survey Federal Aid in Wildlife Restoration Project W-15-R-75. 32 p.

U.S. Census Bureau. 2000. Demographic Profile for Garden County, Nebraska.
<www.census.gov/quickfacts/fact/dashboard/gardencountynebraska/PST045218>.

[USFWS] U.S. Fish and Wildlife Service. 1986. Sandhills Wetlands – A Special Investigation. Unpublished document. 20 p.

———. 2002. Crescent Lake National Wildlife Refuge Comprehensive Conservation Plan. 21–28 p.

———. 2003. Crescent Lake National Wildlife Refuge Hunt Plan.

———. 2006. Central Flyway Harvest and Population Survey Data Book.

Wilson, Sam; Nawrocki, Julia. 2018. Fur Harvest Survey 2017–2018 Season. Nebraska Game and Parks Commission. 2 p.

APPENDIX A OTHER APPLICABLE STATUTES, EXECUTIVE ORDERS, AND REGULATIONS

Statutes, Executive Orders, and Regulations
Cultural Resources
<p>American Indian Religious Freedom Act, as amended, 42 U.S. Code 1996–1996a; 43 CFR 7</p> <p>Antiquities Act of 1906, 16 U.S. Code 431–433; 43 CFR 3</p> <p>Archaeological Resources Protection Act of 1979, 16 U.S. Code 470aa–470mm; 18 CFR 1312; 32 CFR 229; 36 CFR 296; 43 CFR 7</p> <p>National Historic Preservation Act of 1966, as amended, 16 U.S. Code 470–470x-6; 36 CFR 60, 63, 78, 79, 800, 801, and 810</p> <p>Paleontological Resources Protection Act, 16 U.S. Code 470aaa–470aaa-11</p> <p>Native American Graves Protection and Repatriation Act, 25 U.S. Code 3001–3013; 43 CFR 10</p> <p>Executive Order 11593 – Protection and Enhancement of the Cultural Environment, 36 Federal Register 8921 (1971)</p> <p>Executive Order 13007 – Indian Sacred Sites, 61 Federal Register 26771 (1996)</p>
Fish and Wildlife
<p>Bald and Golden Eagle Protection Act, as amended, 16 U.S. Code 668–668c, 50 CFR 22</p> <p>Endangered Species Act of 1973, as amended, 16 U.S. Code 1531–1544; 36 CFR 13; 50 CFR 10, 17, 23, 81, 217, 222, 225, 402, and 450</p> <p>Fish and Wildlife Act of 1956, 16 U.S. Code 742 a–m</p> <p>Lacey Act, as amended, 16 U.S. Code 3371 et seq.; 15 CFR 10, 11, 12, 14, 300, and 904</p> <p>Migratory Bird Treaty Act, as amended, 16 U.S. Code 703–712; 50 CFR 10, 12, 20, and 21</p> <p>Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Federal Register 3853 (2001)</p>
Natural Resources
<p>Clean Air Act, as amended, 42 U.S. Code 7401–7671q; 40 CFR 23, 50, 51, 52, 58, 60, 61, 82, and 93; 48 CFR 23</p> <p>Wilderness Act, 16 U.S. Code 1131 et seq.</p> <p>Wild and Scenic Rivers Act, 16 U.S. Code 1271 et seq.</p> <p>Executive Order 13112 – Invasive Species, 64 Federal Register 6183 (1999)</p>
Water Resources
<p>Coastal Zone Management Act of 1972, 16 U.S. Code 1451 et seq.; 15 CFR 923, 930, and 933</p> <p>Federal Water Pollution Control Act of 1972 (commonly referred to as Clean Water Act), 33 U.S. Code 1251 et seq.; 33 CFR 320–330; 40 CFR 110, 112, 116, 117, 230–232, 323, and 328</p> <p>Rivers and Harbors Act of 1899, as amended, 33 U.S. Code 401 et seq.; 33 CFR 114, 115, 116, 321, 322, and 333</p> <p>Safe Drinking Water Act of 1974, 42 U.S. Code 300f et seq.; 40 CFR 141–148</p> <p>Executive Order 11988 – Floodplain Management, 42 Federal Register 26951 (1977)</p> <p>Executive Order 11990 – Protection of Wetlands, 42 Federal Register 26961 (1977)</p>

Key: CFR = Code of Federal Regulations, U.S.C. = U.S. Code