

Final Environmental Assessment

for Recreational Hunting on Lacreek National Wildlife Refuge

July 2020

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This environmental assessment (EA) evaluates the effects associated with this preferred action and complies with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] 1500–1508) 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. Other applicable statutes, executive orders, and regulation compliance are addressed in Appendix A.

1.0 Introduction

1.1 Proposed Action

The Service is proposing to open hunting opportunities for cottontail rabbit, prairie chicken, mountain lion, coyote, red fox, and bobcat on approximately 12,800 acres. In addition, it is proposed to expand hunting opportunities of migratory game birds, upland game birds, and big game on approximately 2,800 acres on Lacreek National Wildlife Refuge (NWR) in accordance with the refuge’s migratory game bird, upland game, predator, and big game hunting plan.

This proposed action is often iterative and evolves over time during the process as the agency refines its proposal and learns more from the public, tribes, and other agencies. Therefore, the final proposal action may be different from the original. The final decision on the preferred action will be made at the conclusion of the public comment period for the EA and the Draft 2020-2021 Refuge Specific Hunting and Sport Fishing Regulations. The Service cannot open a refuge to hunting or fishing, or both, until a final rule has been published in the Federal Register formally opening the refuge to hunting or fishing, or both. Refuge-specific regulations also would apply to all alternatives. These regulations are identified in Title 50 of the CFR and in the refuge hunting plan associated with this document. Refuge-specific topics include but are not limited to: (1) type of weapons and ammunition allowed, (2) possession of alcohol, (3) hours of use, and (4) parking restrictions.

1.2 Background

The refuge is in Bennett County in south-central South Dakota. The refuge was established in 1935 by President Franklin D. Roosevelt through Executive Order No. 7160 “. . . as a refuge and breeding ground for migratory birds and other wildlife.” The refuge lies in the Lake Creek Valley on the northern edge of the Nebraska Sandhills and covers 16,576 acres of native Sandhills, sub-irrigated meadows, impounded freshwater marshes, and tall and mixed grass prairie uplands.

The refuge has been open to mule deer and white-tailed deer, sharp-tailed grouse and ring-necked pheasants for nearly 40 years. Waterfowl hunting, upland bird hunting, and big game hunting has been allowed on the Little White River Recreation Area (LWRRRA) (222 acres) for more than 75 years. Hunting is now authorized and ongoing on approximately 8,700 acres, while nearly 9,000 acres are closed.

The mission of the National Wildlife Refuge System (Refuge System), as outlined by the National Wildlife Refuge System Administration Act of 1966 (NWRSA), as amended by the National Wildlife Refuge System Improvement Act of 1997 (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 NWRSA mandates the Secretary of the Interior in administering the Refuge 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 maintained 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; and
- 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 need of the proposed action is to meet the Service’s priorities and mandates as outlined by the NWRSA 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]). In addition, the approved refuge comprehensive conservation plan (CCP) outlines hunting objectives including expanding waterfowl hunting, opening of added species such as cottontail rabbit and coyote, and expanding species such as mourning dove and turkey where compatible. During the public comment process, while

developing the CCP, many requests were made to expand hunting opportunities for waterfowl and add new huntable acres within the Sandhills habitats of the refuge.

2.0 Alternatives Considered

Alternative A – Expand Hunting Opportunities on Lacreek National Wildlife Refuge – Proposed Action Alternative

Hunting is now authorized and ongoing on approximately 8,900 acres, while nearly 7,600 acres are closed. The proposed action would increase the total acreage open to hunting on the refuge to approximately 11,700 acres. Approximately 220 acres are now open to waterfowl hunting and the proposed action would increase the total for waterfowl hunting to nearly 5,100 acres. Now, 12 species can be hunted on the refuge and the proposed action would increase the total to 18 species. If the species are italicized, they are a newly proposed species for hunting in 2020.

- Migratory Game Bird Hunting: Open to duck, light geese, dark geese, mourning dove, Wilson’s snipe, Sandhill crane, American crow, and coot.
- Upland Game Hunting: Open to pheasant, sharp-tailed grouse, *prairie chicken*, and *cottontail rabbit*.
- Predator Hunting: Open to *coyote*, *red fox*, *bobcat*, and *mountain lion*.
- Big Game Hunting: Open to white-tailed deer and mule deer.

A description of management units provides more information about what habitats exist on the refuge that may inform what species may be present for hunting. These areas support waterfowl, deer, rabbits, and other game species.

As described in the 2020 hunting plan, besides current authorized hunting opportunities, the proposed alternative would allow expanded hunting of duck, light geese, dark geese, sandhill crane, mourning dove, American crow, Wilson’s snipe, coot, pheasant, sharp-tailed grouse, mule and white tailed deer to new acres. It would also allow cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion to be hunted.

The refuge has prepared a hunting plan, which is presented in this document as the Proposed Action Alternative.

Approximately 220 acres are now open to migratory bird hunting and this proposed action would open approximately 5,100 new acres to migratory bird hunting. Now, 8,900 acres are open to pheasant, sharp-tailed grouse, and deer, this proposal would open 2,800 more acres for hunting these species. In addition, this proposal would open hunting to six new species: cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion. The following is a list of proposed changes to the refuge hunting program. Species italicized are newly proposed species.

Areas to Be Opened

- Open the hunting unit in the South Sandhills including the Elm Creek portion, which would be about 1,600 acres south of Cedar Creek Road and East of the Trout Ponds.
- Open the hunting unit in the West Sandhills including the new Marty Quarter acquisition, which would be about 1,200 acres.

Species to be Taken – Predators

- *Coyote* to be hunted throughout the LWRRA, South Sandhills, West Sandhills, and the Brown Ranch Hunting Units from January 1 through February 15, dawn to dusk daily (5,600 acres).
- *Bobcat* to be hunted throughout the LWRRA, South Sandhills, West Sandhills, and the Brown Ranch Hunting Units from January 1 through February 15, dawn to dusk daily (5,600 acres).
- *Red Fox* to be hunted throughout the LWRRA, South Sandhills, West Sandhills, and the Brown Ranch Hunting Units from January 1 through February 15, dawn to dusk daily (5,600 acres).
- *Mountain Lion* to be hunted throughout the LWRRA, South Sandhills, West Sandhills, and the Brown Ranch Hunting Units from January 1 through February 15, dawn to dusk daily (5,600 acres).

Species to Be Taken – Migratory Game Birds

- Mourning Dove to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.
- American Crow to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state fall season only and regulations. The state identified spring season would be closed. Added 5,000 acres.
- Duck to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.
- Wilson’s Snipe to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.
- Sandhill Crane to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.
- Dark Geese to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.
- Light Geese to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with the state-defined fall season and regulations. Added 5,000 acres.
- Coot to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.

Species to Be Taken – Upland Game

- Pheasant to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations. Added 2,800 acres.
- Sharp-tailed Grouse to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations. Added 2,800 acres.
- *Prairie Chicken* to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations. Added 11,700 acres.
- *Cottontail Rabbit* to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations. Added 11,700 acres.

Species to Be Taken – Big Game

- White-tailed deer and mule deer to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations (archery and muzzleloader). Added 2,800 acres.
- White-tailed deer and mule deer to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations (Youth/Apprentice Hunter season with centerfire rifles). Added 2,800 acres.

These refuge-specific regulations were published in the Federal Register as part of the 2020–2021 refuge hunting regulations.

50 CFR 32.60 South Dakota

(b) LaCreek National Wildlife Refuge—

(1) Migratory game bird hunting. We allow the hunting of goose, duck, coot, common snipe, sandhill crane, crow, and mourning dove on designated areas of the refuge subject to the following conditions:

(i) Hunters may enter the refuge 2 hours before legal sunrise and remain no longer than 2 hours after legal sunset. We allow access from refuge parking areas, adjacent public lands, and adjacent private lands enrolled in public access programs.

(ii) We allow the use of motorized boats for hunting and game retrieval on the Little White River Recreation Area. We allow the use of manual powered boats for hunting and game retrieval on all waters within open hunt areas and the use of boats with electric motors on Pool 10.

(iii) We allow the use of dogs.

(iv) We prohibit shooting from or over refuge roads and parking areas.

(v) We prohibit hunting light geese during the spring conservation order.

(vi) We prohibit hunting crows with rifles and hunting during the spring season.

(2) *Upland game hunting. We allow the hunting of bobcat, coyote, fox, cottontail rabbit, mountain lion, prairie chicken, ring-necked pheasant, and sharp-tailed grouse on designated areas of the refuge subject to the following conditions:*

(i) The conditions set forth at paragraphs (b)(1)(i) through (iv) of this section apply.

(ii) We allow access for bobcat, coyote, fox, and mountain lion hunting January 1 through February 15. They can be taken from ½ hour before legal sunrise to ½ hour after legal sunset.

(iii) We prohibit the use of dogs when hunting bobcat, coyote, fox, and mountain lion.

(iv) Coyotes and all furbearers or their parts, if left in the field, must be left at least 50 yards away from any road, trail, or building. Otherwise, hunters must remove them from the refuge.

(3) *Big game hunting. We allow hunting of white-tailed and mule deer on designated areas of the refuge subject to the following conditions:*

(i) The conditions set forth at paragraphs (b)(1)(i) through (iv) of this section apply.

(ii) Hunters may leave portable tree stands and free-standing elevated platforms on the refuge from August 25 through February 15. Hunters must remove all other personal property by the end of each day's hunt (see Section 27.93 of this chapter).

(iii) We close the refuge to archery hunting during refuge firearm seasons.

Mitigation Measures to Avoid Conflicts

The refuge manager may establish specific regulations for individual species or parts of the refuge depending on conflicts with other wildlife dependent recreation priorities. Permanent or periodic hunting closures for specific species or closures of parts of the refuge may be necessary if the refuge manager decides that there is specific habitat, wildlife protection, or public safety rule. The need to carry out mitigation measures would be evaluated annually. There is now no perceived conflict or need for mitigation measures. All hunting would be conducted in accordance with all applicable state, refuge and federal regulations. Coordination with the public and refuge stakeholders including the South Dakota Game, Fish, and Parks (SD GFP) will promote continuity and understanding of refuge and Service resource goals and objectives and would help assure that the decision-making process considers all interests.

Biological Conflicts

The refuge reduces conflict related to biological resources by adopting a “wildlife first” principle explicitly stated in the Improvement Act. Staff monitor species population trends to make sure that target species can be hunted on the refuge without adversely affecting the species. These monitoring activities include direct observation of populations, consultation with state and Service species specialists, and review of current species survey information and research.

The refuge limits or excludes hunting activities where the potential for biological concerns exist. Pools 3, 4, 5, 6, 7, 8 are closed to hunting, specifically providing a sanctuary for migratory birds in an area otherwise hunted heavily for migratory birds. Likewise, the Trout Ponds area and the Pool 10 water control structure area are also closed to all hunting. These closures afford protection for migratory birds and wintering or nesting bald eagles. Both areas currently have

active bald eagle nests that should not be disturbed by hunting pressure. Although not proposed in this current plan, the refuge, in the future, could limit or exclude hunting activities on additional portions of the refuge to avoid conflicts related to biological resources, such as threatened or endangered species. Special hunts could also be used to manage hunting pressure, provide increased opportunities, and manage overall take at appropriate levels.

The refuge follows recovery plan guidelines for the management of the following federally threatened and endangered species. Five threatened or endangered species may be found within refuge boundaries and no critical habitats.

- Northern long-eared bat (*Myotis septentrionalis*): The range of the threatened northern long-eared bat is found across much of the eastern and north central U.S. and all Canadian provinces from the Atlantic coast to the southern Northwest Territories and eastern British Columbia (USFWS 2017c). Three species of bats have been documented on the refuge through acoustic surveys, but no northern long-eared bats were identified (Lacreek NWR survey files 2011).
- Red knot (*Calidris canutus rufa*): The range of the threatened red knot is found primarily in the eastern and central U.S. Red knot can be found primarily in eastern South Dakota but is an accidental migrant on the refuge (Tallman 2002).
- Whooping crane (*Grus americana*): The endangered whooping crane occur only in North America. They now exist in the wild at three locations and in captivity at 12 sites. The range of the whooping crane is primary in the central U.S., but also the Great Lakes and Florida (USFWS 2010). Whooping cranes are occasionally observed on the refuge during migration and were last observed in the spring of 2009 (Lacreek NWR observational report 2009).
- American burying beetle (*Nicrophorus americanus*): This species is now listed as endangered and is being proposed for down listing as threatened. The states in which this population is known to or is believed to occur are Arkansas, Kansas, Massachusetts, Nebraska, Ohio, Oklahoma, Rhode Island, South Dakota, and Texas (USFWS 2019). There have been periodic carrion beetle surveys on the refuge, with the most recent survey occurring in 2018. No American burying beetles have been documented (Lacreek NWR survey files 2018). However, the beetle has been documented in Bennett County and several counties next to the refuge in South Dakota and Nebraska including Todd County and Cherry County, respectively (C. Bessken-USFWS, personal communication, November 2019).
- Western prairie fringed orchid (*Platanthera praeclara*): This species is now listed as threatened and its range is limited to the central U.S. This species has not been documented on the refuge, but it has been documented in Bennett, Oglala Lakota, and Todd Counties in South Dakota and Cherry County, Nebraska (USFWS 2009).

An Endangered Species Act Section 7 consultation was conducted (see Appendix D), and it was found that the proposed alternative is not likely to conflict with recovery or protection of these species. A determination of “No Effect” was made for the red knot and the western prairie fringed orchid as the proposed project would not directly or indirectly affect (neither negatively nor beneficially) individuals of listed, proposed, or candidate species, as well as designated or proposed critical habitat of such species. For the northern long-eared bat, whooping crane, and

American burying beetle, it was found that the proposed alternative "may affect but is not likely to adversely affect" these species because it is likely to cause insignificant, discountable, or wholly beneficial effects to individuals. Section 7 of the Endangered Species Act requires federal agencies to evaluate potential effects to threatened and endangered species and their habitats and an environmental assessment under NEPA specifically for the hunting program and addresses each of these species. A list of scientific names and categorization of species referenced in this document can be found in Appendix B.

Public Use Conflicts

To reduce conflicts with priority non-hunting recreational uses outlined in the Improvement Act, and for public safety, the refuge designates areas open to hunting and enforces refuge-specific regulations. The boundaries of all lands owned or managed by the Service are posted with refuge boundary signs. Areas administratively closed to hunting are clearly marked with either "No Hunting Zone" or "Area Beyond This Sign Closed" signs. Aside from hunting, wildlife observation and photography is the major public use, such as for migratory bird observation. This use primarily occurs during the spring months (March through June) where no conflict with hunters would result. Overall, hunting effects to visitor services and recreation opportunities are considered short-term, minor and local. Past conflicts have been minimal, and we anticipate future conflicts to be about the same.

Administrative Use Conflicts

The most potential for conflict with management activities occurs in areas where habitat treatments are conducted. Occasionally, an area open to hunting is proposed to receive a prescribed fire treatment. Typically, a notice of the impending treatment is posted at the unit public access points to alert all users, including hunters. Before starting the fire treatment, the refuge fire staff scout the treatment unit to make sure that no one is endangered by the treatment. Other habitat treatments such as prairie dog control or invasive species treatments may generate a temporary closure of an area. Notice or information about any of these closures may be posted and available at the refuge headquarters and information kiosks to mitigate conflicts.

This alternative offers increased opportunities for public hunting and fulfills the Service's mandate under the Improvement Act. The Service has found that the hunting plan is compatible with the purposes of the refuge and the mission of the Refuge System.

Alternative B – Continue Current Management – No Action Alternative

Continue current hunting opportunities for upland game, big game, and migratory game birds on refuge lands as described in the 2017 Lacreek NWR Hunting and Fishing Brochure. New hunting opportunities for species identified in the 2020 hunting plan would remain closed to hunting. All other existing public uses would remain unchanged.

Under this alternative, current refuge hunting opportunities for specific migratory birds, big game, and waterfowl species would continue and remain the same across those parts 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.

The species that would continue to be open at the LWRRA would be duck, goose, sandhill crane, Wilson's snipe, American crow, mourning dove, pheasant, grouse, and deer. The rest of the refuge hunting units would allow the take of pheasant, sharp-tailed grouse, and deer.

3.0 Affected Environment and Environmental Consequences

3.1 Affected Environment

Lacreek NWR consists of approximately 16,576 acres in Bennett County, South Dakota. The refuge is primarily native Sandhills, wetlands (sub-irrigated, riparian, and managed wetlands), and tall and mixed grass prairie uplands. Different community types are delineated within the refuge based on dominant plant species, soils, and water availability. The Sandhills contains a diverse mix of grass and forb species generally not found anywhere else on the refuge. The Sandhills prairie is distinctive because of the combination of plant communities found there. Typical short, mixed, and tall grass species are all located in the Sandhills because differences in topography and available moisture create conditions that allow each to persist (Kaul 1990).

Wetlands on the refuge occur primarily within the floodplain of Lake Creek and are influenced by a combination of surface water and ground water inputs. Substantial emergent and submergent vegetation occurs in managed wetland pools. Wet meadow habitat on the refuge occurs at the perimeter of managed wetland areas, along riparian corridors, and springs emerging from the Sandhills. Wet, sub-irrigated meadows occur primarily on the western part of the refuge. These meadows are nearly flat, have saturated soils near the surface for most of the growing season, as well as pond water for short periods after rainfall events. These wet meadows contain a full complement of native grasses and forbs, such as prairie cordgrass, Canada bluejoint, switchgrass, foxtail barley, sedge and rush species, golden doc, mint, golden rod, Nuttall's sunflower, wild licorice, blue verbena, stinging nettle, sandbar willow, red-osier dogwood, and false indigo bush.

The refuge lies at an intersection of different grassland types. Sandhills prairie, tall-grass prairie, and mixed-grass prairie can all be found here. There are just more than 5,000 acres of uplands on the refuge that consist of native and non-native grasses and forbs. Native grasses that have been recorded during habitat surveys are big bluestem, little bluestem, sand bluestem, prairie sandreed, switchgrass, Indian grass, Canada wildrye, prairie June grass, sand dropseed, needle-and-thread grass, western wheatgrass, and salt grass, while non-native grasses are smooth brome, crested wheatgrass, and Kentucky bluegrass. The refuge has restored some of these non-native dominated upland areas to native grasses and forbs. More than 120 species of native grass, forb, sedge, and rush species have been harvested to be used for restoration.

The refuge serves as an important staging area for migrating Canada geese, other waterfowl, sandhill cranes, shorebirds, and neotropical migrants. Providing an important migration and wintering habitat for the high plains trumpeter swan flock is a primary goal. Unique habitats are provided in black-tailed prairie dog towns that support high numbers of burrowing owls and host ferruginous hawks, both of which are species of concern. Other birds of concern that occur on the refuge are Henslow's sparrow (*Ammodramus henslowii*), lark bunting (*Calamospiza melanocorys*), long-billed curlew (*Numenius americanus*), marbled godwit (*Limosa fedoa*), red-headed woodpecker (*Melanerpes erythrocephalus*), semipalmated sandpiper (*Calidris pusilla*), and willet (*Tringa semipalmata*).

The Proposed Action Alternative is in the south and west parts of the refuge for upland game, big game, and predator hunting and the west and northeast part of the refuge for migratory bird hunting. The habitats included in these areas are Sandhills, uplands, and one managed wetland (Pool 10).

For more information about the affected environment, please see Chapter 4 of the refuge's CCP, which can be found at www.fws.gov/mountain-prairie/refuges/completedPlanPDFs_FL/lck_2006_ccpfinal_all.pdf.

3.2 Environmental Consequences of the Action

This section analyzes the environmental consequences of the action on each affected resource, including direct and indirect effects. This EA only covers the written analyses of the environmental consequences on a resource when the effects 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 have been dismissed from further analyses.

Tables 1 through 4 provide:

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

Table 5 provides a brief description of the anticipated cumulative effects of the proposed action and any alternatives.

Impact Types:

- *Direct effects* are those that are caused by the action and occur at the same time and place.
- *Indirect effects* are those that are 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>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p><u>Alternative B (No Action)</u> <i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p>Upland Game</p>		
<p><i>Ring-Necked Pheasant (Pheasant)</i> Pheasant hunting in South Dakota started in 1919 and is still popular today. SD GFP estimates that from 2009 to 2018, hunters harvested an average of approximately 744,880 pheasants per year statewide while 565 hunters harvested only 2,885 pheasants in Bennett County in 2018 (SD GFP 2019c). In 2015, Lacreek NWR conducted a breeding bird point count survey and there was an average of 0.56 birds per point surveyed more than 51 points in the Sandhills. The lower number of pheasants located in Sandhill Units is likely because of less than favorable habitat relative to other habitat types found on the refuge where the average number of pheasants per point was higher.</p>	<p><i>Ring-Necked Pheasant (Pheasant)</i> Under this alternative, 70 percent of the refuge would be open to pheasant hunting. Pheasant hunting is now allowed where the highest quality pheasant habitat is located, and the habitat located within the proposed 2,800 additional acres is less than favorable for pheasants. The estimated increase in number of hunters is expected to be low, as is the number of pheasants taken from the refuge. This slight increase in take and use is expected to have negligible effects to the local pheasant population. Estimated increase in hunter numbers: 5 Estimated annual take: 5</p>	<p><i>Ring-Necked Pheasant (Pheasant)</i> Under this alternative, 53 percent of the refuge would remain open to pheasant hunting and disturbance to pheasants caused by hunting pressure in these areas would continue. Closed areas would remain the same to provide escape and non-disturbance locations. We expect that the estimated yearly number of pheasants hunted at the refuge would hover around 3 to 4, with an estimate of 10 hunters. Thus, for the overall pheasant population this would constitute a negligible effect.</p>

<p align="center">Affected Resources</p>	<p align="center"><u>Alternative A (Proposed Action)</u></p> <p><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p align="center"><u>Alternative B (No Action)</u></p> <p><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p><i>Sharp-Tailed Grouse and Greater Prairie-Chicken (Prairie Grouse)</i></p> <p>Sharp-tailed grouse and greater prairie-chickens (prairie grouse), are native birds that are primarily distributed across central and western South Dakota. Prairie grouse typically occur on large continuous blocks of native grassland but can occur in cropland or field edges in grassland-dominated landscapes. Prairie grouse are commonly found in mixed flocks where these species' range overlaps. Sharp-tailed grouse and greater prairie-chicken are combined when considering the daily and possession limits by the SD GFP. SD GFP estimates that from 2009 to 2018, hunters harvested an average of approximately 12,760 prairie grouse per year statewide while hunters harvested a projected 310 grouse in Bennett County in 2018 (SD GFP 201d). In 2015, the refuge conducted a breeding bird point count survey and there was an average of 0.06 birds per point surveyed more than 51 points in the Sandhills. Prairie grouse use the Sandhills and other native grass units for nesting, and there are at least two confirmed leks directly next to the refuge. In the late fall and winter, prairie grouse would often be observed more frequently in the Brown Ranch East and the east boundary of Pools 9 and 10 than in the Sandhills.</p>	<p><i>Sharp-Tailed Grouse and Greater Prairie-Chicken (Prairie Grouse)</i></p> <p>Under this alternative, 70 percent of the refuge would be open to all prairie grouse species (sharp-tailed grouse and prairie-chicken). Prairie grouse harvest is now allowed where grouse are frequently present during the hunting season. Adding the proposed 2,800 acres of additional native grass habitat would increase hunter opportunities during the early part of upland game season but harvest may not increase significantly because hunters could find the Sandhills to be more challenging to hunt than areas now open because of the rough terrain and limited access. This slight increase in take and use is expected to have negligible effects to the local grouse population.</p> <p>Estimated increase in hunter numbers: 10</p> <p>Estimated annual take: 15</p>	<p><i>Sharp-Tailed Grouse and Greater Prairie-Chicken (Prairie Grouse)</i></p> <p>Under this alternative, 53 percent of the refuge would remain open to sharp-tailed grouse hunting, and disturbance to grouse caused by hunting pressure in these areas would continue. Closed areas would remain the same to provide escape and non-disturbance locations. We expect that the estimated yearly number of pheasants hunted at the refuge would hover around 8 to10, with an estimate of 9 hunters. Thus, for the overall grouse population this would constitute a negligible effect.</p>

Affected Resources	<u>Alternative A (Proposed Action)</u> <i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i>	<u>Alternative B (No Action)</u> <i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i>
<p><i>Cottontail Rabbit</i></p> <p>South Dakota allows cottontail rabbit hunting from September to February. Based on the 2017 to 2018 survey responses, there were a projected 4,628 resident and 607 nonresident cottontail hunters harvesting an estimated 24,272 cottontails during the 2017 small game season (SD GFP 2018f). There are no estimates of population size on the refuge, but it is expected to be high enough to support a hunter harvest while sustaining a viable population. Cottontail rabbit was listed in the refuge CCP and accompanying EA (2006) as a species that would be considered for additional hunting opportunities.</p>	<p><i>Cottontail Rabbit</i></p> <p>Under this alternative, 70 percent of the refuge would be open to rabbit hunting. A hunter harvested take would likely be confined to wooded areas and tree piles, where hunters may want to harvest cottontail rabbits while hunting other species. In addition, young, inexperienced hunters could harvest rabbit as an introduction to the hunting sports. Hunting could also reduce the amount of prey available to predators, including resident furbearers and migratory birds of prey but take is expected to be limited and a viable population would still be sustained that could also provide a sustainable food source for predators.</p> <p>Estimated hunter numbers: 7 Estimated annual take: 14</p>	<p><i>Cottontail Rabbit</i></p> <p>Under this alternative, none of the refuge would be open to cottontail rabbit hunting and no increased disturbance to rabbit populations would occur. Rabbits would continue to provide food resources to prey species. Effects would be negligible.</p>
Big Game		
<p><i>White-Tailed Deer and Mule Deer</i></p> <p>White-tailed deer and mule deer are a highly sought-after big game species in South Dakota, and hunting is the number one tool for managing deer populations across the state (SD GFP 2019e). The refuge supports resident populations of white-tailed deer and mule deer, but little is known about the current size and condition of the resident deer herds on the refuge. Past surveys (2005 to 2011) show a range of 8 to 23 deer per square mile during that time frame (Lacreek NWR survey data). Epizootic hemorrhagic disease outbreaks have occurred on the refuge in the past and this disease lowered the local white-tailed deer population, but populations rebounded within a few years.</p>	<p><i>White-Tailed Deer and Mule Deer</i></p> <p>Under this alternative, an additional 2,800 acres are proposed to be open to archery and muzzleloader take making 70 percent of the refuge available for big game hunting. This would provide for increased opportunities to harvest deer, especially mule deer. The additional acres to be opened would be the Marty Quarter, which is primarily wet meadow habitat, as well as the south and west Sandhills. This increase in take and use is expected to have negligible effect to the local deer populations because the state does not anticipate increasing the number of muzzleloader tags issued. There could be an increase in the number of archery hunters, but the Sandhills are often more challenging to hunt than areas now open because of rough terrain and somewhat limited cover and access.</p>	<p><i>White-Tailed Deer and Mule Deer</i></p> <p>Under this alternative, deer hunting programs on the refuge and at the LWRRA would continue as presently managed with 53 percent of the refuge open to big game hunting. The refuge would continue to provide muzzleloader and archery seasons for deer in accordance with state and federal laws and regulations. Only the LWRRA would be open to rifle hunting. We expect that the estimated yearly number of deer taken at the refuge would remain around two, with an estimate of 29 hunters.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p>There are now three methods of take allowed on the refuge: rifle, archery and muzzleloader. Hunters are required to carry a valid state permit to hunt on the refuge. Rifle hunting is only allowed on the LWRRRA, and nowhere else on the refuge. The state decides, in cooperation with the refuge, the number of tags available. Muzzleloader permits are issued through a limited draw process conducted by SD GFP. There were 215 licenses issued for the 2018 Wildlife Refuge Deer seasons, which included 29 at the refuge (26 residents and 3 nonresidents) (SD GFP 2018a). An average of 17 muzzleloader harvested deer were taken from 2009 to 2018 (SD GFP 2018a).</p> <p><i>Predator: Coyote</i></p> <p>Coyotes are located throughout South Dakota in almost every habitat. Coyotes can be harvested year-round by hunting or trapping in the state, with most coyote hunting occurring in the western two-thirds of South Dakota. There are many large tracts of public land open to coyote hunting in the western half of South Dakota. A popular method of hunting is to attract coyotes using a call that sounds like a prey animal in distress. In Bennett County, 209 coyotes were projected to be harvested in 2018 to 2019 which is about 2 percent of the state's total harvest. The refuge supports resident populations of coyotes, but little is known about the current size and condition of the resident population on the refuge. Coyote was listed in the refuge CCP and accompanying EA (2006) as a species that would be considered for more hunting opportunities.</p>	<p>This slight increase in take and use is expected to have negligible effects to the local deer population.</p> <p>Estimated increase in hunter numbers: 8</p> <p>Estimated annual take: 2</p> <p><i>Predator: Coyote</i></p> <p>Under this alternative, 34 percent of the refuge would be open to coyote hunting and disturbance to coyotes from hunting pressure would occur in open areas. Hunters would be allowed to call coyotes and use a center-fire rifle to take coyotes. Because of safety concerns for staff and other visitors that may be participating in wildlife-dependent recreational activities, the season would not be open year-round. Small mammal and red fox populations may increase with increased harvest of coyote. Coyote calling is a popular method of take in Bennett County and there would be some interest in coyote hunting on the refuge. Although take may affect local populations these effects would not be detrimental because the season would not be open year-round.</p> <p>Estimated hunter numbers: 10</p> <p>Estimated annual take: 10</p>	<p>Thus, for the overall deer population this would constitute a negligible effect.</p> <p><i>Predator: Coyote</i></p> <p>Under this alternative, none of the refuge would be open to coyote hunting and no increased disturbance to coyote populations would occur. Hunters would still have an opportunity to harvest coyotes from state grounds or private land next to the refuge. We expect that the estimated yearly number of coyotes taken at the refuge would hover around five to seven, with an estimate of eight hunters. Thus, for the overall coyote population this would constitute a negligible effect.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p><i>Predators: Red Fox, Bobcat, and Mountain Lion</i></p> <p>Red fox are located across the state in almost every habitat. They tend to be secretive and are most active from dusk to dawn. They often rest during the day and only move when disturbed, remaining active throughout the winter. There is a year-round season in South Dakota, and SD GFP projected 12 red fox were harvested in Bennett County in 2018 to 19 (SD GFP 2019b). It is very rare to observe a fox on the refuge, likely because of the presence of coyotes across the refuge.</p> <p>Bobcats occur in most counties in western South Dakota, including Bennett County. They can be found in riparian areas, often along rivers and creeks. Bobcats harvested in South Dakota are required to be checked and tagged by SD GFP staff, allowing a census of all bobcats harvested annually (TYCZ 2016). SD GFP collects age structure, sex ratio, and harvest data annually to monitor and assess population status of bobcats. Bobcats are active throughout the year, but not often seen on the refuge. The refuge does not perform any management specifically for bobcat, and bobcat populations on the refuge can vary greatly from year to year. According to SD GFP no bobcats were harvested in Bennett County in 2019 (SD GFP 2019b).</p>	<p><i>Predators: Red Fox, Bobcat, and Mountain Lion</i></p> <p>Under this alternative, 34 percent of the refuge would be open to hunting these predator species. Trapping these predators would not be allowed on the refuge, no dogs could be used while hunting, and seasons would not be year-round. Effects would be negligible to red fox in Bennett County because they are thought to be present mostly outside the refuge because of the coyote population living on the refuge. Harvest would likely be opportunistic and would occur while hunting other predator species.</p> <p>Effects would also be negligible to the local bobcat population and harvest would probably not occur annually. Although bobcat would likely be present every year on the refuge, the population size could fluctuate greatly from year to year. Some bobcat may not use areas open to hunting and could move to closed areas or be trapped off refuge.</p> <p>Effects would be negligible to the Bennett County mountain lion population and harvest would probably not occur annually because they are thought to be present mostly outside the refuge, with most observations occurring to the north and west of the refuge. Harvest would likely be opportunistic and occur while hunting other predator species.</p> <p>Estimated hunter numbers: 3 Estimated annual take: <1</p>	<p><i>Predators: Red Fox, Bobcat, and Mountain Lion</i></p> <p>Under this alternative, none of the refuge would be open to red fox, bobcat, or mountain lion hunting and no increased disturbance to these predator populations would occur. Hunters would still have an opportunity to harvest these predators from state grounds next to the refuge.</p>

Affected Resources	<u>Alternative A (Proposed Action)</u> <i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i>	<u>Alternative B (No Action)</u> <i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i>
<p>Historically, mountain lions occurred throughout South Dakota and were considered abundant in the Black Hills. However, the population declined in the early 1900's. In 1978, mountain lions were listed as a state threatened species. After a breeding population was established in the Black Hills and with a better understanding of population dynamics, the mountain lion was removed from the state threatened species list and classified as a big game animal in 2003 (SD GFP 2019f). The first hunting season was established in 2005 and seasons continue today (SD GFP 2019f). Outside the Black Hills, there is a year-round resident only season. Eleven lions were harvested on the prairie outside of the Black Hills during 2017 to 2018 (SD GF&P 2018g). A mountain lion has never been observed on the refuge, but a young male was shot on a ranch north of the LWRRA in 2016, an adult male was shot in eastern Bennett County in 2017, and two lions were shot in northern Bennett County in 2018.</p>		
Migratory Birds		
<p><i>Waterfowl (Ducks and Geese)</i> The refuge contains extensive areas of semi-permanent emergent marshes, seasonal wetlands, and open water that annually support thousands of ducks and geese, many trumpeter swans, as well as other water bird species such as American white pelicans and shorebirds.</p>	<p><i>Waterfowl (Ducks and Geese)</i> Under the No Action Alternative, 31 percent of the refuge would be open to waterfowl hunting. Feeding and resting habitat for waterfowl would be compromised in all open hunt areas during shooting hours. This would change use patterns of waterfowl during the waterfowl season. Concentrating hunting on a large block and keeping 69 percent of the refuge acreage closed to hunting could reduce overall disturbance.</p>	<p><i>Waterfowl (Ducks and Geese)</i> Under this alternative, 1 percent of the refuge would remain open to waterfowl hunting. Disturbance to waterfowl from hunting pressure would occur only at the LWRRA. Closed areas would remain the same to provide escape and non-disturbance locations.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p>The refuge is in the Central Flyway with peak fall migration occurring from late-October through November. Primarily mallard and Canada Geese are present in channels that remain open water after most of the managed pools freeze-up. Survey data during peak migration, collected from 2001 to 2013, provides an estimated average of 21,000 ducks. Survey data collected during peak migration, from 1979 to 2013, provides an estimated average of 13,500 Canada geese (Unpublished Lacreek NWR survey data). Twenty-eight duck hunters were reported for Bennett County with a harvest of 5.6 ducks per hunter (SD GFP 2018d). SD GFP projected total of 169 Canada goose hunters, harvested 998 geese in 2017 with an average take of 6 geese per hunter (2018e). Youth waterfowl hunting was considered as an additional hunting opportunity in the refuge CCP and accompanying EA (2006), but only a youth waterfowl hunt was listed.</p> <p><i>American Coot</i></p> <p>American coot are common and widespread, and populations appear to be stable, according to the North American Breeding Bird Survey (Sauer et al. 2014). Coot are not hunted nearly as much as ducks because many hunters consider them inedible. Some hunters shoot them for sport, particularly in Louisiana, California, Florida, Wisconsin, and Minnesota. In the Migratory Bird Hunting Activity and Harvest During the 2017 to 18 and 2018 to 19 Hunting Seasons Report (Raftovich 2019), the Service estimates that coot hunters harvested 117,100 (± 62 percent) coots in 2017 and 83,600 (± 69 percent) in 2018 in the U.S.</p>	<p>Hatch year and late hatching birds may be vulnerable to early season hunting mortality (Nelson 1966). Closed areas would be an inviolate sanctuary to protect hatch year ducks, geese and all trumpeter swans. This increase in take and use is expected to have minimal effects to the local waterfowl population because ducks and geese are abundant at the refuge and a substantial part of the refuge would remain closed during the season. The most probable effect would be a change in the use patterns of ducks, geese, and swans during open season.</p> <p>Estimated increase in hunter numbers: 210 Estimated annual take: 1,250</p> <p><i>American Coot</i></p> <p>Under this alternative, 31 percent of the refuge would be open to coot hunting. Some hunters may take coot while hunting waterfowl species and young, inexperienced hunters may harvest coot as an introduction to hunting. This increase in take and use is expected to have neutral effects to the local coot population because coots are abundant on the refuge.</p> <p>Estimated increase in hunter numbers: 3 Estimated annual take: 9</p>	<p>Hunters would still have an opportunity to harvest birds from state grounds next to the refuge. We expect that the estimated yearly number of ducks and geese harvested at the refuge would be around 78 and 240, respectively, with an estimated 14 duck hunters and 80 goose hunters. Thus, for the overall pheasant population this would constitute a negligible effect.</p> <p><i>American Coot</i></p> <p>Under this alternative, 1 percent of the refuge would remain open to coot hunting and disturbance to coots because of hunting pressure would occur only at the LWRRRA. Closed areas would remain the same to provide escape and non-disturbance locations. Hunters would still have an opportunity to harvest birds from state grounds next to the refuge.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p style="text-align: center;"><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p style="text-align: center;"><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p>This report also gave an estimate of less than 50 hunters harvesting an estimated 100 ± 189 percent coots in South Dakota. There have been no formal surveys of the coot on the refuge and populations can fluctuate widely, often depending on moisture levels because breeding success increases during wet periods that provide more ponds and stable water levels throughout brood-rearing.</p> <p><i>Wilson’s Snipe</i></p> <p>These birds are among the most widespread shorebirds in North America. According to the Breeding Bird Survey, Wilson’s Snipe populations are increasing at a rate of 8.5 percent per year (1967 to 2012) in South Dakota (Sauer et al. 2014). Snipe is common in areas with adequate numbers of shallow wetlands, especially the prairie pothole region in eastern South Dakota and the northern and southern edges of the state west of the Missouri River. In the U.S., hunters harvested 42,400 (± 57 percent) and 83,600 (± 121 percent) snipe in 2017 and 2018, respectively (Raftovich et al. 2019). In South Dakota, there were only 100 ± 178 percent snipe harvested in 2017 and none reported harvested in 2018 (Raftovich et al. 2019). There are no estimates of the snipe population on the refuge. However, they are present and appear to be abundant during certain times of the year.</p>	<p><i>Wilson’s Snipe</i></p> <p>Under this alternative, 31 percent of the refuge would be open to snipe hunting. Some hunters could take snipe while hunting waterfowl species and young, inexperienced hunters may harvest snipe as an introduction to hunting. The global breeding population, which is shared between the U.S. and Canada, is estimated at 2 million individuals (Sauer et al. 2014). This increase in take and use is expected to have neutral effect to the local snipe population because this species is abundant on the refuge.</p> <p>Estimated increase in hunter numbers: 3</p> <p>Estimated annual take: 6</p>	<p>The number of coot hunters and harvest numbers are estimated to remain similar to the ten-year average for Bennett County. Effects would be negligible.</p> <p><i>Wilson’s Snipe</i></p> <p>Under this alternative, 1 percent of the refuge would remain open to snipe hunting. Disturbance to snipe from hunting pressure would occur only at the LWRRA. Closed areas would remain the same to provide escape and non-disturbance locations. Hunters would still have an opportunity to harvest birds from state grounds next to the refuge. We expect that the estimated yearly number of snipe hunted at the refuge would hover around three to four, with an estimated number of hunters around two. Thus, for the overall snipe population this would constitute a negligible effect.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p style="text-align: center;"><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p style="text-align: center;"><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p><i>Mourning Dove</i></p> <p>The mourning dove is one of the most widely distributed and abundant species in urban and rural areas of North America. Partners in Flight (PIF) estimates the global breeding population at 120 million with 81 percent spending some part of the year in the U.S., 19 percent in Mexico, and 5 percent in Canada (PIF 2017). The primary management goal of the Service is to maintain dove populations at a healthy and productive state (Seamans 2019). The Service estimates approximately 694,300 dove hunters harvested 10,374,500 ± 4 percent mourning doves in 2018 at a national level. In South Dakota, there were only 69,400 ± 15 percent doves harvested by hunters. South Dakota represents only 1 percent of the total doves harvested at a national level and only 1 percent of the total dove hunters nationally (Raftovich et al. 2018). The average number of mourning doves harvested in South Dakota from 2008 to 2017 was 5,247, and in Bennett County, the state projected 8 hunters harvested an estimated 32 birds in 2017 (SD GFP 2018b). Mourning dove was listed in the refuge CCP and accompanying EA (2006) as a species that would be considered for more hunting opportunities.</p>	<p><i>Mourning Dove</i></p> <p>Under this alternative, 31 percent of the refuge would be open to mourning dove hunting. This early-season hunt is allowed next to the refuge and is generally of short duration and low pressure because mourning doves tend to migrate shortly after the dove season opens. Many hunters also shift to hunting other species such as waterfowl and upland game birds. In addition, young, inexperienced hunters may harvest doves as an introduction to the hunting sports. This increase in take and use is expected to have neutral effect to the local dove population because the South Dakota dove population is stable, according to Breeding Bird Survey data (Sauer et al. 2014).</p> <p>Estimated increase in hunter numbers: 8</p> <p>Estimated annual take: 32</p>	<p><i>Mourning Dove</i></p> <p>Under this alternative, 1 percent of the refuge would remain open to mourning dove hunting. Disturbance to mourning doves from hunting pressure would occur only at the LWRRA. Closed areas would remain the same to provide escape and non-disturbance locations. Hunters would still have an opportunity to harvest birds from state grounds and walk-in areas next to the refuge. The estimated yearly number of doves hunted at the refuge is expected to remain around 20, with an estimate of six hunters. Thus, for the overall dove populations, this would constitute a negligible effect.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p style="text-align: center;"><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p style="text-align: center;"><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p><i>American Crow</i></p> <p>American crows are abundant, and their populations were stable in South Dakota for the last 40 years according to the North American Breeding Bird Survey (Sauer et al. 2014).</p> <p>PIF (2017) estimates a global breeding population at 27 million, with 88 percent spending part of the year in the U.S. American crows live in open habitats with scattered trees, woodlots, shelterbelts, and forest edges (Tallman 2002). There are no estimates of the crow population on the refuge; however, they are present and appear to be abundant during certain times of the year.</p>	<p><i>American Crow</i></p> <p>Under this alternative, 31 percent of the refuge would be open to crow hunting. This increase in take and use is expected to have neutral effects to the local crow population. This early-season hunt is allowed on areas next to the refuge and is generally a low-pressure hunt because many hunters shift to hunting other species, such as waterfowl and upland game birds. In addition, young, inexperienced hunters may harvest crows as an introduction to the hunting sports. This increase in take and use is expected to have neutral effects to the local crow population because crows are abundant on the refuge.</p> <p>Estimated increase in hunter numbers: 3</p> <p>Estimated annual take: 3</p>	<p><i>American Crow</i></p> <p>Under this alternative, 1 percent of the refuge would remain open to crow hunting. Disturbance to crows from hunting pressure would occur only at the LWRRA. Closed areas would remain the same to provide escape and non-disturbance locations. Hunters would still have an opportunity to harvest birds from state grounds and walk-in areas next to the refuge We expect that the estimated yearly number of crows taken at the refuge would remain around two to three, with an estimate of two hunters. Thus, for the overall crow population this would constitute a negligible effect.</p>

Affected Resources	<u>Alternative A (Proposed Action)</u> <i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i>	<u>Alternative B (No Action)</u> <i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i>
<p><i>Sandhill Crane</i></p> <p>Sandhill cranes are abundant and their populations increased by about 4.5 percent per year between 1966 and 2014, according to the North American Breeding Bird Survey (Sauer 2014). The North American Waterbird Conservation Plan lists them as a species of low conservation concern (Kushlan et al. 2002). All crane-hunting seasons are regulated by federal and state wildlife agencies and require a special state permit. Hunting seasons are limited to specific areas, time periods, and bag limits. For South Dakota, there was an estimated average of 50 active hunters from 2010 to 2015 (Dubovsky 2016). There are no estimates of the sandhill crane population on the refuge. However, they are present mostly during spring and fall migration.</p>	<p><i>Sandhill Crane</i></p> <p>Under alternative B, 31 percent of the refuge would be open to sandhill crane hunting. This increase in take and use is expected to have neutral effects to the local Sandhill crane population because fall migration generally occurs over a relatively short time period (late October through mid-November) and stop-overs on the refuge for small flocks (200 to 300) are limited to 1 or 2 days. Also, if disturbed, sandhill cranes could likely move to a closed area on the refuge.</p> <p>Estimated increase in hunter numbers: 5 Estimated annual take: 10</p>	<p><i>Sandhill Crane</i></p> <p>Under this alternative, 1 percent of the refuge would remain open to sandhill crane hunting and disturbance to cranes because of hunting pressure would occur only at the LWRRRA. Closed areas would remain the same to provide escape and non-disturbance locations. Hunters would still have an opportunity to harvest birds from state grounds and walk-in areas next to the refuge. The estimated yearly number of cranes harvested at the refuge would be expected to remain around five to six, with an estimate of seven hunters. Thus, for the overall crane population this would constitute a negligible effect.</p>
Wildlife and Habitat		
<p><i>Habitats</i></p> <p>The refuge lies in Lake Creek Valley on the Northern edge of the Nebraska Sandhills and has sub-irrigated meadows, impounded freshwater marshes, and tall- and mixed-grass prairies. The refuge and its associated habitats are well known for their diversity and wildlife values. The wet meadows, grasslands, and prairie dog towns support several migratory birds of concern, and the Sandhills is a large habitat of native grass that provides a mix of warm and cool season grasses, low growing shrubs, yucca, and bare ground.</p>	<p>Under this alternative, 70 percent of the refuge is open to public hunting. Effects to habitats are expected to be similar to the no action alternative, but increased hunting may result in more short-term disturbance over a larger area because more units would be open to hunting, as well as added opportunities for hunting of new species. This disturbance may include temporary displacement of migratory and resident wildlife from foot and vehicle traffic moving through and next to the area, and the slight potential for an increase in noxious weeds close to parking lots.</p>	<p>Under this alternative, 53 percent of the refuge is open to public hunting. The effects to habitats would be limited to human and dog foot traffic within the open areas during hunting season. However, in closed areas, a diversity of habitats would be protected from disturbance, and species diversity would not be affected long-term because the protected area covers a range of diverse habitats.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p style="text-align: center;"><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p style="text-align: center;"><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p>The refuge occurs in a region characterized by the transition between eastern and western plant and animal species. Wildlife on the refuge are aquatic and marsh dwelling species, as well as species typical of the prairie. Waterfowl, shorebirds, wading birds, raptors, songbirds, reptiles, amphibians, fish, mammals, and insects use the area.</p> <p>Birds</p> <p>The refuge is especially important for migratory birds, both during the migrating and nesting seasons. There have been 281 bird species recorded on the refuge since 1969. A wide array of avian species uses the refuge because of the diversity of wetlands and grasslands habitats that are well suited for providing resources for migrating and nesting passerines. There are ten birds of national conservation concern that occur on the refuge (Birds of Conservation Concern, USFWS 2008) as well as three other bird species that are important to consider when conducting refuge management: (1) trumpeter swan; (2) bald eagle; and (3) American white pelican. The refuge is an important staging and migration area for the high plains trumpeter swan flock. There are three confirmed bald eagle nests within the refuge boundary, as two were established within the last two years. And the largest pelican nesting colony in western South Dakota occurs at the refuge. Nesting sites relatively free from disturbance and abundant food resources on the refuge, as well as on lakes and ponds within flying distance, are believed to make this site attractive to nesting pelicans.</p>	<p>Disturbance from hunting on non-hunted migratory birds would be like the no action alternative, but over a wider area and during a longer period. Hunting around Pool 10 and adjacent units could affect burrowing owls and ferruginous hawks if waterfowl hunters traverse prairie dog towns during early season hunts. This disturbance is thought to have minimal effects on the populations of these species on the refuge as the owls are nocturnal and the hawks spend many hours of the day hovering in search for prey. Waterfowl hunting on Pool 10 and the Marty Quarter would affect trumpeter swans because they may not feed and roost as they would have traditionally. Trumpeter swans would still have access to many wetlands that provide high quality food resources and protection from disturbance within closed areas found on the refuge and on private wetlands next to the refuge. Swans would likely change their use patterns to avoid areas open to hunting when hunters are present, but the overall average number of swans using the refuge is not likely to change significantly. Waterfowl hunting on Pool 10 may affect bald eagles. If they are present on the ice during hunting seasons, they may also benefit from increased food resources from injured waterfowl. Areas around eagle nests are closed to hunting, so there would be neutral effects. Late migrating shorebirds and wading birds would be minimally affected by waterfowl hunting since they are usually in small groups and can escape to closed areas. Prairie dogs and snakes in Pool 10 Units may be affected if waterfowl hunters traverse prairie dog towns during early season hunts. The effects to these species are like the no action alternative, but in a larger area. Hunters would encounter reptiles during the early fall hunting season as they are active in the Sandhills and upland habitats on warm days, but disturbance is thought to be like the no action alternative.</p>	<p>The number of closed areas offsets the effects to wildlife and aquatic species on the refuge, because it protects large areas of the refuge from disturbance. The likelihood of disturbance from hunting non-target migratory birds is likely to be minimal because most species typically migrate before hunting begins. Most American white pelicans, double-crested cormorants, and black-crown night heron leave the refuge by late- August, so no effects are expected for colonial nesting birds. Direct effects to non-hunted birds that are present year-round such as woodpeckers, horned lark and dark-eyed junco are negligible. Indirect effects to this group of species are also minimal and do not appreciably reduce their numbers at the population level. Hunts could minimally affect burrowing owls, but they may escape into burrows. Ferruginous and rough-legged hawks may be disturbed by hunters walking through prairie dog towns, but disturbance would be minimal and of short duration. Areas around eagle nests are closed to hunting, and they could benefit from feeding on carrion and injured pheasant, ducks, and geese.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p style="text-align: center;"><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p style="text-align: center;"><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p><i>Mammals</i> The refuge contains 60 known species of mammals. Resident species include little brown bat, black-tailed prairie dog, Ord’s kangaroo rat, and American badger.</p> <p><i>Reptiles, Amphibians, and Fish</i> The refuge and the surrounding wetlands contain 47 known species of reptiles, amphibians, and fish. A variety of turtles, frogs, and toads require lakes, streams, and seasonal wetlands. The most common species are snapping and painted turtles, bull and chorus frogs, Woodhouse’s toad, rainbow trout, common carp, and black bullhead. Snakes are present in all habitats and the most common are eastern yellow-bellied racer, plains garter snake, bull snake, and prairie rattlesnake. The Sandhills supports lesser earless lizard, prairie lizard, and many-lined skink, species generally only found in the Sandhills region of South Dakota.</p> <p><i>Insects</i> There have been some pollinator and carrion beetle surveys conducted on the refuge, but no data has been gathered about other insect species present on the refuge. Native bee species have been observed, but no formal surveys have been completed. Common butterfly and carrion beetle species are eastern tiger swallowtail, lupine blue, painted lady, monarch, <i>Nicrophorus marginatus</i>, and <i>Nicrophorus tomentosus</i>.</p>	<p>Effects to insects are expected to be similar to the no action alternative, but over a larger area and for a longer time period. Effects to insect species from habitat disturbance related to hunting are negligible at the local level. Overall, hunting effects to wildlife and their habitats and effects to the biological diversity of the refuge are expected to temporarily disturb and change use patterns for some wildlife species, but the effects are thought to be insignificant on local, flyway, and migratory populations.</p>	<p>Some resident mammal and bird species may be displaced from hunt areas but could find safety in closed areas. Small mammals such as voles and mice are generally nocturnal or secretive. Both qualities make hunter interactions with small mammals rare. Prairie dogs would experience minimal effects on days they are more active, as they tend to spend more time in burrows during inclement weather. Amphibians, and fish would not be affected because amphibians would not be as active during hunting season and hunters would not likely interact with fish while hunting. Hunters would encounter reptiles during the early hunting season, including rattlesnakes, as they are active in upland habitats on warm days, but disturbance is expected to be minimal. Rattlesnakes are normally present on the top of prairie dog mounds, and generally escape into burrows so effects would be minimal and short-term. Hunting is not likely to greatly affect insects and disturbance would be related to human presence during the season. Some species of butterflies and moths are migratory and would not be present for most of the refuge hunting season.</p>

Affected Resources	<u>Alternative A (Proposed Action)</u> <i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i>	<u>Alternative B (No Action)</u> <i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i>
		Overall, the effect on wildlife and their associated habitat would be limited to foot (human and dog) traffic and noise associated with hunting in open areas during open seasons. In addition, vehicle traffic on roads next to open areas increases and this could influence wildlife movements.
Threatened and Endangered Species and Other Special Status Species		
<p>Five federally listed species may be found on the refuge: northern long-eared bat, red knot, whooping crane, American burying beetle, and western prairie fringed orchid.</p> <p><i>Northern Long-Eared Bat</i></p> <p>There are several species of bats on the refuge, and three species have been documented on the refuge through acoustic surveys, but no northern long-eared bats were identified (Lacreek NWR survey files 2011).</p> <p><i>Red Knot</i></p> <p>The red knot can be found primarily in eastern South Dakota, but it is an accidental migrant on the refuge (Tallman 2002).</p>	<p>A consultation pursuant to Section 7 of the Endangered Species Act was formerly conducted as part of this EA and the updated hunting plan. A determination of “No Effect” was made for the northern long-eared bat, red knot, whooping crane, American burying beetles, and the western prairie fringed orchid as the proposed project would not directly or indirectly affect (neither negatively nor beneficially) individuals of listed, proposed, or candidate species, as well as designated or proposed critical habitat of such species. In addition, the refuge may close any location on the refuge that are thought to house these species as habitat protection.</p>	<p>No effect is expected under this alternative for any federally listed threatened or endangered species or their critical habitat. Per intra-service Section 7 consultations, it has been decided that these species would not be affected by hunting activities carried out in accordance with federal and state regulations. In addition, the refuge may close any location on the refuge that are thought to house these species as habitat protection.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p style="text-align: center;"><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p style="text-align: center;"><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p><i>Whooping Crane</i> The whooping crane now exists in the wild at three locations and in captivity at 12 sites. The range of the whooping crane is primarily in the central U.S., but also the Great Lakes and Florida (USFWS 2010). Whooping cranes are occasionally observed on the refuge during migration and were last observed in the spring of 2009 (Lacreek NWR files 2009).</p> <p><i>American Burying Beetle</i> This species is now listed as endangered and is being proposed for down listing as threatened. There have been periodic carrion beetle surveys on the refuge, with the most recent survey occurring in 2018, and no American burying beetles have been documented (Lacreek NWR survey files 2018). However, a single beetle has been documented in Bennett County in 2017 and in several counties next to the refuge in South Dakota and Nebraska, including Todd County and Cherry County, respectively (C. Bessken-USFWS, personal communication, November 2019).</p> <p><i>Western Prairie Fringed Orchid</i> This species is now listed as threatened and its range is limited to the central U.S. This species has not been documented on the refuge, but it has been documented in Bennett, Oglala Lakota, and Todd Counties in South Dakota and in Cherry County, Nebraska (USFWS 2009).</p>		

Key: CCP = Comprehensive Conservation Plan; EA = Environmental Assessment; LWRRA = Little White River Recreation Area; NWR = National Wildlife Refuge; PIF = Partners in Flight; SD GFP = South Dakota Game, Fish, and Parks; U.S. = United States

Table 2. Affected Visitor Use and Experience and 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> <i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p><u>Alternative B (No Action)</u> <i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p>Visitor Use and Experience</p>		
<p>The refuge offers a variety of recreational opportunities to local residents and other visitors centered around wildlife resources. Opportunities on the refuge include wildlife-dependent and wildlife-compatible uses legislated by Congress and outlined in the Improvement Act. These uses are hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation. The refuge is open to hunting for white-tailed and mule deer, ring-necked pheasant, and sharp-tailed grouse. Several select pools are open for fishing throughout the year. The refuge is a popular destination for viewing migrations of waterfowl, shorebirds, and neotropical birds. The refuge provides outstanding opportunities for viewing wildlife. The abundance and variety of wildlife species combined with relatively low visitation provides many opportunities to view wildlife closely. Popular wildlife watching opportunities on the refuge include trumpeter swans, American white pelicans, burrowing owls, and black-tailed prairie dogs. Interpretive displays and brochures are available at refuge headquarters and two informational kiosks. An auto tour route and nature trails provide opportunities for viewing and photographing wildlife. The LWRRA has facilities for boating, fishing, swimming, and camping.</p>	<p>Under this alternative, the effects are expected to be like the no action alternative, but over a greater area. Although some hunting seasons would extend into late winter, there are few (if any) non-hunting visitors using the refuge at this time. Given that hunters would be allowed to access the refuge earlier and later in the day than non-hunters, more parking areas would be established. Non-hunters are not required to park in a parking area, so no conflict is assumed. Proper signage would delineate the newly opened and closed areas before the first hunting season to reduce confusion and unexpected confrontations. Even with the proposed changes in the areas closed to hunting, the auto tour and three wildlife trails would be available for use by all visitors throughout the hunting season. This area is now popular for wildlife viewing and photography. The closed areas help make sure participants are safe.</p>	<p>Under this alternative, 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, which are hunting, fishing, wildlife observation, photography, environmental education, and interpretation. Conflicts are most likely to occur between hunting and other uses such as bird watching, photography and wildlife viewing. The non-hunting public would not be restricted from entering the hunting area. However, while hunters are present, we would expect non-hunters to avoid the hunting area. Given that hunters would be allowed to access the refuge earlier (2 hours before sunrise) than non-hunters (1/2 hour before sunrise.), some non-hunters may not find parking spaces. However, non-hunters are not required to park in parking areas. During high visitation periods, we would expect disturbance by gunfire to negatively affect the serenity and natural experience to which the non-hunting public is accustomed. However, the auto tour and three wildlife viewing, and hiking trails closed to all hunting and would be available for use by all visitors throughout the hunting season. This area is now popular for wildlife viewing and photography. The closed areas help make sure participants are safe.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p style="text-align: center;"><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p style="text-align: center;"><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
Cultural Resources		
<p>Although there have been few cultural resource investigations in and around the refuge, a major discovery was made in 2000 of a large bison bone and stone artifact site located in Pool 8. The site was called the Sierra-Kai site and was mapped and recorded by Service archaeologists in August 2000 during a drawdown of the reservoir. More than 1,500 bison bones and many stone artifacts were documented. It appears that the site may have been used to process bison carcasses. A Late Plains period (1500 A.D. to 1800 A.D.) projectile point was recovered with other stone tools. The site covered nearly 20 acres and extended to the northeast. Other indications of prehistoric Native American activity within the boundaries of the refuge include stone artifact finds near Pool 9 by a Service archaeologist. These sites show the potential for other prehistoric sites, usually covered by the waters and vegetation of the reservoirs, to exist along the old creek bed and floodplain dammed in the 1930s to create the reservoirs. The Sand Hills and the Badlands areas of Nebraska and South Dakota are now known to have evidence of Native American occupation, possibly throughout the last several thousand years. It is also known from historic records that various tribes frequently visited the refuge area during the 18th and 19th centuries, including the Lakota, Cheyenne, Arapahoe and Pawnee, to name a few.</p>	<p>Under this alternative, the effects are expected to be the same as the no action alternative, but there would be some changes to access through the addition of parking lots. However, the addition of grass parking lots would not disturb the ground and there should be no direct effects to cultural resources. All proposed installation or development of infrastructure undertaken in the future in association with or as a result of carrying out this alternative would be subject to further review and consideration on an individual basis under Section 106 of the National Historic Preservation Act.</p>	<p>Under this alternative, there would be no change to the current hunting program on the refuge. Hunting resident upland game birds, migratory birds, and big game requires no ground disturbing activities or other activities that might disturb undocumented sites. Maintaining the current program would not alter, directly or indirectly, any characteristic of a historic property. Because of the temporary and superficial use of refuge habitats; there should be no direct effects to cultural resources under this alternative from visitors engaged in available hunting activities.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i></p>
<p>Although no prehistoric sites have been found eligible for nomination to the National Register of Historic Places, future discoveries may change that situation.</p>		

Key: LWRRA = Little White River Recreation Area; NWR = National Wildlife Refuge

Table 3. Affected Refuge Management and Operations and Anticipated Direct and Indirect Impacts of the Proposed Action and Any Alternatives.

Affected Resources	<u>Alternative A (Proposed Action)</u> <i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i>	<u>Alternative B (No Action)</u> <i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i>
Administration		
<p>Administering hunting on the refuge covers the following costs: law enforcement, education, maintenance of boundaries, roads, and access points, and search and rescue efforts. There is no regular law enforcement presence on the refuge, but a federal wildlife officer is available through a Nebraska Service office. An agreement exists for assistance between state enforcement. Refuge staff would be available to answer questions or concerns by refuge visitors.</p>	<p>Under this alternative, the refuge would be open to approximately 11,500 acres for hunting and the cost associated with expanding the hunt program would be higher during the start of the new hunt program. We believe that costs associated with installing signs and maintaining parking areas would increase approximately 10 percent during the first year. There would also be some minor costs associated with creating new parking lots and hunting brochures.</p>	<p>Under this alternative, the refuge is open to approximately 8,700 acres for hunting primarily upland game birds and big game species. The annual cost associated with administering this alternative is \$3,500. Included in this estimate are costs associated with salary, equipment, and law enforcement (one visit during fall to check hunters). In addition, some infrastructure maintenance is needed to support hunting, such as installing and maintaining proper signs, as well as maintaining two informational kiosks and four vault toilets and mowing parking lots.</p>

Key: NWR = National Wildlife Refuge

Table 4. Affected Socioeconomics and Anticipated Direct and Indirect Impacts of the Proposed Action and Any Alternatives.

Affected Resources	<u>Alternative A (Proposed Action)</u> <i>Expand and provide hunting opportunities for deer species, upland game, predators and huntable migratory birds - expand take of now allowable species to new acres and allow the take of new species to include cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion.</i>	<u>Alternative B (No Action)</u> <i>Continue to provide hunting opportunities as described in the 2017 Lacreek NWR Hunting and Fishing Brochure.</i>
Local and Regional Economics		
<p>In 2018, Bennett County had 63 private non-farm employment establishments with paid employees, compared to 26,743 establishments in the State of South Dakota overall. Agriculture is the major employer in the county. A variety of businesses exist in Martin, including health services, education, retail sales, and support services. The median per capita income is \$15,287 (2013 to 2017) compared with the State which was \$28,761. Thirty five percent of the population was living below the poverty line, compared with the state at thirteen percent (U.S. Census Bureau QuickFacts 2017).</p>	<p>Under this alternative, greater visitation and expenditure are expected. However, effects to the local economy and regional economy are likely to be negligible because most hunters tend to stay overnight and buy food or other hunting-related items outside of Bennett County. It is expected that annual hunting use on the refuge would increase from current levels if the refuge expands the number of species that may be harvested. This would result in increased hunting-related visits to the refuge and surrounding communities, as well as increased expenditures into the local economy.</p>	<p>Under this alternative, no effects on the local and regional economy are expected to occur as visitation and expenditure is estimated to stay the same or slightly increase under this alternative.</p>
Environmental Justice		
<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 finding 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>Same as the No Action Alternative.</p>	<p>The Service has not identified any potential high and adverse environmental or human health effects from this proposed action or any of the alternatives. Minority or low-income communities would not be disproportionately affected by any effects from this proposed action or any of the alternatives.</p>

Key: NWR = National Wildlife Refuge

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). Carrying out this alternative would have no significant cumulative effects on local wildlife populations, the natural environment, cultural resources, social and economic resources, or recreational opportunities. This finding is based on an analysis of potential environmental effects of hunting on the refuge with other projects and actions.

Table 5. Anticipated Cumulative Impacts of the No Action and Proposed Action Alternatives.

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
Hunting	
<p>Under the mission of the Service there are nine guiding principles, including one that focuses on the “Big Six” public uses: hunting, fishing, wildlife observation, photography, interpretation, and education. The Service and the refuge evaluate each of these uses to make sure of compatibility and appropriateness. Hunting was found to be a compatible use and this wildlife-dependent recreational activity has occurred on the refuge for nearly fifty years. Hunting and fishing occur throughout the entire state of South Dakota and across the U.S. as every citizen has the opportunity, under law, to hunt and fish. Nationally the number of hunters decreased 16 percent from 2011 to 2016 (DOI et al. 2016). Eleven and a half million people aged 16 years and older enjoyed hunting a variety of animals within the U.S. in 2016.</p> <p><i>Upland Game (ring-necked pheasant, prairie grouse, cottontail rabbit)</i></p>	<p>The cumulative effects of hunting on the refuge are most likely to help the public and possibly wildlife habitat because increased hunting opportunities would result in more hunters participating in the sport over the long-term. This would have positive effects on habitat conservation. Each alternative would have minor effects on local, regional, or national hunting opportunities. The Service does not believe that increasing hunting opportunities on refuge land would decrease hunting opportunities on other public and tribal lands near the refuge. Because trends show that the number of hunters participating in the sport is declining, we believe providing more opportunities would potentially increase the number of hunters that use public land for hunting recreation.</p> <p>The proposed hunts would have a negligible cumulative effect on regional and statewide wildlife populations. Both alternatives would have minor effects on the environment, hunted species, and non-hunted migratory birds, and resident wildlife species. However, under the no action alternative, the affected area, species, and time period of hunting allowed on the refuge would increase. Under both alternatives, there are areas on the refuge that are closed to all hunting and that would provide places where wildlife can escape from hunting related disturbances. Cumulative effects on species hunted are discussed separately.</p> <p>Hunting upland game on the refuge would not add significantly to the cumulative effects on the local populations of these species. The anticipated increase in take is likely to be a small fraction of the estimated populations, even with the addition of 2,800 acres of land. The estimated annual take of upland game birds is 20 and the estimated take of rabbits is 10. Such small increases in harvest are not likely to have cumulative effects. Hunters are most likely to encounter prairie grouse in the proposed new opening, so increases in the harvest of these species is expected but not likely to be significant.</p>

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
<p><i>Migratory Birds (ducks and geese, Wilson’s snipe, coot, crow, mourning dove, and sandhill crane)</i></p>	<p>Annual waterfowl assessments are based on the distribution, abundance, and flight corridors (flyways) of migratory birds. An annual Waterfowl Population Status Report is produced each year and covers the most current breeding population and production information available for waterfowl in North America. The report is a cooperative effort by the Service, the Canadian Wildlife Service, various state and provincial conservation agencies, and private conservation organizations (USFWS 2018). In the U.S., the process involves several scheduled meetings (Flyway Study Committees, Flyway Councils, and 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. An Annual Adaptive Harvest Management Report provides the most current data, analyses, and decision-making protocols (USFWS 2017a). These reports are intended to aid the development of waterfowl harvest regulations in the U.S. 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 choices using guidance in these reports. The refuge is in the Central Flyway and follows the regulations set by the State of South Dakota which are published in the yearly proclamation. The Service believes that hunting on the refuge would not add significantly to the cumulative effects 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 small fraction of the estimated populations. In addition, overall populations would continue to be monitored 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 national wildlife refuges is only 6 percent (USFWS 2013). • There are no populations that exist wholly and exclusively on national wildlife refuges. • Annual hunting regulations within the U.S. are established at levels consistent with the current population status. • Refuges cannot allow more liberal seasons than provided for in federal frameworks. • Refuges bought 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 South Dakota. 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 cumulative effect locally, regionally, or nationally.</p>

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
Non-Hunted Resident Wildlife	
	<p>The only direct and indirect effect to resident wildlife is short-term disturbance at the time of the action when hunting occurs on the refuge. In a single season resident wildlife may be disturbed multiple times, however there are enough resources for them to relocate on the refuge and respond so there are no negative effects. Areas closed to all hunting provide enough space for resident wildlife to continue to relocate on the refuge in response to temporary disturbance. Long-term effects of short-term disturbance are not likely to occur, and cumulative effects are negligible on resident wildlife. The refuge would continue to support substantial resident wildlife populations that would be at, or above, the habitat's carrying capacity under both alternatives. Even at the local level, the refuge only adds slightly to cumulative effects on the resident wildlife, and a negligible amount to regional and statewide populations.</p>
Use of Lead Ammunition	
<p>Lead ammunition is allowed for big game, predators, and cottontail rabbit. Nontoxic shot is required for migratory birds and upland birds. 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 gut piles and may ingest the lead, leading to poisoning.</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. Similarly, lead fishing tackle can be ingested by waterfowl and other wetland bird species and may cause lead poisoning.</p> <p>The Service expects that expanding hunting opportunities would not substantially increase harvest or hunter numbers but would likely provide more opportunities for current hunters. Therefore, the proposed action would likely increase only small amounts of lead, which would likely have a minor negative impact.</p> <p>The Service has been educating hunters about the risk to wildlife from lead ammunition. Refuge staff provide information on websites, signage and through other means to make sure hunters have relevant information to voluntarily switch to nontoxic ammunition. Under these alternatives, the refuge represents a small portion of hunting that would allow the use of lead ammunition (deer, predators, rabbits). Since hunters normally remove the animals hunted with lead shot from the refuge, the continued allowance of toxic shot for hunting of some species is estimated to have a negligible effect on the cumulative effects of lead in the environment. The Service's hunt program can be adjusted to make sure that it does not contribute further to the cumulative effects of lead on refuge habitats or wildlife.</p>

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
Climate Change	
<p>Ecological stressors are expected to affect a variety of natural processes and associated resources into the future. Precipitation availability may have a large effect on the number of potholes available to breeding waterfowl. These habitat changes may dramatically reduce the amount and quality of both grassland and wetland for migratory birds that are hunted. As a result, wildlife would be displaced into other areas of available habitat.</p>	<p>While the effects from climate change on the refuge wildlife and habitats are not certain, expanding hunting on the refuge would not add to the cumulative effects of climate change because the refuge uses an adaptive management approach for its hunt program, consistently monitoring and reviewing the hunt program periodically and when necessary. The Service would adjust the hunt program as necessary to make sure that it does not contribute further to the cumulative effects of climate change on resident wildlife and migratory birds.</p>

Key: SD GFP = South Dakota Game, Fish, and Parks; U.S. = United States

3.4 Summary of Analysis

The purpose of this EA is to briefly provide enough 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 Proposed Action Alternative would open hunting opportunities for cottontail rabbit, prairie chicken, mountain lion, coyote, red fox, and bobcat on approximately 12,800 acres. In addition, it would expand hunting opportunities of migratory game birds, upland game birds, and big game on approximately 2,800 acres on the refuge. The Service expects some minimal increases in disturbance to habitat and wildlife from hunting related activities. The largest increase in disturbance would likely occur on and around Pool 10. Disturbed wildlife would either seek refuge within closed areas or leave the refuge entirely to use or rest on other habitats in the area. Disturbed migratory birds may also move to the closed areas or adjacent lands, or they might continue their migration south. During times of no or low hunting pressure, wetlands within the hunting area would provide resting and feeding areas, as they would during non-hunting hours, such as in the late evening or overnight. The Service expects the direct effects to waterfowl caused by disturbance to not significantly affect individual fitness or have any population level effects. The refuge would continue to support substantial resident wildlife populations that would be at, or above, the habitat's carrying capacity. Even at the local level, the refuge only adds slightly to cumulative effects on the resident wildlife, and a negligible amount to regional and statewide populations.

Under this alternative, we expect an increase in disturbance to non-hunting visitors, especially during high visitation periods. Disturbance from gunfire would negatively affect the serenity and natural experience to which the non-hunting public is accustomed. However, the auto tour, as well as three wildlife viewing and hiking trails, are in the area that is closed to all hunting and would be available for use by all visitors throughout the hunting season.

The costs associated with installing signs and maintaining parking areas would increase during the first year. There would also be some minor costs associated with creating new parking lots and hunting brochures, maintaining roads, trails, and other infrastructure in the following years.

Because of the temporary and superficial use of refuge habitats, there would be no direct effects to cultural resources under this alternative from visitors engaged in current or proposed hunting activities. Collecting or removing artifacts, historic items, shed antlers, and other natural objects is prohibited.

It is anticipated under this proposed action that more hunters would use the refuge thereby bolstering the area economy. Martin is the nearest community offering hotels, restaurants, groceries, and fuel. This community depends on hunters to support the economy during the hunting season. The proposed action would help to further support this economic level. Area landowners and adjacent neighbors to the refuge could see a decrease in hunting pressure because hunters would have more opportunities on the refuge. The Service has not identified any potential high and adverse environmental or human health effects from this proposed action or any of the alternatives. Minority or low-income communities would not be disproportionately affected by any effects from this proposed action or any of the alternatives.

This alternative would allow new hunting of predators, migratory birds, and upland game bird species described in the 2020 hunting plan within the refuge. It would also expand hunting opportunities to 2,800 new acres in accordance with federal regulations, refuge-specific regulations, and the seasons and regulations set by the State of South Dakota.

New hunting opportunities would attract hunters not using the refuge, thus affording an opportunity for the refuge to engage new segments of the public to promote natural resources conservation, environmental education, and natural resources stewardship. Opportunities to create more outdoor recreation experiences would be consistent with the goals and priority uses identified by the Improvement Act and Secretarial Orders 347 and 3356. The Service has decided that the hunting plan is compatible with the purposes of the refuge and the mission of the Refuge System.

This alternative meets the purpose and needs of the Service as described above, because it provides hunting opportunities on the refuge and meets the refuge establishing purposes. It maintains 60 percent of the refuge as inviolate sanctuary for migratory birds. The Service has the resources necessary to carry out this alternative and has decided that the proposed action described in this alternative is compatible with the purposes of the refuge and the mission of the Refuge System. This alternative also helps align Service regulations with state regulations as much as possible to make hunting more accessible and regulations less complex to the public.

Alternative B – No Action Alternative

This alternative would continue to offer public hunting opportunities of pheasant, sharp-tailed grouse, and deer on Lacreek NWR. The species that would continue to be hunted at the LWRRA are upland game birds, some migratory birds, and small game as named in 50 CFR Part 32. No additional acres would be opened to hunting on the refuge or the LWRRA. Effects on wildlife and habitat would be negligible because there would likely be the same amount of disturbance from hunting related activities. Overall, the effect on wildlife and their associated habitat would be limited to foot (human and dog) traffic and noise associated with hunting in open areas during open seasons. In addition, vehicle traffic on roads next to open areas increases and this could

influence wildlife movements. Although this alternative has lesser direct effects to physical and biological resources than the proposed action, it would reduce our mandates under the NWRSA and Secretarial Order 3356, "Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories."

Under this alternative, 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, which are hunting, fishing, wildlife observation, photography, environmental education, and interpretation. Conflicts are most likely to occur between hunting and other uses such as bird watching, photography and wildlife viewing. This alternative meets one of the guiding principles of the Service because it provides wildlife-dependent recreational opportunities for the public. However, the alternative does not allow for the variety of hunting opportunities that could be offered, including those mentioned in the refuge CCP, nor does it allow for alignment with state regulations.

Under this alternative, some infrastructure maintenance is needed to support hunting, including installing and maintaining proper signs, maintaining two informational kiosks and four vault toilets, and mowing parking lots. There would be no added costs to the refuge under this alternative.

Hunting resident upland game birds, migratory birds, and big game requires no ground disturbing activities or other activities that might disturb undocumented sites. Continuing the current program would not alter, directly or indirectly, any characteristic of a historic property. Because of the temporary and superficial use of refuge habitats, there would be no direct effects to cultural resources under this alternative from visitors engaged in available hunting activities.

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

There would be no change to current public use and wildlife management programs on the refuge under this alternative. The refuge would not increase its effect on the economy and would not provide new hunting or access opportunities. The Service has not identified any potential high and adverse environmental or human health effects from this proposed action or any of the alternatives. Minority or low-income communities would not be disproportionately affected by any effects from this proposed action or any of the alternatives.

3.5 Monitoring

Continued annual biological monitoring of both resident and migratory wildlife and their habitats is done on the refuge in conjunction with our state partners. In addition, the station would stay apprised on the status of threatened and endangered species on the refuge through consultation and local monitoring. Continued communication with the local SD GFP conservation officer, Bennett County Sheriff, and detailed federal wildlife officers to decide if user conflicts are occurring and any changes that could enhance the hunt program.

3.6 Outreach to the Community

The following issues were raised among various parties involved and were factors considered in developing the alternatives.

Opening Pool 10 to Waterfowl Hunting with a Bald Eagle Nest Within the Unit Near the Pool 10 Structure

- A bald eagle pair constructed a nest near Pool 10 in winter of 2018. Their first nest attempt was in the spring of 2019. Incubation was started but abandoned in late May for unknown reasons. This area is now open to deer, pheasant, and sharp-tailed grouse hunting. However, a consideration is the consistent shooting and human disturbance near the nest caused by waterfowl hunters. This consideration resulted in creating a Closed to Hunting Area of 235 acres. The Service recommends no hunting or hiking within 330' of an active nest during the breeding season (November through June). The proposed Closed to Hunting Area is ample. The shortest distance from a hunter to the nest would be 1200'.

Opening Sandhill Units to Hunting

- During initial scoping, some hunters commented that if the Sandhills are open to hunting then deer would not have a true refuge area and would change their patterns or leave the refuge. This could cause more deer to travel to private land, allowing increased numbers to be shot and preventing bucks from becoming trophy size.
- Trophy size of deer would not be a consideration, however, the primary consideration in opening the Sandhill units is hunter opportunity. The Sandhills are a unique land feature and offer a special hunt to hunters, not found anywhere else in South Dakota.

Opening a Predator Hunt

- In winter months, coyotes congregate on the ice near resting waterfowl, mainly Pools 9 and 10. It is possible to see up to 20 coyotes standing on the ice, watching, waiting, and looking for a sick or wounded bird. By allowing hunters to shoot at these coyotes, it would disturb the migrating waterfowl, further causing stress during a tough and cold time of year. The area proposed to be open for coyote hunting and other predators allows hunters to call their quarry and reduce disturbance to waterfowl. The season dates for the predator hunt is proposed January 1 through February 15. This would also reduce user conflict as upland game and deer seasons are over. We would allow the use of centerfire rifles to take predators.

Opening Cottontail Rabbit Hunting to Weapon Choice

- We would allow the take of cottontail rabbits with a rim-fire rifle. A user conflict or safety issue is not foreseeable because of the suspected low rabbit hunters.

Opening Turkey Hunting

- We considered opening turkey hunting as suggested in the approved CCP (2006). A consideration was given to a spring hunt but declined because of potential conflicts with management operations and safety of management staff. A fall hunt was considered.

However, because of population management of turkeys the SD GFP has held a fall turkey hunt in Bennett County only 5 of the last 10 years. The fall season has not been held in Bennett County since 2013. It was decided not to open hunting to a species that was closed by the state.

3.7 List of Preparers

Name	Position	Work Unit
Shilo Comeau	Conservation Easement Specialist	Huron Wetland Management District
Todd Schmidt	Refuge Manager	Lacreek National Wildlife Refuge

3.8 State Coordination

The refuge reviewed the operations and regulations for neighboring state wildlife management areas and refuges to find consistency where possible. Refuge manager Todd Schmidt coordinated with Tom Beck, John Kanta, Trent Haffly, and Jim McCormick of the SD GFP Department. The state has generally expressed interest in having the Service evaluate opening refuges to new or expanded hunting opportunities. This interest is congruent with the Department of Interior Secretarial Order 3356, “Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories.”

SD GFP reviewed the draft EA, hunting plan, and compatibility determination during the 30-day comment period. We received a comment of support and appreciation from SD GFP for the Service’s proposal at Lacreek NWR and for coordination on a number of projects along with three requests. The requests include allowing hunters and anglers to access the refuge from adjacent public lands or private lands enrolled in public access programs, consideration for allowing boats with electric motors on Pool 10, and opening the refuge to small game hunting with air rifles.

The Service appreciates the comments and looks forward to continued coordination to identify more opportunities for hunters and anglers and in supporting the state’s commendable efforts to recruit, retain, and reactivate outdoor recreationalists. In response to the first request, the Service agrees that hunter and angler access, in addition to parking areas, from adjacent public lands and private lands enrolled in state access programs, would reduce barriers and would revise access requirements. In response to the second request, the Service would agree to revise the regulation and allow hunters to use electric trolling motors on Pool 10. In response to the third request, the Service would continue coordination with the state to open and expand hunting and fishing opportunities at the refuge as well as all Service lands in the State of South Dakota.

In response to this comment, we have added regulatory language that allows hunter and angler access from parking areas, adjacent public lands, and adjacent private lands enrolled in state access programs. We also added regulatory language that allows the use of electric boat motors on Pool 10.

3.9 Tribal Consultation

The Service mailed an invitation for comments to all tribes potentially affected by initiating an environmental assessment to open Lacreek NWR to big game and upland game hunting. The Service extended an invitation to engage in government-to-government consultation in accordance with Executive Order 13175. We did not receive a response from any of the tribes we contacted.

3.10 Public Outreach

On April 1, 2020, the Service put the hunting plan and EA out for 30-day public review and comment. The refuge made the public aware of the availability of the draft EA and hunting plan via public notices on the refuge's website, through local newspapers, and in the Lacreek NWR's headquarters office. During the 30-day public comment period, the Service received comments from 25 individuals and groups or agencies. In summary, five individuals and agencies supported this expansion and new opportunities, five individuals were against opening the South Sandhills area to hunting, and nearly 18 individuals or groups were against opening any part of the refuge. Most comments against the proposal were based around conflicts with other refuge user groups, the potential increase of litter and vandalism, and hunter safety. Most of the comments that opposed the expansion cited that there were plenty of other areas to hunt near the refuge or throughout South Dakota. .

Comment (1): Many commenters expressed general opposition to any hunting or fishing in the Refuge System. In many cases, commenters stated that hunting was antithetical to the purposes of a "refuge."

Response: The Service prioritizes facilitating wildlife-dependent recreational opportunities, including hunting and fishing, on Service land in compliance with applicable Service law and policy. For refuges, the NWRSA stipulates that hunting, along with fishing, wildlife observation and photography, and environmental education and interpretation, if found to be compatible, are a legitimate and priority public use of a refuge and should be facilitated (16 U.S. Code 668dd-[a][3][D]). So, we only allow hunting of resident wildlife on national wildlife refuges if such activity has been determined compatible with the established purpose(s) of the refuge and the mission of the Refuge System, as required by the NWRSA. For hatcheries, we allow hunting and fishing when such activity is determined not to be detrimental to the propagation and distribution of fish or other aquatic wildlife (50 CFR 71.1). For all 106 stations opening or expanding hunting or fishing, both, in this rule, we determined that the proposed actions were compatible or would not have these detrimental impacts.

Each station manager makes a decision regarding hunting and fishing opportunities only after rigorous examination of the available information, consultation, and coordination with states and tribes, and compliance with NEPA (42 U.S. Code 4321 et seq Section 7 of the Endangered Species Act of 1973, as amended [16 U.S. Code 1531 et seq.]), and other applicable laws and regulations. The many steps taken before a station opens or expands a hunting or fishing opportunity on the refuge ensure that the Service does not allow any opportunity that would compromise the purpose of the station or the mission of the agency.

Hunting of resident wildlife on national wildlife refuges is generally consistent with state regulations, including seasons and bag limits. Refuge-specific hunting regulations can be more restrictive, but not more liberal, than state regulations and often are more restrictive in order to

help meet specific refuge objectives. These objectives include resident wildlife population and habitat objectives, minimizing disturbance impacts to wildlife, maintaining high-quality opportunities for hunting and other wildlife-dependent recreation, eliminating or minimizing conflicts with other public uses and refuge management activities, and protecting public safety.

The word “refuge” includes the idea of providing a haven of safety for wildlife, and as such, hunting might seem an inconsistent use of the Refuge System. However, again, the NWRSA stipulates that hunting, if found compatible, is a legitimate and priority public use of a refuge. Furthermore, we manage refuges to support healthy wildlife populations that in many cases produce harvestable surpluses that are a renewable resource. As practiced on refuges, hunting and fishing do not pose a threat to wildlife populations. It is important to note that taking certain individuals through hunting does not necessarily reduce a population overall, as hunting can simply replace other types of mortality. In some cases, however, we use hunting as a management tool, with the explicit goal of reducing a population. This is often the case with exotic or invasive species that threaten ecosystem stability. Therefore, facilitating hunting opportunities is an important aspect of the Service's roles and responsibilities as outlined in the legislation establishing the Refuge System, and the Service would continue to facilitate these opportunities where compatible with the purpose of the specific refuge and the mission of the Refuge System.

We did not make any changes to the rule as a result of these comments.

Comment (2): Several commentators stated that there were plenty of hunting opportunities and were not in support of opening the South Sandhills Unit.

Response: The South Sandhills Unit offers a unique recreational opportunity for hunters. The refuge contains approximately 3,700 acres of Sandhills prairie habitat and is proposing to open hunting on 2,500 acres. The uniqueness of this habitat is its wide open, rugged, and sparsely covered landscape, which creates a hunting challenge not found anywhere else. There are 160,000 acres of this type of habitat in Bennett County, where the refuge sits, of which only 240 acres are legally and currently accessible for hunting. Thus, we disagree with the idea that there are plentiful opportunities to hunt in the Nebraska Sandhills habitat near the refuge.

For the Service, safety during the hunting season is of paramount importance. Thus, in response to these concerns, and to reduce the possibility of wounded big game moving onto private land, the Service decided to remove the 80-acre Elm Creek portion of the South Sandhills Unit from the proposal.

Comment (3): We received a comment that it is inappropriate for the state to establish a hunt on a refuge, as the actual language on page three of the Service's draft EA read, “the NGPC established hunting.”

Response: We realize that the wording of our statement was inaccurate and could lead to erroneous conclusions. Therefore, we have updated the wording of our statement to correctly reflect that the establishment of a hunt on a unit of the Refuge System is done by the Service in coordination with the state.

Comment (4): We received comments opposing the proposal to allow use of lead ammunition for hunting resident game because of concerns that it may lead to poisoning of eagles and other wildlife on the refuge. Some comments also asked the Service to consider an alternative that would require the use of nontoxic ammunition for all hunting on the refuge.

Response: The Service shares commenters concerns regarding the bioavailability of lead in the environment and the fragments that can be deposited in killed game. See, for example, Nancy Golden, et al., “A Review and Assessment of Spent Lead Ammunition and Its Exposure and Effects to Scavenging Birds in the United States,” which is available online at www.fws.gov/midwest/refuges/Review%20and%20Assessment%20paper.pdf. The impacts of spent lead on predators and scavengers on the refuge are analyzed in the EA in the cumulative impacts section. We also expect that expanding hunting opportunities would not substantially increase harvest or hunter numbers but would more likely provide more opportunities for current hunters. As a result of the proposed action, the potential overall increase in and cumulative impact of lead in the environment, both in number of animals harvested and area impacted, is expected to be minor and would not make a significant contribution to the cumulative effects of lead at the local or state level.

In addition to potential impacts to wildlife, recent studies have found that lead ammunition can increase the risk to human health due to the ingestion of lead (Hunt et al. 2009). While no lead poisoning of humans has been documented from ingestion of wild game, some experts, including the Center for Disease Control have recommended the use of nontoxic bullets when hunting to avoid lead exposure and that pregnant women and children under the age of six should not consume wild game shot with lead ammunition (Streater 2009). This recommendation comes after a study done in North Dakota found that those who ate wild game had significantly higher levels of lead in their blood than those who did not (Iqbal et al. 2009).

The Service encourages refuge-state partnerships to reach decisions on usage and would continue to encourage hunters and anglers to voluntarily use nontoxic ammunition and tackle for all harvest activities. Nontoxic ammunition is becoming more available as the demand for this ammunition increases (Kelly et al. 2011). Copper ammunition is a good alternative since it is less toxic and frangible than lead ammunition (Hunt et al. 2006). The Service’s intent is to reduce the potential of lead poisoning to migratory birds and birds of prey, as well as lower the risk of lead exposure for humans ingesting wild game hunted on refuges.

The Service did not modify the proposal as a result of these comments.

Comment (5): We received comments opposed to hunting coyote, bobcat, and mountain lion on the refuge because it is deemed biologically unsound, contrary to the Service’s mandate, not supported by legally sufficient environmental analysis, and because the state has predator hunting policies expressly designed to increase game species availability.

Response: The NWRSA passed by Congress states that hunting, fishing, wildlife observation and photography, and environmental education and interpretation are to be treated as priority public uses throughout all the units of the Refuge System. Thus, provided they are found to be compatible, the Service endeavors to facilitate these public uses on the units of the Refuge System. Pursuant to the priority given to these public uses by the NWRSA, the Service proposed expanding hunting opportunities, including hunting of mountain lion, coyote, and bobcat at the refuge.

The Service does not allow hunting if its effect would conflict with refuge purposes or the mission of the Service, including significant cumulative effects on individual species, federally listed species, or migratory birds. For example, the Service is not proposing the hunting of mountain lions at the refuge to decrease their predation on their prey species, such as large ungulates.

Except where we are more restrictive on individual stations, we follow state hunting and fishing regulations, including those concerning responsible hunting or prohibitions on wanton waste, which is defined as “to intentionally waste something negligently or inappropriately.” The state monitors furbearer populations and adjusts statewide harvest levels accordingly. The Service follows state hunting regulations, but we do so within the regulations governing and the objectives set out by the Refuge System, as well as the purposes of each of its units. For example, Lacreek NWR would differ from the state’s mountain lion, coyote, and bobcat hunting regulations in terms of season duration, hunting hours, and the allowance of hounds and electronic calls.

The refuge manager makes a decision about managing predator populations, including allowing predatory species to be hunted only after careful examination to ensure the action would comply with relevant laws, policies, and directives. The State of South Dakota monitors big game, such as mountain lion, and predator, including coyote and bobcat, populations and adjusts statewide harvest levels accordingly. We considered the impacts of hunting on predator populations through the individual environmental assessment for the proposed hunting opening. We also considered the cumulative impacts of all proposed hunts in the 2020–2021 cumulative impacts report accompanying the proposed rule.

According to The Cougar Fund of South Dakota, the Black Hills Region in South Dakota contains the core of the mountain lion population and forms the basis for the state’s population estimates and quotas. Because the refuge is situated outside of the core mountain lion zone in South Dakota (the Black Hills Region), the Service believes that the harvest of mountain lions would have a low rate of success and thus have an insignificant impact to the overall mountain lion population in the state.

According to state statistics, the mountain lion harvest per unit effort, compared with other big game hunting seasons, is very low in South Dakota. The state reports that “overall, hunting success for all licensed [mountain lion] hunters in the Black Hills Region from 2005/06–2016/17 averaged 1.2 percent.” The state further reports that “each year hunter surveys conducted by SD GFP reveal that some [mountain lion] hunters purchase licenses but do not actually hunt; in the 2016/17 season only about 45 percent of licensed hunters spent time hunting mountain lions in the Black Hills Region.”

According to state mountain lion reports, for the 2016–2017 hunting season, only 1,153 active hunters harvested 23 mountain lions in the species’ core area of the state, resulting in a 2.89 percent success rate from the total 2,561 mountain lion hunting licenses sold. The number of mountain lions killed between April 1, 2015 and March 30, 2017 from all sources, such as hunter harvesting, public removal, illness, and others, was 118 throughout South Dakota. Of those, only 12 were taken by hunters in the Prairie Region (South Dakota Survey Report: Mountain Lion Population Status Update, 2017 Biennial Report), representing 10 percent of the statewide total. This data supports the Service’s estimate that the hunting of mountain lions at the refuge, as proposed, would result in an insignificant impact to the overall mountain lion population in South Dakota.

According to SD GFP, in 2017 in Bennett County, the total estimated harvest density per square kilometer was zero bobcats and 16 to 30 coyotes (South Dakota Game Report, No. 2017–07, 2016, Annual Report: Furbearer Harvest Projections). According to the same source, the total harvest of coyotes in all of Bennett County in 2017 was 84 animals, representing only 3 percent

of the total state harvest. Since the refuge encompasses only 2 percent of the total land area of Bennett County, the number of coyotes hunted in the refuge is equivalent to only 2.3 animals. We would expect only the occasional, transient bobcat on this refuge and, therefore, the likelihood of harvest would be nearly zero.

If mountain lions and bobcats are harvested only rarely, and a very small percentage of the state's coyote population is hunted at the refuge as a result of the proposed action, we would expect a negligible impact to these species at the local and statewide level. Similarly, we would expect their removal to have a minimal impact on the ecosystem.

Through our analysis, we have determined that hunting of mountain lion, coyote, and bobcat are compatible uses at the refuge. We believe that current and proposed management actions are ensuring the overall biological integrity and diversity of the wildlife and habitats entrusted to the Service.

The Service did not modify the proposal as a result of this comment.

Comment (6): A few commenters stated that these proposed changes would conflict with other refuge uses, such as wildlife viewing and photography.

Response: Congress, through the NWRSA, envisioned that hunting, fishing, wildlife observation and photography, and environmental education and interpretation would all be treated as priority public uses of the Refuge System. Therefore, the Service facilitates all of these uses on refuges, if they are found compatible with the purposes of the specific refuge and the mission of the Refuge System. For this rulemaking, we analyzed impacts of the proposed changes to hunting programs at each refuge and hatchery through the NEPA process, which included analyzing impacts to other wildlife-dependent uses. The 74 refuges and 15 hatcheries for which we are opening or expanding hunting or sport fishing, or both, in this rulemaking completed EAs or applied categorical exclusions as previous actions were considered under an EA. We also provided opportunities for the public to comment on the proposed hunt opening and expansions when we developed the CCP, hunting plan, and compatibility determination through the NEPA process. When looking at the 89 EAs and categorical exclusions completed for this specific rulemaking, collectively with the refuges that already allow for hunting in the cumulative impacts report, the Service has determined that there are no significant impacts to other wildlife-dependent recreation opportunities.

The refuges and hatcheries in this rulemaking use a variety of techniques to reduce user conflict, such as specific hunt seasons, limited hunting hours, restricting which parts of the station are open to hunting, and restricting the number of hunters. Station managers also use public outreach tools, such as signs and brochures, to make users aware of hunting and their options for minimizing conflict. Most stations have station-specific regulations to improve the quality of the hunting experience as well as provide for quality wildlife-dependent experiences for other users. The Service is aware of several studies showing a correlation between increased hunting and decreased wildlife sightings, which underscores the importance of using the aforementioned techniques, such as time and space zoning of hunting, to ensure a quality experience for all refuge and hatchery visitors. More information on how a specific station facilitates various wildlife-dependent recreation opportunities can be found in the station's CCP, hunting plan, or station-specific EA or environmental impact statement. The public may contact the specific refuge for any of these materials.

We did not make any change to the rule as a result of this comment.

Comment (7): We received comments requesting that the Service not open the South Sandhills Unit to hunting based on concerns of human safety, as well as issues with game retrieval, trespassing, and vandalism due to the geographical location, size and shape of the Elm Creek portion of this refuge unit, which is a quarter-mile wide with private property on three sides.

Response: For the Service, safety during the hunting season is of paramount importance. All hunters, whether on public or private land, are responsible to know their target and to safely discharge their weapons in the pursuit of game. The South Sandhills Unit is very wide open with little or no trees present, increasing hunters' ability to see other hunters.

With regards to trespassing, all hunters in South Dakota are responsible for knowing land ownership and gaining permission prior to entering any private land. Public lands are traditionally surrounded by private land, and public land managers effectively administer safe and successful public hunting programs. Vehicle access to the 1500-acre South Sandhills Unit is along Cedar Creek Road, where a Designated Hunter Parking Area would be located. No vehicles are allowed past these parking areas

The State of South Dakota allows hunters to perform an unarmed retrieval of small game on private land. Hunters may retrieve lawfully taken small game without permission from private land if they are unarmed and retrieve on foot. The hunter does not need to gain permission from the private landowner to perform this retrieval. This "unarmed retrieval" pertains to small game only, as permission is needed to retrieve big game.

To reduce the possibility of wounded big game moving onto private land, the Service has decided to remove the 80-acre Elm Creek portion of the South Sandhills Unit from the proposal. This small unit is one quarter-mile wide with private property on three sides. Because of its small size and relation to private property, the Service has decided to remove it from the proposed plan.

Comment (8): We received one comment that asked if we had asked the adjacent landowners and adjacent hunting outfitter about this proposal.

Response: The Draft EA for Recreational Hunting on Lacreek NWR was available for a 30-day public comment period in April 2020 and is the very document used to solicit comments from adjacent landowners and adjacent hunting outfitters.

Comment (9): One comment was received that wanted prairie dogs to be included in the list of species of take, and that wanted the proposal to include the ability to collect shed antlers, as well as to leave ground blinds overnight and up to one week at a time.

Response: Black-tailed prairie dogs are an integral part of the wildlife community and it is appropriate to maintain a viable population on the refuge. A prairie dog management plan was developed in 2006 as a step-down plan of the refuge CCP (USFWS 2006). These two plans outline management strategies and objectives to address prairie dog management. Allowing hunters to shoot prairie dogs was not considered during the development of this environmental assessment proposal.

Collecting shed antlers is considered non-wildlife dependent recreation. It is not allowed on the refuge and was not considered during this process. A special use permit may be obtained to gather native vegetation for non-commercial use (USFWS 2006).

Ground blinds are allowed to be used for hunting or photography purposes. However, they are required to be removed at the end of each day. Portable treestands are allowed to be installed and left from August 25–February 15. Treestands and portable blinds differ in their ability to withstand weather events. Ground blinds can be blown away from wind, lost, and reduced to litter. Rules governing the use of ground blinds would remain the same.

Comment (10): We received a comment stating that the EA on this proposal is insufficient, and the Service must not publish a final EA or finding of no significant impact on activities at the refuge before it has accepted and analyzed all comments on the Proposed Rule, including on the cumulative impacts report.

Response: The Service disagrees with the assertion that the EA was insufficient for this proposal. We completed the EA, in compliance with NEPA, to evaluate the impacts of opening or expanding hunting opportunities on the refuge. The EA underwent regional review to address and consider all proposed actions from a local and regional perspective, and to consider the cumulative impacts. After analyzing the impacts, we concluded that the proposed actions would not have significant impacts at the local or regional levels. The commenters who have raised these environmental analysis concerns have provided no additional information that would change this analysis or our conclusion. We annually conduct management activities on the refuge that minimize or offset impacts of hunting on physical and cultural resources, including establishing designated areas for hunting, restricting levels of use, confining access and travel to designated locations, providing education programs and materials for hunters, and conducting law enforcement activities.

The Service is expanding opportunities for recreational hunting. Expanding opportunities does not necessarily result in increased impacts to the refuge resources. Overall, considering the decreasing trends of hunting on refuges, and in hunting generally, we do not expect this proposal to have a significant impact on the environment. As noted by the Service in the final rule, hunter participation trends have been generally declining and some refuges attract a very small number of participants. Often, participation rates decline over the course of a season.

After analyzing all comments received, the Service did not find it necessary to modify the proposal.

Comment (11): We received a comment that the Service has a legal duty to take a hard look to ensure that the biological integrity, diversity, and environmental health (BIDEH) of the system are maintained for the benefit of present and future generations of Americans. The commenter stated that the Service cannot act consistent with that duty when authorizing the hunting of ecologically important predators, ecologically important furbearers, and rare animal species.

Response: We do not allow hunting on a refuge if it is found incompatible with that individual refuge's purposes or with the mission of the Refuge System. Part of the mission of the Refuge System is to “ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans” (16 U.S. Code 668dd[a][4][B]). Therefore, each Service station manager uses “sound professional judgment” in making these inherently complex management decisions to ensure that each proposed action complies with this mandate (see the Service’s Service Manual at 603 FW 2.6.U., available online at www.fws.gov/policy/603fw2.html). Each manager incorporates field experience, knowledge of refuge resources, considerations of the refuge’s role within an ecosystem, applicable laws, and the best available science in making these decisions. Service

biologists and wildlife professionals, in consultation with the state, determine the optimal number of each game animal that should reside in an ecosystem and then establish hunt parameters, such as bag limits or sex ratios, based on those analyses. We carefully consider how a proposed hunt fits with individual refuge goals, objectives, and strategies before allowing the hunt. Based on the analysis in the EA, we did not find that the proposed action would have any significant impact on predator species, such as mountain lion and bobcat, or rare animals and, consequently, would have no significant impact on the BIDEH of refuges.

Several factors make it unlikely that providing a mountain lion, bobcat, or coyote hunting opportunity would affect the BIDEH on the refuge. Please see our responses that address concerns about hunting mountain lion, bobcat, or coyote.

The Service consistently coordinates with the state regarding the refuge's hunting and fishing program. The Service would defer to the state to monitor game and fish species populations, including important furbearers, such as beavers, and implement any adjustments to future harvests as needed under the existing state regulations to ensure sustainable populations, minimize cumulative impacts, and maintain the biological integrity, diversity, and ecological health of refuges and state-managed lands.

The Service did not modify the proposal as a result of this comment.

Comment (12): One comment stated that an open house was required during the initial phase of an environmental assessment.

Response: NEPA regulations require opportunities for the public to review proposals, such as the ones presented by this refuge, and a time for the public to provide comments. When developing an EA, there is no NEPA requirement to hold public meetings, such as an open house, as part of the public review and comment period on the proposed action. Since the Service values and seeks public participation for proposed actions, we like to hold public meetings whenever appropriate and necessary. Due to ongoing nationwide gathering restrictions, and in following with departmental guidance, the Service did not organize public meetings. This was to help prevent further spread of dangerous viruses and preserve public health. Since it is unclear when these national health guidelines would change, and we have the possibility of receiving public comments without the need for public meetings, we decided not to postpone a decision until public meetings may take place.

The Service did not modify the proposal as a result of this comment.

Comment (13): One comment stated that the Service should have coordinated with the SD GFP during the development of the environmental assessment.

Response: The Service did coordinate with the SD GFP prior to, during, and following the development of the environmental assessment.

Comment (14): We received a comment from SD GFP of support and appreciation for our proposal at the refuge and for coordination on several projects. The comments requested the following:

- Allow hunters and anglers to access the refuge from adjacent public lands or private lands enrolled in public access programs.
- Consider allowing boats with electric motors on Pool 10.
- Open the refuge to hunting small game with air rifles.

Response: In response to allowing refuge access from adjacent public lands or private lands, we agree that it is important to allow hunter and angler access, and thus we will reduce barriers and agree to revise access requirements. We have added regulatory language that allows hunter and angler access from parking areas, adjacent public lands, and private lands enrolled in state access programs.

In response to allowing boats with electric motors on Pool 10, we agree to revise the regulation. We added regulatory language that allows the use of electric boat motors on Pool 10.

Regarding opening the refuge to hunting small game with air rifles, we will continue coordination with the SD GFP to open and expand hunting and fishing opportunities at the refuge, as well as all Service lands in the State of South Dakota.

In addition, we will coordinate on additional openings as requested for the next regulatory cycle.

Comment (15): One comment centered on the impact of muzzleloaders (firearms loaded through the open end of the barrel rather than modern breech-loaded firearms) on wildlife and public health and safety.

Response: We have determined that the allowance of muzzleloader rifles as a method of take at Lacreek NWR is compatible with the purposes of the refuge and the mission of the Refuge System. We have also determined that allowing this method of take would have negligible impacts on wildlife and public safety for the following reasons.

- The number of hunters using muzzleloaders on the above-listed refuges and on Service lands in general are expected to remain low. The 2016 National Survey of Hunting and Fishing reported that only 12 percent of all hunters reported using muzzleloaders.
- Noise produced by muzzleloaders is similar in decibel range to noise produced by modern rifles and shotguns of the same caliber and barrel length, approximately 150 to 160 decibels for shotguns. However, the noise produced by these weapons has quite different characteristics. Black powder used in muzzleloaders makes a much lower frequency noise of longer duration. Smokeless cartridges used in modern firearms have a faster burn, which gives a much higher pitched noise with a much shorter duration. The high-pitched crack of modern firearms is more damaging to hearing, and likely more disturbing to wildlife than the lower-pitched sound of black-powder weapons.
- Muzzleloading weapons have a shorter effective range and require a closer approach to game than needed when using modern firearms. In addition, the long reloading time of muzzleloaders, which is approximately 30 seconds, means that hunters typically wait for better opportunities and fewer shots are fired.
- Muzzleloaders use a variety of propellants, including black powder, a mixture of potassium nitrate, charcoal, and sulfur. Black powder does produce relatively large quantities of smoke when fired. If combustion of black powder is complete, smoke would contain primarily nitrogen and carbon dioxide. However, because combustion is incomplete, black powder combustion produces hydrogen sulfide, sulfur oxides, carbon monoxide, and nitrogen oxides (Del’Aria and Opperman 2017). These compounds are toxic if breathed in high concentrations. However, black powder smoke disperses rapidly in typical field conditions encountered when hunting. The total amount produced as a

result of hunting activity would be negligible, and therefore effects to wildlife would also be negligible.

- Muzzleloaders do take significantly more knowledge to use than modern firearms and involve greater risk. However, A Political and Social Research Firearm Injury Surveillance Study, which accumulated data from 1993 to 2008, reported that all firearm-related incidents (all firearms) occurred in only 9 per 1 million hunting days (Loder and Farren 2014). In 2017, according to the National Sporting Goods Associations (NSGA), there were over 17 million hunters with firearms and only 35 injuries occurred per 100,000 participants. Of those, a vast majority were non-serious injuries (Target Tamers 2020). Thus, while hunting with any type of firearm involves risk, it is overall an extremely safe activity.

We did not make any changes to the rule as a result of this comment.

3.11 Determination

This section will be filled out on completion of any public comment period and at the time of finalization of the EA.

- 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: Todd Schmidt, Refuge Manager, Lacreek National Wildlife Refuge

Reviewer Signature: _____ Date: _____

Name/Title: Noreen Walsh, Regional Director, Interior Regions 5 and 7, Lakewood, CO

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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 Part 7</p> <p>Antiquities Act of 1906, 16 U.S. Code 431–433; 43 CFR Part 3</p> <p>Archaeological Resources Protection Act of 1979, 16 U.S. Code 470aa–470mm; 18 CFR Part 1312; 32 CFR Part 229; 36 CFR Part 296; 43 CFR Part 7</p> <p>National Historic Preservation Act of 1966, as amended, 16 U.S. Code 470–470x-6; 36 CFR Parts 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 Part 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 Part 13; 50 CFR Parts 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 Parts 10, 11, 12, 14, 300, and 904</p> <p>Migratory Bird Treaty Act, as amended, 16 U.S. Code 703–712; 50 CFR Parts 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 Parts 23, 50, 51, 52, 58, 60, 61, 82, and 93; 48 CFR Part 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 Parts 923, 930, 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 Parts 320–330; 40 CFR Parts 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 Parts 114, 115, 116, 321, 322, and 333</p> <p>Safe Drinking Water Act of 1974, 42 U.S. Code 300f et seq.; 40 CFR Parts 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. = United States

**APPENDIX B SCIENTIFIC NAME SPECIES LIST AND SPECIES
CATEGORIZATION**

Plants

<i>Agropyron cristatum</i> Crested wheatgrass	<i>Koeleria macrantha</i> Prairie junegrass
<i>Agropyron smithii</i> Western wheatgrass	<i>Mentha arvensis</i> Mint
<i>Amorpha fruticosa</i> False indigo	<i>Panicum virgatum</i> switchgrass
<i>Andropogon gerardii</i> Big bluestem	<i>Platanthera praeclara</i> Western Prairie Fringed Orchid
<i>Andropogon hallii</i> Sand bluestem	<i>Poa pratensis</i> Kentucky bluegrass
<i>Andropogon scoparius</i> Little bluestem	<i>Rumex maritimus</i> Golden dock
<i>Bromis inermis</i> Smooth bromegrass	<i>Salix exigua</i> Sandbar willow
<i>Calamagrostis canadensis</i> Canada bluejoint	<i>Solidago canadensis</i> Canada goldenrod
<i>Calamovilfa longifolia</i> Prairie sandreed	<i>Solidago gigantean</i> Giant goldenrod
<i>Cornus stolonifera</i> Red osier dogwood	<i>Solidago missouriensis</i> Missouri goldenrod
<i>Distichlis spicata</i> Inland saltgrass	<i>Solidago mollis</i> Soft goldenrod
<i>Elymus canadensis</i> Canada wildrye	<i>Solidago rigida</i> Stiff goldenrod
<i>Eragrostis trichoides</i> Sand lovegrass	<i>Sorghastrum nutans</i> Indiangrass
<i>Glycyrrhiza lepidota</i> Wild licorice	<i>Spartina pectinata</i> prairie cordgrass
<i>Helianthus nuttallii</i> Nuttall's sunflower	<i>Sporobolus cryptandrus</i> sand dropseed
<i>Hesperostipa comata</i> needle and thread	<i>Urtica dioica</i> Stinging nettle
<i>Hordeum jubatum</i> Foxtail barley	<i>Verbena hastata</i> Blue vervain
	<i>Yucca glauca</i> Yucca

Mammals

Canis latrans Coyote

Cynomys ludovicianus Black-tailed prairie dog

Dipodomys ordii Ord's kangaroo rat

Myotis lucifugus Little brown bat

Vulpes fulva Red fox

Felis rufus Bobcat

Odocoileus virginianus White-tailed deer

Sylvilagus floridanus Eastern cottontail

Taxidea taxus American badger

Myotis septentrionalis Northern long-eared bat

Odocoileus hemionus Mule deer

Puma concolor Mountain lion

Birds

Aix sponsa Wood duck

Anas acuta Northern pintail

Anas americana American widgeon

Anas clypeata Northern shoveler

Anas creca Green-winged teal

Anas cyanoptera Cinnamon teal

Anas discors Blue-winged teal

Anas platyrhynchos Mallard

Anas rubripes American black duck

Anas strepera Gadwall

Anser albifrons Greater white-fronted goose

Athene cunicularia Burrowing owl

Aythya affinis Lesser scaup

Aythya americana Redhead

Aythya collaris Ring-necked duck

Aythya marila Greater scaup

Aythya valisineria Canvasback

Branta canadensis Canada goose

Bucephala albeola Bufflehead

Bucephala clangula Common goldeneye

Buteo regalis Ferruginous Hawk

Calamospiza melanocorys Lark bunting

Calidris canutus rufa Red knot

Calidris pusilla Semipalmated sandpiper

Catoptrophorus semipalmatus Willet

Centronyx henslowii Henslow's sparrow

Charadrius melodus Piping plover

Chen caerulescens Snow goose

Chen rossii Ross's goose

Corvus brachyrhynchos American crow

Cygnus buccinator Trumpeter swan

Cygnus columbianus Tundra swan

Fulica americana American coot
Gallinago delicata Wilson's snipe
Grus americana Whooping crane
Grus canadensis Sandhill crane
Haliaeetus leucocephalus Bald eagle
Limosa fedoa Marbled godwit
Lophodytes cucullatus Hooded merganser
Melanerpes erythrocephalus Red-headed woodpecker
Melanitta fusca White-winged scoter
Meleagris gallopavo Wild turkey
Mergus merganser Common merganser
Mergus serrator Red-breasted merganser

Frogs

Bufo woodhousei Woodhouse's toad
Pseudacris triseriata Western chorus frog
Rana catesbeiana Bullfrog

Turtles

Chelydra serpentina Common snapping turtle
Chrysemys picta Western painted turtle

Lizards

Eumeces multivirgatus Many-lined skink
Holbrookia maculata Northern earless lizard
Sceloporus undulates Northern prairie lizard

Numenius americanus Long-billed curlew
Nycticorax Black-crowned night heron
Oxyura jamaicensis Ruddy duck
Pelecanus erythrorhynchos American white pelican
Perdix perdix Gray partridge
Phalacrocorax auritus Double-crested cormorant
Phasianus colchicus Ring-necked pheasant
Tympanuchus cupido Greater prairie-chicken
Tympanuchus phasianellus Sharp-tailed grouse
Zenaida macroura Mourning dove

Snakes

Coluber constrictor Eastern yellow-bellied racer
Crotalus viridis Prairie rattlesnake
Pituophis melanoleucus Bull snake
Thamnophis radix Plains garter snake

Arthropods

Vanessa cardui Painted lady
Danaus plexippus Monarch butterfly
Papilio glaucus Eastern tiger swallowtail
Nicrophorus americanus American Burying Beetle
Nicrophorus marginatus Margined burying beetle
Nicrophorus tomentosus Gold-necked burying beetle

APPENDIX C FINDING OF NO SIGNIFICANT IMPACT

FINDING OF NO SIGNIFICANT IMPACT AND DECISION TO EXPAND HUNTING OPPORTUNITIES OF UPLAND GAME, MIGRATORY BIRDS, AND BIG GAME

LACREEK NATIONAL WILDLIFE REFUGE

Bennett County, South Dakota

The United States (U.S.) Fish and Wildlife Service (Service) is opening new hunting opportunities at Lacreek National Wildlife Refuge (NWR) in accordance with the 2020 Lacreek National Wildlife Refuge Hunting Plan. The refuge has been open to mule deer and white-tailed deer, sharp-tailed grouse, and ring-necked pheasants for nearly 40 years. Waterfowl hunting, upland bird hunting, and big game hunting has been allowed on the Little White River Recreation Area (LWRA), which is 222 acres, for more than 75 years. Hunting is currently authorized and ongoing on approximately 8,700 acres, while nearly 9,000 acres are closed. Approximately 220 acres are currently open to waterfowl hunting and the proposed action would increase the total for waterfowl hunting to nearly 5,100 acres. Overall, the proposed action would increase the total acreage open to hunting on the refuge to approximately 11,500 acres. Twelve species can be hunted on the refuge and the proposed action would increase the total to 18 species. The objectives of the hunting plan directly support several of the refuge's long-term management goals. In general, the objective of this hunting plan is to provide hunters with a safe, high quality hunting experience while: (1) maintaining wildlife populations at optimum levels, (2) minimizing negative impacts to other wildlife populations, and (3) minimizing conflicts with other wildlife-dependent public uses on the refuge.

An environmental assessment (EA) was prepared in compliance with the National Environmental Policy Act (NEPA) to provide decision-making framework that: (1) explores a reasonable range of alternatives to meet project objectives; (2) evaluate potential issues and impacts to the refuge, habitat and wildlife resources, and other values; and (3) identifies mitigation measures to lessen the degree or extent of these impacts. The EA evaluated the effects associated with the no action and proposed action alternatives.

Selected Action

Alternative A – Proposed Action Alternative: Hunting is now authorized and ongoing on approximately 8,700 acres, while nearly 9,000 acres are closed. The proposed action would increase the total acreage open to hunting on the refuge to approximately 11,500 acres. Approximately 220 acres are now open to waterfowl hunting and the proposed action would increase the total for waterfowl hunting to nearly 5,100 acres.

Twelve species can be hunted on the refuge and the proposed action would increase the total to 18 species. If the species are italicized, they are a newly proposed species for hunting in 2020.

- Migratory Game Bird Hunting: Open to duck, light geese, dark geese, mourning dove, Wilson’s snipe, Sandhill crane, American crow, and coot.
- Upland Game Hunting: Open to pheasant, sharp-tailed grouse, *prairie chicken*, and *cottontail rabbit*.
- Predator Hunting: Open to *coyote*, *red fox*, *bobcat*, and *mountain lion*.
- Big Game Hunting: Open to white-tailed deer and mule deer.

A description of management units provides more information about what habitats exist on the refuge and may inform what species may be present for hunting. These areas support waterfowl, deer, rabbits, and other game species.

As described in the 2020 hunting plan, besides current authorized hunting opportunities, the proposed alternative would allow expanded hunting of duck, light geese, dark geese, sandhill crane, mourning dove, American crow, Wilson’s snipe, coot, pheasant, sharp-tailed grouse, and mule and white-tailed deer to new acres. It would also allow cottontail rabbit, prairie chicken, coyote, red fox, bobcat, and mountain lion to be hunted.

The following is a list of proposed changes to the refuge hunting program.

Areas to Be Opened

- Open the hunting unit in the South Sandhills, which would be about 1,500 acres south of Cedar Creek Road and East of the Trout Ponds.
- Open the hunting unit in the West Sandhills, including the new Marty Quarter acquisition, which would be about 1,200 acres.

Species to Be Taken – Predators

- Coyote to be hunted throughout the LWRRA, South Sandhills, West Sandhills, and the Brown Ranch Hunting Units from January 1 through February 15, dawn to dusk daily (5,600 acres).
- Bobcat to be hunted throughout the LWRRA, South Sandhills, West Sandhills, and the Brown Ranch Hunting Units from January 1 through February 15, dawn to dusk daily (5,600 acres).
- Red fox to be hunted throughout the LWRRA, South Sandhills, West Sandhills, and the Brown Ranch Hunting Units from January 1 through February 15, dawn to dusk daily (5,600 acres).
- Mountain lion to be hunted throughout the LWRRA, South Sandhills, West Sandhills, and the Brown Ranch Hunting Units from January 1 through February 15, dawn to dusk daily (5,600 acres).

Species to Be Taken – Migratory Game Birds

- Mourning dove to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.

- American crow to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state fall season and regulations. The state identified spring season would be closed. Added 5,000 acres.
- Duck to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.
- Wilson's Snipe to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.
- Sandhill Crane to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.
- Dark Geese to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.
- Light geese to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state fall season and regulations. Added 5,000 acres.
- Coot to be hunted throughout the Pool 10 Hunting Unit, Brown Ranch Units, Marty Quarter, and LWRRA Unit in concurrence with state seasons and regulations. Added 5,000 acres.

Species to Be Taken – Upland Game

- Pheasant to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations. Added 2,700 acres.
- Sharp-tailed grouse to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations. Added 2,700 acres.
- Prairie chicken to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations. Added 11,700 acres.
- Cottontail rabbit to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations. Added 11,700 acres.

Species to Be Taken – Big Game

- White-tailed deer and mule deer to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations (archery and muzzleloader). Added 2,700 acres.
- White-tailed deer and mule deer to be hunted throughout all open hunting units on the refuge in concurrence with state seasons and regulations and refuge regulations (Youth/Apprentice Hunter season with centerfire rifles). Added 2,700 acres.

This alternative was selected over the other alternatives because:

- The proposed alternative would allow the public to harvest a renewable resource, promote a wildlife-oriented recreational opportunity, and increase awareness the refuge and the Refuge System.
- The proposed alternative best aligns hunting regulations with surrounding lands and waters to the extent legally practicable and meets other requirements outlined in Secretarial Order 3356.
- The proposed alternative best increases access for recreational opportunities related to hunting and, in doing so, meets the requirements of Secretarial Order 3366.
- The proposed alternative is compatible with general Service policy regarding the establishment of hunting on national wildlife refuges.
- The proposed alternative is compatible with the purpose for which the refuge was established.
- This proposal does not initiate widespread controversy or litigation.
- There are no conflicts with local, state, regional, or federal plans or policies.

This alternative is the Service's proposed action because it offers the best opportunity for public hunting that would result in a minimal impact on physical and biological resources, while meeting the Service's mandates under the National Wildlife Refuge System Administration Act of 1966 (NWRSA) and Secretarial Order 3356.

Other Alternatives Considered and Analyzed

Alternative B – No Action Alternative: Current hunting opportunities for waterfowl on refuge lands would be maintained and new hunting opportunities for species identified in the 2020 hunting plan would remain closed to hunting. All other existing public uses would remain unchanged.

Under this alternative, current refuge hunting opportunities for 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, and environmental education and interpretation.

This alternative was not selected, because opportunities to create more outdoor recreation experiences by adding species and open new acres 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.

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 more limited access to hunt certain species on public lands in the general area. As no changes would

occur, previous migratory game bird hunting program would still be implemented on the LWRRA.

Summary of Effects of the Selected Action

The Proposed Action Alternative would open hunting opportunities for cottontail rabbit, prairie chicken, mountain lion, coyote, red fox, and bobcat on approximately 11,700 acres. In addition, it would expand hunting opportunities for migratory game birds, upland game birds, and big game on approximately 2,700 acres on the refuge. The Service expects some minimal increases in disturbance to habitat and wildlife from hunting related activities. The largest increase in disturbance would likely occur on and around Pool 10. Disturbed wildlife would either seek refuge within closed areas or leave the refuge entirely to use or rest on other habitats in the area. Disturbed migratory birds may also move to the closed areas or adjacent lands, or they might continue their migration south. During times of no or low hunting pressure, such as the non-hunting hours in the late evening or overnight, wetlands within the hunting area would provide resting and feeding areas. The Service expects the direct effects to waterfowl caused by disturbance to not significantly affect individual fitness or have any population level effects. The refuge would continue to support substantial resident wildlife populations that would be at, or above, the habitat's carrying capacity. Even at the local level, the refuge only adds slightly to cumulative effects on the resident wildlife, and a negligible amount to regional and statewide populations.

The costs associated with installing signs and maintaining parking areas would increase during the first year. There would also be some minor costs associated with creating new parking lots and hunting brochures, maintaining roads, trails, and other infrastructure in the following years.

Because of the temporary and superficial use of refuge habitats under this alternative, there would be no direct effects to cultural resources from visitors engaged in current or proposed hunting activities. Collecting or removing artifacts, historic items, shed antlers, and other natural objects is prohibited.

It is anticipated under this proposed action that more hunters would use the refuge, thereby bolstering the area economy. Martin is the nearest community offering hotels, restaurants, groceries, and fuel. This community depends on hunters to support the economy during the hunting season and the proposed action would help to further support this economic level. Area landowners and adjacent neighbors to the refuge could see a decrease in hunting pressure because hunters would have more opportunities on the refuge. The Service has not identified any potential high and adverse environmental or human health effects from this proposed action or any of the alternatives. Minority or low-income communities would not be disproportionately affected by any effects from this proposed action or any of the alternatives.

This alternative would allow new hunting of predators, migratory birds, and upland game bird species described in the 2020 hunting plan within the refuge. It would also expand hunting opportunities to 2,700 new acres in accordance with federal regulations, refuge-specific regulations, and the seasons and regulations set by the State of South Dakota.

New hunting opportunities would attract hunters not currently using the refuge, thus affording an opportunity for the refuge to engage new segments of the public to promote natural resources conservation, environmental education, and natural resources stewardship. Opportunities to create more outdoor recreation experiences would be consistent with the goals and priority uses

identified by the Improvement Act and Secretarial Orders 347 and 3356. The Service has decided that the hunting plan is compatible with the purposes of the refuge and the mission of the Refuge System.

This alternative meets the purpose and needs of the Service as described above, because it provides hunting opportunities on the refuge and meets the refuge's established purposes. It maintains 60 percent of the refuge as an inviolate sanctuary for migratory birds. The Service has the resources necessary to carry out this alternative and has decided that the proposed action described is compatible with the purposes of the refuge and the mission of the Refuge System. This alternative also helps to align Service regulations with state regulations, making hunting more accessible and regulations less complex to the public.

More opportunities created from this decision may attract more hunters, potentially impacting and leading to conflicts with other users. At this time, we, the Service, believe hunting use would not conflict with other visitor uses. In the future, if a conflict should arise, the impact would be mitigated. There is not likely to be any adverse effect on endangered or threatened species, as effect on wildlife and habitat would be negligible.

Measures to mitigate or minimize adverse effects have been incorporated into the selected action. These measures include:

Adopting a "wildlife first" principle explicitly stated in the Improvement Act. Staff monitor species population trends to ensure that target species can be hunted on the refuge without adversely affecting the species. These monitoring activities include direct observation of populations, consultation with state and Service species specialists, and review of current species survey information and research.

The refuge limits or excludes hunting activities where there are biological concerns. This is the case for several units that are closed to hunting specifically to provide a sanctuary for migratory birds in an area where they are otherwise hunted. These areas are off limits to all hunting. Although not proposed in this current plan, the refuge, in the future, could limit or exclude hunting activities on added portions of the refuge to avoid conflicts related to biological resources, such as threatened or endangered species. Special hunts could also be used to manage hunting pressure, provide increased opportunities, and manage overall take at appropriate levels.

An Endangered Species Act Section 7 consultation was conducted, and it was determined that the proposed alternative is not likely to conflict with the recovery or protection of five species. A determination of "no effect" was made for the northern long eared bat, American burying beetle, and western fringed prairie orchid, as the proposed project would not directly or indirectly affect (neither negatively nor beneficially) individuals of listed, proposed, or candidate species or designated and proposed critical habitat of such species. A determination of "may affect but not likely to adversely affect" was made for red knot and whooping crane, as the proposed project is likely to cause insignificant, discountable, or wholly beneficial effects to individuals and designated critical habitat (Appendix D of the EA). Section 7 of the Endangered Species Act requires federal agencies to evaluate potential impacts to threatened and endangered species and their habitats. In addition, an environmental assessment under NEPA was conducted specifically for the hunting program and addresses each of these species. A list of scientific names and categorization of species referenced in this document can be found in Appendix B of the environmental assessment.

Public Use Conflicts

To decrease conflicts with priority non-hunting recreational uses outlined in the Improvement Act, and for public safety, the refuge designates areas open to hunting and enforces refuge-specific regulations. The boundaries of all lands owned or managed by the Service are posted with refuge boundary signs. Areas administratively closed to hunting are clearly marked with “No Hunting Zone” signs. Overall, hunting impacts to visitor services and recreation opportunities are considered short-term, minor, and local. Past conflicts have been minimal, and we anticipate future conflicts to be about the same.

Administrative Use Conflicts

The most potential for conflict with management activities occurs in areas where habitat treatments are conducted. Habitat treatments, such as invasive species treatment, may generate a temporary closure of an area. Notice or information about any of these closures may be posted and available at the refuge office to mitigate conflicts.

While refuges, by their nature, are unique areas protected for conservation of fish, wildlife and habitat, the proposed action would not have a significant impact on refuge resources and uses for several reasons.

- The Service works closely with the state to ensure that added species harvested on a refuge are within the limits set by the state to ensure healthy populations of the species for present and future generations of Americans.
- The action would result in more wildlife-dependent recreational opportunities and improved socioeconomics of the local economy, with only negligible adverse impacts to the human environment as discussed above.
- The adverse direct and indirect effects of the proposed action on air, water, soil, habitat, wildlife, aesthetic or visual resources, and wilderness values are expected to be minor and short-term.
- The Refuge System uses an adaptive management approach to all wildlife management on refuges, monitoring and re-evaluating the refuge’s hunting and fishing opportunities annually to ensure that these programs continue to contribute to the biodiversity and ecosystem health of the refuge. Further, the Refuge System ensures that these opportunities do not contribute to any cumulative impacts to habitat or wildlife from climate change, population growth and development, or local, state, or regional wildlife management.
- The action, along with proposed mitigation measures, would ensure that there is low danger to the health and safety of refuge staff, visitors, and the hunters and anglers themselves.
- The action would not impact any threatened or endangered species or any federally designated critical habitat.
- There is no scientific controversy regarding the impacts of this action, and the impacts of the proposed action are relatively certain.
- The proposal is not expected to have any significant adverse effects on wetlands and floodplains, pursuant to Executive Orders 11990 and 11988.

The analysis above demonstrates that the addition of coyote, bobcat, red fox, mountain lion, cottontail rabbit, and prairie chicken would not have significant impact on local and regional wildlife populations because the percentage likely to be taken on the refuge, though possibly additive to existing hunting takes, would be a tiny fraction of the estimated populations. In addition, overall populations would continue to be monitored in collaboration with South Dakota Game, Fish, and Parks (SD GFP) biologists to determine if harvest levels should be adjusted.

Increased hunting would not add more than slightly to the cumulative impacts to resident wildlife stemming from hunting at the local or regional levels, and would only result in minor, negative impacts to their populations.

Public Review

The refuge reviewed the operations and regulations for neighboring state wildlife management areas and refuges to find consistency where possible. Refuge manager Todd Schmidt coordinated with Tom Beck, John Kanta, Trent Haffly, and Jim McCormick, of the SD GFP Department. The state has generally expressed interest in having the Service evaluate opening refuges to new or expanded hunting opportunities. This interest is congruent with the Department of Interior Secretarial Order 3356, "Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories." SD GFP reviewed the draft EA, hunting plan, and compatibility determination during the 30-day comment period.

Lacreek NWR received comments from 25 individuals and groups or agencies. In summary, five individuals or agencies supported this expansion and new opportunities. Five individuals were against opening the South Sandhills area to hunting, and nearly 18 individuals or groups were against opening any part of the refuge. Most comments against the proposal were based around conflicts with other refuge user groups, the potential increases of litter and vandalism, and hunter safety. Most of the comments that opposed the expansion cited that there were plenty of other areas to hunt near the refuge or throughout South Dakota.

Comment (1): Many commenters expressed general opposition to any hunting or fishing in the Refuge System. In many cases, commenters stated that hunting was antithetical to the purposes of a "refuge."

Response: The Service prioritizes facilitating wildlife-dependent recreational opportunities, including hunting and fishing, on Service land in compliance with applicable Service law and policy. For refuges, the NWRSA stipulates that hunting, along with fishing, wildlife observation and photography, and environmental education and interpretation, if found to be compatible, are a legitimate and priority public use of a refuge and should be facilitated (16 U.S. Code 668dd-[a][3][D]). So, we only allow hunting of resident wildlife on national wildlife refuges if such activity has been determined compatible with the established purpose(s) of the refuge and the mission of the Refuge System, as required by the NWRSA. For hatcheries, we allow hunting and fishing when such activity is determined not to be detrimental to the propagation and distribution of fish or other aquatic wildlife (50 Code of Federal Regulations 71.1). For all 106 stations opening or expanding hunting or fishing, both, in this rule, we determined that the proposed actions were compatible or would not have these detrimental impacts.

Each station manager makes a decision regarding hunting and fishing opportunities only after rigorous examination of the available information, consultation, and coordination with states and

tribes, and compliance with NEPA (42 U.S. Code 4321 et seq Section 7 of the Endangered Species Act of 1973, as amended [16 U.S. Code 1531 et seq.]), and other applicable laws and regulations. The many steps taken before a station opens or expands a hunting or fishing opportunity on the refuge ensure that the Service does not allow any opportunity that would compromise the purpose of the station or the mission of the agency.

Hunting of resident wildlife on national wildlife refuges is generally consistent with state regulations, including seasons and bag limits. Refuge-specific hunting regulations can be more restrictive, but not more liberal, than state regulations and often are more restrictive in order to help meet specific refuge objectives. These objectives include resident wildlife population and habitat objectives, minimizing disturbance impacts to wildlife, maintaining high-quality opportunities for hunting and other wildlife-dependent recreation, eliminating or minimizing conflicts with other public uses and refuge management activities, and protecting public safety.

The word “refuge” includes the idea of providing a haven of safety for wildlife, and as such, hunting might seem an inconsistent use of the Refuge System. However, again, the NWRSA stipulates that hunting, if found compatible, is a legitimate and priority public use of a refuge. Furthermore, we manage refuges to support healthy wildlife populations that in many cases produce harvestable surpluses that are a renewable resource. As practiced on refuges, hunting and fishing do not pose a threat to wildlife populations. It is important to note that taking certain individuals through hunting does not necessarily reduce a population overall, as hunting can simply replace other types of mortality. In some cases, however, we use hunting as a management tool, with the explicit goal of reducing a population. This is often the case with exotic or invasive species that threaten ecosystem stability. Therefore, facilitating hunting opportunities is an important aspect of the Service's roles and responsibilities as outlined in the legislation establishing the Refuge System, and the Service would continue to facilitate these opportunities where compatible with the purpose of the specific refuge and the mission of the Refuge System.

We did not make any changes to the rule as a result of these comments.

Comment (2): Several commentators stated that there were plenty of hunting opportunities and were not in support of opening the South Sandhills Unit.

Response: The South Sandhills Unit offers a unique recreational opportunity for hunters. The refuge contains approximately 3,700 acres of Sandhills prairie habitat and is proposing to open hunting on 2,500 acres. The uniqueness of this habitat is its wide open, rugged, and sparsely covered landscape, which creates a hunting challenge not found anywhere else. There are 160,000 acres of this type of habitat in Bennett County, where the refuge sits, of which only 240 acres are legally and currently accessible for hunting. Thus, we disagree with the idea that there are plentiful opportunities to hunt in the Nebraska Sandhills habitat near the refuge.

For the Service, safety during the hunting season is of paramount importance. Thus, in response to these concerns, and to reduce the possibility of wounded big game moving onto private land, the Service decided to remove the 80-acre Elm Creek portion of the South Sandhills Unit from the proposal.

Comment (3): We received a comment that it is inappropriate for the state to establish a hunt on a refuge, as the actual language on page three of the Service's draft EA read, “the NGPC established hunting.”

Response: We realize that the wording of our statement was inaccurate and could lead to erroneous conclusions. Therefore, we have updated the wording of our statement to correctly reflect that the establishment of a hunt on a unit of the Refuge System is done by the Service in coordination with the state.

Comment (4): We received comments opposing the proposal to allow use of lead ammunition for hunting resident game because of concerns that it may lead to poisoning of eagles and other wildlife on the refuge. Some comments also asked the Service to consider an alternative that would require the use of nontoxic ammunition for all hunting on the refuge.

Response: The Service shares commenters concerns regarding the bioavailability of lead in the environment and the fragments that can be deposited in killed game. See, for example, Nancy Golden, et al., “A Review and Assessment of Spent Lead Ammunition and Its Exposure and Effects to Scavenging Birds in the United States,” which is available online at www.fws.gov/midwest/refuges/Review%20and%20Assessment%20paper.pdf. The impacts of spent lead on predators and scavengers on the refuge are analyzed in the EA in the cumulative impacts section. We also expect that expanding hunting opportunities would not substantially increase harvest or hunter numbers but would more likely provide additional opportunities for current hunters. As a result of the proposed action, the potential overall increase in and cumulative impact of lead in the environment, both in number of animals harvested and area impacted, is expected to be minor and would not make a significant contribution to the cumulative effects of lead at the local or state level.

In addition to potential impacts to wildlife, recent studies have found that lead ammunition can increase the risk to human health due to the ingestion of lead (Hunt et al. 2009). While no lead poisoning of humans has been documented from ingestion of wild game, some experts, including the Center for Disease Control have recommended the use of nontoxic bullets when hunting to avoid lead exposure and that pregnant women and children under the age of six should not consume wild game shot with lead ammunition (Streater 2009). This recommendation comes after a study done in North Dakota found that those who ate wild game had significantly higher levels of lead in their blood than those who did not (Iqbal et al. 2009).

The Service encourages refuge-state partnerships to reach decisions on usage and would continue to encourage hunters and anglers to voluntarily use nontoxic ammunition and tackle for all harvest activities. Nontoxic ammunition is becoming more available as the demand for this ammunition increases (Kelly et al. 2011). Copper ammunition is a good alternative since it is less toxic and frangible than lead ammunition (Hunt et al. 2006). The Service’s intent is to reduce the potential of lead poisoning to migratory birds and birds of prey, as well as lower the risk of lead exposure for humans ingesting wild game hunted on refuges.

The Service did not modify the proposal as a result of these comments.

Comment (5): We received comments opposed to hunting coyote, bobcat, and mountain lion on the refuge because it is deemed biologically unsound, contrary to the Service’s mandate, not supported by legally sufficient environmental analysis, and because the state has predator hunting policies expressly designed to increase game species availability.

Response: The NWRSA passed by Congress states that hunting, fishing, wildlife observation and photography, and environmental education and interpretation are to be treated as priority public uses throughout all the units of the Refuge System. Thus, provided they are found to be

compatible, the Service endeavors to facilitate these public uses on the units of the Refuge System. Pursuant to the priority given to these public uses by the NWRSA, the Service proposed expanding hunting opportunities, including hunting of mountain lion, coyote, and bobcat at the refuge.

The Service does not allow hunting if its effect would conflict with refuge purposes or the mission of the Service, including significant cumulative effects on individual species, federally listed species, or migratory birds. For example, the Service is not proposing the hunting of mountain lions at the refuge to decrease their predation on their prey species, such as large ungulates.

Except where we are more restrictive on individual stations, we follow state hunting and fishing regulations, including those concerning responsible hunting or prohibitions on wanton waste, which is defined as “to intentionally waste something negligently or inappropriately.” The state monitors furbearer populations and adjusts statewide harvest levels accordingly. The Service follows state hunting regulations, but we do so within the regulations governing and the objectives set out by the Refuge System, as well as the purposes of each of its units. For example, Lacreek NWR would differ from the state’s mountain lion, coyote, and bobcat hunting regulations in terms of season duration, hunting hours, and the allowance of hounds and electronic calls.

The refuge manager makes a decision about managing predator populations, including allowing predatory species to be hunted only after careful examination to ensure the action would comply with relevant laws, policies, and directives. The State of South Dakota monitors big game, such as mountain lion, and predator, including coyote and bobcat, populations and adjusts statewide harvest levels accordingly. We considered the impacts of hunting on predator populations through the individual environmental assessment for the proposed hunting opening. We also considered the cumulative impacts of all proposed hunts in the 2020–2021 cumulative impacts report accompanying the proposed rule.

According to The Cougar Fund of South Dakota, the Black Hills Region in South Dakota contains the core of the mountain lion population and forms the basis for the state’s population estimates and quotas. Because the refuge is situated outside of the core mountain lion zone in South Dakota (the Black Hills Region), the Service believes that the harvest of mountain lions would have a low rate of success and thus have an insignificant impact to the overall mountain lion population in the state.

According to state statistics, the mountain lion harvest per unit effort, compared with other big game hunting seasons, is very low in South Dakota. The state reports that “overall, hunting success for all licensed [mountain lion] hunters in the Black Hills Region from 2005/06–2016/17 averaged 1.2 percent.” The state further reports that “each year hunter surveys conducted by SD GFP reveal that some [mountain lion] hunters purchase licenses but do not actually hunt; in the 2016/17 season only about 45 percent of licensed hunters spent time hunting mountain lions in the Black Hills Region.”

According to state mountain lion reports, for the 2016–2017 hunting season, only 1,153 active hunters harvested 23 mountain lions in the species’ core area of the state, resulting in a 2.89 percent success rate from the total 2,561 mountain lion hunting licenses sold. The number of mountain lions killed between April 1, 2015 and March 30, 2017 from all sources, such as hunter harvesting, public removal, illness, and others, was 118 throughout South Dakota. Of those, only

12 were taken by hunters in the Prairie Region (South Dakota Survey Report: Mountain Lion Population Status Update, 2017 Biennial Report), representing 10 percent of the statewide total. This data supports the Service's estimate that the hunting of mountain lions at the refuge, as proposed, would result in an insignificant impact to the overall mountain lion population in South Dakota.

According to SD GFP, in 2017 in Bennett County, the total estimated harvest density per square kilometer was zero bobcats and 16 to 30 coyotes (South Dakota Game Report, No. 2017-07, 2016, Annual Report: Furbearer Harvest Projections). According to the same source, the total harvest of coyotes in all of Bennett County in 2017 was 84 animals, representing only 3 percent of the total state harvest. Since the refuge encompasses only 2 percent of the total land area of Bennett County, the number of coyotes hunted in the refuge is equivalent to only 2.3 animals. We would expect only the occasional, transient bobcat on this refuge and, therefore, the likelihood of harvest would be nearly zero.

If mountain lions and bobcats are harvested only rarely, and a very small percentage of the state's coyote population is hunted at the refuge as a result of the proposed action, we would expect a negligible impact to these species at the local and statewide level. Similarly, we would expect their removal to have a minimal impact on the ecosystem.

Through our analysis, we have determined that hunting of mountain lion, coyote, and bobcat are compatible uses at the refuge. We believe that current and proposed management actions are ensuring the overall biological integrity and diversity of the wildlife and habitats entrusted to the Service.

The Service did not modify the proposal as a result of this comment.

Comment (6): A few commenters stated that these proposed changes would conflict with other refuge uses, such as wildlife viewing and photography.

Response: Congress, through the NWRSA, envisioned that hunting, fishing, wildlife observation and photography, and environmental education and interpretation would all be treated as priority public uses of the Refuge System. Therefore, the Service facilitates all of these uses on refuges, if they are found compatible with the purposes of the specific refuge and the mission of the Refuge System. For this rulemaking, we analyzed impacts of the proposed changes to hunting programs at each refuge and hatchery through the NEPA process, which included analyzing impacts to other wildlife-dependent uses. The 74 refuges and 15 hatcheries for which we are opening or expanding hunting or sport fishing, or both, in this rulemaking completed EAs or applied categorical exclusions as previous actions were considered under an EA. We also provided opportunities for the public to comment on the proposed hunt opening and expansions when we developed the CCP, hunting plan, and compatibility determination through the NEPA process. When looking at the 89 EAs and categorical exclusions completed for this specific rulemaking, collectively with the refuges that already allow for hunting in the cumulative impacts report, the Service has determined that there are no significant impacts to other wildlife-dependent recreation opportunities.

The refuges and hatcheries in this rulemaking use a variety of techniques to reduce user conflict, such as specific hunt seasons, limited hunting hours, restricting which parts of the station are open to hunting, and restricting the number of hunters. Station managers also use public outreach tools, such as signs and brochures, to make users aware of hunting and their options for

minimizing conflict. Most stations have station-specific regulations to improve the quality of the hunting experience as well as provide for quality wildlife-dependent experiences for other users. The Service is aware of several studies showing a correlation between increased hunting and decreased wildlife sightings, which underscores the importance of using the aforementioned techniques, such as time and space zoning of hunting, to ensure a quality experience for all refuge and hatchery visitors. More information on how a specific station facilitates various wildlife-dependent recreation opportunities can be found in the station's CCP, hunting plan, or station-specific EA or environmental impact statement. The public may contact the specific refuge for any of these materials.

We did not make any change to the rule as a result of this comment.

Comment (7): We received comments requesting that the Service not open the South Sandhills Unit to hunting based on concerns of human safety, as well as issues with game retrieval, trespassing, and vandalism due to the geographical location, size and shape of the Elm Creek portion of this refuge unit, which is a quarter-mile wide with private property on three sides.

Response: For the Service, safety during the hunting season is of paramount importance. All hunters, whether on public or private land, are responsible to know their target and to safely discharge their weapons in the pursuit of game. The South Sandhills Unit is very wide open with little or no trees present, increasing hunters' ability to see other hunters.

With regards to trespassing, all hunters in South Dakota are responsible for knowing land ownership and gaining permission prior to entering any private land. Public lands are traditionally surrounded by private land, and public land managers effectively administer safe and successful public hunting programs. Vehicle access to the 1500-acre South Sandhills Unit is along Cedar Creek Road, where a Designated Hunter Parking Area would be located. No vehicles are allowed past these parking areas

The State of South Dakota allows hunters to perform an unarmed retrieval of small game on private land. Hunters may retrieve lawfully taken small game without permission from private land if they are unarmed and retrieve on foot. The hunter does not need to gain permission from the private landowner to perform this retrieval. This "unarmed retrieval" pertains to small game only, as permission is needed to retrieve big game.

To reduce the possibility of wounded big game moving onto private land, the Service has decided to remove the 80-acre Elm Creek portion of the South Sandhills Unit from the proposal. This small unit is one quarter-mile wide with private property on three sides. Because of its small size and relation to private property, the Service has decided to remove it from the proposed plan.

Comment (8): We received one comment that asked if we had asked the adjacent landowners and adjacent hunting outfitter about this proposal.

Response: The Draft EA for Recreational Hunting on Lacreek NWR was available for a 30-day public comment period in April 2020 and is the very document used to solicit comments from adjacent landowners and adjacent hunting outfitters.

Comment (9): One comment was received that wanted prairie dogs to be included in the list of species of take, and that wanted the proposal to include the ability to collect shed antlers, as well as to leave ground blinds overnight and up to one week at a time.

Response: Black-tailed prairie dogs are an integral part of the wildlife community and it is appropriate to maintain a viable population on the refuge. A prairie dog management plan was developed in 2006 as a step-down plan of the refuge CCP (USFWS 2006). These two plans outline management strategies and objectives to address prairie dog management. Allowing hunters to shoot prairie dogs was not considered during the development of this environmental assessment proposal.

Collecting shed antlers is considered non-wildlife dependent recreation. It is not allowed on the refuge and was not considered during this process. A special use permit may be obtained to gather native vegetation for non-commercial use (USFWS 2006).

Ground blinds can be used for hunting or photography purposes. However, they are required to be removed at the end of each day. Portable treestands can be installed and left from August 25–February 15. Treestands and portable blinds differ in their ability to withstand weather events. Ground blinds can be blown away from wind, lost, and reduced to litter. Rules governing the use of ground blinds would remain the same.

Comment (10): We received a comment stating that the EA on this proposal is insufficient, and the Service must not publish a final EA or finding of no significant impact on activities at the refuge before it has accepted and analyzed all comments on the Proposed Rule, including on the cumulative impacts report.

Response: The Service disagrees with the assertion that the EA was insufficient for this proposal. We completed the EA, in compliance with NEPA, to evaluate the impacts of opening or expanding hunting opportunities on the refuge. The EA underwent regional review to address and consider all proposed actions from a local and regional perspective, and to consider the cumulative impacts. After analyzing the impacts, we concluded that the proposed actions would not have significant impacts at the local or regional levels. The commenters who have raised these environmental analysis concerns have provided no additional information that would change this analysis or our conclusion. We annually conduct management activities on the refuge that minimize or offset impacts of hunting on physical and cultural resources, including establishing designated areas for hunting, restricting levels of use, confining access and travel to designated locations, providing education programs and materials for hunters, and conducting law enforcement activities.

The Service is expanding opportunities for recreational hunting. Expanding opportunities does not necessarily result in increased impacts to the refuge resources. Overall, considering the decreasing trends of hunting on refuges, and in hunting generally, we do not expect this proposal to have a significant impact on the environment. As noted by the Service in the final rule, hunter participation trends have been generally declining and some refuges attract a very small number of participants. Often, participation rates decline over the course of a season.

After analyzing all comments received, the Service did not find it necessary to modify the proposal.

Comment (11): We received a comment that the Service has a legal duty to take a hard look to ensure that the biological integrity, diversity, and environmental health (BIDEH) of the system are maintained for the benefit of present and future generations of Americans. The commenter stated that the Service cannot act consistent with that duty when authorizing the hunting of ecologically important predators, ecologically important furbearers, and rare animal species.

Response: We do not allow hunting on a refuge if it is found incompatible with that individual refuge's purposes or with the mission of the Refuge System. Part of the mission of the Refuge System is to “ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans” (16 U.S. Code 668dd[a][4][B]). Therefore, each Service station manager uses “sound professional judgment” in making these inherently complex management decisions to ensure that each proposed action complies with this mandate (see the Service’s Service Manual at 603 FW 2.6.U., available online at www.fws.gov/policy/603fw2.html). Each manager incorporates field experience, knowledge of refuge resources, considerations of the refuge’s role within an ecosystem, applicable laws, and the best available science in making these decisions. Service biologists and wildlife professionals, in consultation with the state, determine the optimal number of each game animal that should reside in an ecosystem and then establish hunt parameters, such as bag limits or sex ratios, based on those analyses. We carefully consider how a proposed hunt fits with individual refuge goals, objectives, and strategies before allowing the hunt. Based on the analysis in the EA, we did not find that the proposed action would have any significant impact on predator species, such as mountain lion and bobcat, or rare animals and, consequently, would have no significant impact on the BIDEH of refuges.

Several factors make it unlikely that providing a mountain lion, bobcat, or coyote hunting opportunity would affect the BIDEH on the refuge. Please see our responses that address concerns about hunting mountain lion, bobcat, or coyote.

The Service consistently coordinates with the state regarding the refuge’s hunting and fishing program. The Service would defer to the state to monitor game and fish species populations, including important furbearers, such as beavers, and implement any adjustments to future harvests as needed under the existing state regulations to ensure sustainable populations, minimize cumulative impacts, and maintain the biological integrity, diversity, and ecological health of refuges and state-managed lands.

The Service did not modify the proposal as a result of this comment.

Comment (12): One comment stated that an open house was required during the initial phase of an environmental assessment.

Response: NEPA regulations require opportunities for the public to review proposals, such as the ones presented by this refuge, and a time for the public to provide comments. When developing an EA, there is no NEPA requirement to hold public meetings, such as an open house, as part of the public review and comment period on the proposed action. Since the Service values and seeks public participation for proposed actions, we like to hold public meetings whenever appropriate and necessary. Due to ongoing nationwide gathering restrictions, and in following with departmental guidance, the Service did not organize public meetings. This was to help prevent further spread of dangerous viruses and preserve public health. Since it is unclear when these national health guidelines would change, and we have the possibility of receiving public comments without the need for public meetings, we decided not to postpone a decision until public meetings may take place.

The Service did not modify the proposal as a result of this comment.

Comment (13): One comment stated that the Service should have coordinated with the SD GFP during the development of the environmental assessment.

Response: The Service did coordinate with the SD GFP prior to, during, and following the development of the environmental assessment.

Comment (14): We received a comment from SD GFP of support and appreciation for our proposal at the refuge and for coordination on several projects. The comments requested the following.

- Allow hunters and anglers to access the refuge from adjacent public lands or private lands enrolled in public access programs.
- Consider allowing boats with electric motors on Pool 10.
- Open the refuge to hunting small game with air rifles.

Response: In response to allowing refuge access from adjacent public lands or private lands, we agree that it is important to allow hunter and angler access, and thus we will reduce barriers and agree to revise access requirements. We have added regulatory language that allows hunter and angler access from parking areas, adjacent public lands, and private lands enrolled in state access programs.

In response to allowing boats with electric motors on Pool 10, we agree to revise the regulation. We added regulatory language that allows the use of electric boat motors on Pool 10.

Regarding opening the refuge to hunting small game with air rifles, we will continue coordination with the SD GFP to open and expand hunting and fishing opportunities at the refuge, as well as all Service lands in the State of South Dakota.

In addition, we will coordinate on additional openings as requested for the next regulatory cycle.

Comment (15): One comment centered on the impact of muzzleloaders (firearms loaded through the open end of the barrel, rather than modern breech-loaded firearms) on wildlife and public health and safety.

Response: We have determined that the allowance of muzzleloader rifles as a method of take at Lacreek NWR is compatible with the purposes of the refuge and the mission of the Refuge System. We have also determined that allowing this method of take would have negligible impacts on wildlife and public safety for the following reasons.

- The number of hunters using muzzleloaders on the above-listed refuges and on Service lands in general are expected to remain low. The 2016 National Survey of Hunting and Fishing reported that only 12 percent of all hunters reported using muzzleloaders.
- Noise produced by muzzleloaders is similar in decibel range to noise produced by modern rifles and shotguns of the same caliber and barrel length, approximately 150 to 160 decibels for shotguns. However, the noise produced by these weapons has quite different characteristics. Black powder used in muzzleloaders makes a much lower frequency noise of longer duration. Smokeless cartridges used in modern firearms have a faster burn, which gives a much higher pitched noise with a much shorter duration. The high-pitched crack of modern firearms is more damaging to hearing, and likely more disturbing to wildlife than the lower-pitched sound of black-powder weapons.
- Muzzleloading weapons have a shorter effective range and require a closer approach to game than needed when using modern firearms. In addition, the long reloading time of

muzzleloaders, which is approximately 30 seconds, means that hunters typically wait for better opportunities and fewer shots are fired.

- Muzzleloaders use a variety of propellants, including black powder, a mixture of potassium nitrate, charcoal, and sulfur. Black powder does produce relatively large quantities of smoke when fired. If combustion of black powder is complete, smoke would contain primarily nitrogen and carbon dioxide. However, because combustion is incomplete, black powder combustion produces hydrogen sulfide, sulfur oxides, carbon monoxide, and nitrogen oxides (Del’Aria and Opperman 2017). These compounds are toxic if breathed in high concentrations. However, black powder smoke disperses rapidly in typical field conditions encountered when hunting. The total amount produced as a result of hunting activity would be negligible, and therefore effects to wildlife would also be negligible.
- Muzzleloaders do take significantly more knowledge to use than modern firearms and involve greater risk. However, A Political and Social Research Firearm Injury Surveillance Study, which accumulated data from 1993 to 2008, reported that firearm-related incidents (all firearms) occurred in only 9 per 1 million hunting days (Loder and Farren 2014). In 2017, according to the National Sporting Goods Associations (NSGA), there were over 17 million hunters with firearms and only 35 injuries occurred per 100,000 participants. Of those, a vast majority were non-serious injuries (Target Tamers 2020). Thus, while hunting with any type of firearm involves risk, it is overall an extremely safe activity.

We did not make any changes to the rule as a result of this comment.

Finding of No Significant Impact

Based upon a review and evaluation of the information contained in the EA, as well as other documents and actions of record affiliated with this proposal, the Service has determined that the proposal to allow expanded hunting opportunities for cottontail rabbit, mountain lion, coyote, bobcat, prairie chicken, and red fox in accordance with the laws of the State of South Dakota and to open more lands for hunting on Lacreek NWR does not constitute a major federal action significantly affecting the quality of the human environment under the meaning of Section 102(2)(c) of NEPA (as amended). As such, an environmental impact statement is not required.

Decision

The Service has decided to open hunting opportunities for predators, including mountain lion, red fox, coyote, and bobcat, on approximately 5,600 acres; open hunting opportunities for upland game, including prairie chicken and cottontail rabbit, on approximately 11,500 acres; expand migratory bird hunting opportunities to more than 5,000 acres; and expand new huntable acres by nearly 2,700 acres at Lacreek NWR.

This action is compatible with the purpose of the refuge and the mission of the Refuge System (see the final compatibility determination).

The action is consistent with applicable laws and policies regarding the establishment of hunting on national wildlife refuges. Refuge-specific regulations promulgated in conjunction with this action are in the process of being finalized (see 85 FR 20030). This action will not be implemented until the date of public inspection by the Federal Register and regulations are finalized.

Noreen Walsh

Date

Regional Director, Interior Regions 5 and 7

U.S. Fish and Wildlife Service

Lakewood, CO

**APPENDIX D INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM –
REGION 6**

Originating Person: Shilo Comeau

Date Submitted: 12/18/2019

Telephone Number: (605) 353-5894 Ext 112

- I. Service Program and Geographic Area or Station Name:** National Wildlife Refuge System – Region 6 – Lacreek National Wildlife Refuge (NWR)
- II. Flexible Funding Program (for example, Joint Venture) if applicable:** Not applicable.
- III. Location:** Bennett County, SD, Headquarters located at N 43° 09' 59" W 101° 34' 06", T 37 N, Sec 22, R63W.
- IV. Species/Critical Habitat:**

There are five federally listed species that may occur in the general areas of Lacreek NWR, the species include red knot (*Calidris canutus rufa*), whooping Crane (*Grus americana*), northern long-eared bat (*Myotis septentrionalis*), American burying beetle (*Nicrophorus americanus*), and western prairie fringed orchid (*Platanthera praeclara*). There is no designated threatened or endangered species critical habitat within the refuge.

- Red knot (threatened) are an accidental migrant in western South Dakota, they inhabit mudflats and sandy shorelines. They have been documented on the refuge but have not been observed in the last ten years (Tallman 2002).
- Whooping crane (endangered) are known to migrate through Bennett County and may be present on shallow wetlands or wet meadow habitat when hunting seasons are occurring, but they are not observed every year and are generally not present on the refuge for an extended time, that is, more than two days. The last time a pair of whooping cranes stayed longer than two days was in 2009.
- Northern long-eared bat (threatened) could occur anywhere in the state, and within the refuge it is possible they occur and would use larger cottonwood trees for night roosts in the summer. There are no known hibernacula or maternity roost sites within a quarter of a mile of the refuge (C. Heimerl, wildlife biologist, South Dakota Game, Fish, and Parks [SD GFP], personal communication, November 2019).
- American burying beetle (endangered) is a habitat generalist with a slight preference for grasslands and open understory oak hickory forests. American burying beetles occur in several counties next to the refuge in South Dakota and Nebraska, including Todd County and Cherry County, respectively. One beetle was documented in Bennett County in 2017, just south of the refuge.
- Western prairie fringed orchid (threatened) occurs in moist tallgrass prairies and wet meadows. In South Dakota, it is commonly found within sedges, reed canary grass, and rushes, or where these plants meet big bluestem, little bluestem, and switchgrass. This species has not been documented on the refuge, but it has been documented in Bennett,

Oglala Lakota, and Todd Counties in South Dakota and Cherry County, Nebraska (USFWS 2009).

V. Project Description:

The United States (U.S.) Fish and Wildlife Service (Service) is proposing to open hunting opportunities for cottontail rabbit, prairie chicken, mountain lion, coyote, red fox, and bobcat on approximately 11,700 acres on Lacreek NWR. In addition, we, the Service, are proposing to expand hunting opportunities of migratory game birds, upland game birds, and big game on approximately 2,700 acres on the refuge in accordance with the 2020 Lacreek NWR Hunting Plan.

Where would the use be conducted?

Within selected units of the refuge and units open to hunting would vary by species.

When would the use be conducted?

The use would be conducted from September 1 to February 15.

Why is the use being proposed?

This action helps align Service regulations with state regulations as much as possible to make hunting more accessible and regulations less complex to the public. This action meets the purpose and needs of the Service because it provides wildlife-dependent recreational opportunities on the refuge, while meeting the refuge's established purposes, as the action maintains 60 percent of the refuge as inviolate sanctuary for migratory birds.

A. Availability of Resources

Financial and staff resources are determined to be sufficient within the Sandhills Refuge Complex (where Lacreek NWR is located) to administer these requests. Staffing would be needed to create new hunting brochures, complete signage on newly opened and closed hunting areas, create new parking areas, and to conduct law enforcement compliance checks during hunting seasons. Specialized equipment would be necessary, including utility terrain vehicles for putting in or changing signage, and tractors for parking lot creation and maintenance.

B. Anticipated Impacts of the Use

Disturbance activities related to hunting would prevent certain threatened and endangered species from utilizing disturbed areas. Disturbance related to hunting would be short-term (hours to weeks) and could cause mobile species to move to closed areas, move off-refuge, or to use an area when hunting activities are not occurring, such as at night. Walking or pulling a boat through wet meadow habitat would disturb some vegetation and these activities might result in the trampling of western prairie fringed orchid, but the probability of this happening is low since this orchid has not been documented on the refuge.

VI. Determination of Effects

A. Description of Effects

Red Knot and Whooping Crane

These species are rarely observed on the refuge and neither has been observed for approximately ten years. If these birds were present in areas open to hunting, short-term displacement (hours to days) is expected, especially during the migratory bird hunting season as hunting activities would be occurring within the habitats the species prefer. However, these species are likely to move to closed areas, move off-refuge, or to use wetlands located in hunting areas only when hunting pressure is low or at night.

Northern Long-Eared Bat

Northern long-eared bats that feed over grasslands or wetlands would not be affected because hunting activities would occur outside peak activity time for bats. Hunting should not affect food resources for bats and would not involve the removal of trees when the action is undertaken.

American Burying Beetle

Although there are no documented burying beetles on the refuge, there is a possibility they might occur because they have been documented less than ten miles from the refuge. Hunting activities may benefit any American burying beetles that might be present on the refuge because of a potential increase in carrion and gut piles. However, American burying beetles are usually inactive from early September to late May and therefore would be hibernating in the soil during most of the hunting seasons.

Western Prairie Fringed Orchid

There have not been any western prairie fringed orchids documented on the refuge. Activities associated with hunting would occur when the orchid is not actively growing, as flowering begins in late June to early July. Seed would set before hunting-related disturbances to wet meadows occur. Therefore, these actions would not affect growth, reproduction, or survival.

B. Determination

- No Effect*: This determination is appropriate when the proposed project would not directly or indirectly affect (neither negatively nor beneficially) individuals of listed/proposed/candidate species or designated/proposed critical habitat of such species. **No concurrence from Ecological Services Field Office (ESFO) required.**

- Northern long-eared bat
- American burying beetle
- Western prairie fringed orchid

- May Affect but Not Likely to Adversely Affect:* This determination is appropriate when the proposed project is likely to cause insignificant, discountable, or wholly beneficial effects to individuals of listed species and/or designated critical habitat. **Concurrence from the ESFO required.**
 - Red knot
 - Whooping crane
- May Affect and Likely to Adversely Affect:* This determination is appropriate when the proposed project is likely to adversely affect individuals of listed species and/or designated critical habitat. **Formal consultation with ESFO required.**
- May Affect and Likely to Adversely Affect* but the proposed action is for the purpose of endangered or threatened species recovery and falls under Region 6’s Programmatic Consultation on Service-initiated Recovery Actions: This determination is appropriate when adverse effects are likely but the project is designed to assist with recovery of listed species and/or designated critical habitat. **Concurrence from the ESFO that the project is covered by the programmatic consultation is required.**
- May Affect but Not Likely to Jeopardize candidate or proposed species/critical habitat:* This determination is appropriate when the proposed project may affect but is not expected to jeopardize the continued existence of a species proposed for listing or a candidate species, or adversely alter an area proposed for designation as critical habitat. **Concurrence from ESFO optional.**
- Likely to Jeopardize candidate or proposed species/critical habitat:* This determination is appropriate when the proposed project is reasonably expected to jeopardize the continued existence of a species proposed for listing or a candidate species, or adversely alter an area proposed for designation as critical habitat. **Conferencing with ESFO required.**

Signature:

[Supervisor at originating station]

Date

Reviewing Ecological Services Office Evaluation (check all that apply):

A. Concurrence _____

Nonconcurrency _____

Explanation for nonconcurrency:

B. Formal consultation required _____

List species or critical habitat unit

C. Conference required _____

List species or critical habitat unit

Name of Reviewing ES Office

Signature

Date

VII. References

Tallman, D.A.; Swanson, D.L.; Palmer, J.S. 2002. Birds of South Dakota. Third edition. The South Dakota Ornithologists Union. Aberdeen, SD.

[USFWS] U.S. Fish and Wildlife Service. 2009. Western Prairie Fringed Orchid (*Platanthera praeclara*) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Twin Cities Field Office, Bloomington, Minnesota.