

Draft Environmental Assessment

**For Migratory Game Bird, Upland Game, and Big Game Hunting
on Fish Springs National Wildlife Refuge**

March 2020

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Draft Environmental Assessment for Migratory Game Bird, Upland Game, and Big Game Hunting on Fish Springs National Wildlife Refuge

Date: March 2020

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

1.0 Introduction

1.1 Proposed Action

The Service is proposing to open hunting opportunities for upland game (chukar partridge and cottontail rabbit) and big game (mule deer and pronghorn) on 12,692 acres, and open additional migratory bird hunting opportunities to include mourning dove and snipe on the Fish Springs National Wildlife Refuge (NWR) in accordance with the refuge hunting plan (<https://www.fws.gov/mountain-prairie/huntfish.php#>).

The refuge is in Juab County, in western Utah, and is one of the most remote refuges of the contiguous United States. The refuge is located approximately 165 kilometers to the southwest of Salt Lake City, the closest major metropolitan area. The northern border of the refuge is shared with the U.S. Army Garrison Dugway Proving Ground while the eastern, southern, and western borders are shared with the U.S. Bureau of Land Management (BLM) and two isolated state holdings.

The refuge consists of 17,992 acres of fee title land. Waterfowl hunting is currently authorized on 6,439 acres of the refuge, with 11,553 acres closed for hunting and all public access. Current and proposed hunting units are depicted in Figure 1. The proposed action would increase total acreage open for hunting on the refuge to 12,692 acres for upland and big game hunting, and it would retain 6,439 acres for migratory bird hunting. The refuge would be open to new species consistent with Utah Division of Wildlife Resources (UDWR) hunting regulations. The species that are italicized below are newly proposed species for hunting in 2020–21.

- Migratory Game Bird Hunting: Open to duck, coot, goose, snipe, and mourning dove.
- Upland Game Hunting: Open to chukar partridge and cottontail rabbit (desert and mountain).
- Big Game Hunting: Open to mule deer and pronghorn.



U.S. Fish & Wildlife Service
Fish Springs National Wildlife Refuge

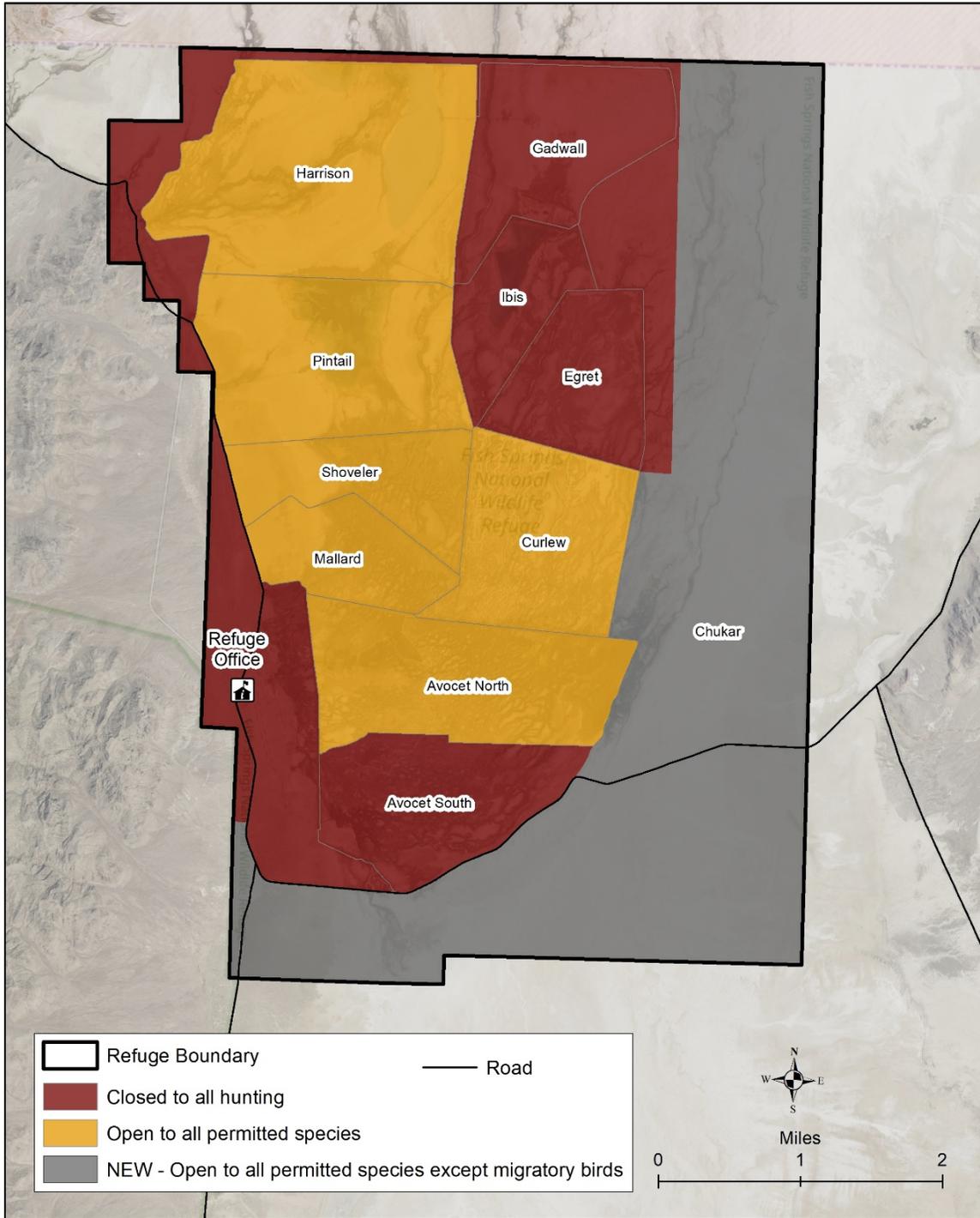


Figure 1. Current and proposed hunt units at Fish Springs National Wildlife Refuge

Figure 1. Current and Proposed Hunt Units at Fish Springs National Wildlife Refuge.

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 proposed action may be different from the original. The final decision on the proposed 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. Refuge-specific regulations also would apply to all alternatives. These regulations are identified in Title 50 of the CFR, Section 32.32, and in the refuge hunting plan associated with this document. Refuge-specific topics include, but are not limited to, special use permit requirement, type of weapons allowed, season dates, and parking restrictions.

1.2 Background

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

The refuge was established pursuant to the Migratory Bird Conservation Act (MBCA) by the Migratory Bird Conservation Commission. The refuge was established in 1959, primarily because of its potential attraction to breeding waterfowl, under the MBCA with the stated purpose “. . . for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” (16 U.S. Code 715d).

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

“. . . 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 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 general public

uses of the Refuge System through which the American public can develop an appreciation for fish and wildlife;

- ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses;
- monitor the status and trends of fish, wildlife, and plants in each refuge.

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

Waterfowl hunting is currently permitted within designated areas of the refuge under federal and state regulations. There are two special hunting areas with permanent hunting blinds and parking in the Avocet Unit. Priority availability of one of these special hunting areas is provided to disabled hunters, and the other is available to all hunters through day-use registration.

Since 2008, the refuge has averaged 643 waterfowl hunter visits per year. All hunting activities are planned and operated to compliment the guiding principles with the refuge's primary goals and objectives. The refuge is proposing public hunting on previously closed areas and revising regulations to be consistent with Utah State seasons and regulations by allowing hunting of mourning dove, snipe, chukar partridge, cottontail rabbit (desert and mountain), mule deer, and pronghorn.

1.3 Purpose and Need for the Proposed Action

The purpose of this proposed action is to provide compatible hunting opportunities on Fish Springs NWR. 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 NWR" and "ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses" (16 U.S. Code 668dd[a][4]). The need for the proposed action is to best align hunting regulations with surrounding lands and waters to the extent legally practicable and meet additional requirements outlined in Secretarial Order 3356. The need for the proposed action is to meet demand for recreational opportunities related to hunting and in doing so meets the requirements of Secretarial Order 3366. By increasing these hunting opportunities on the refuge, there is more consistent alignment with similarly managed Utah waterfowl management areas.

2.0 Alternatives

2.1 Alternatives Considered

Alternative A – Open Hunting to Upland Game, Big Game, and Migratory Birds – Proposed Action Alternative

The refuge has prepared a hunting plan, which is presented in this document as the Proposed Action Alternative. Under the Proposed Action Alternative, 12,692 acres of refuge land would be opened to upland and big game hunting, and 6,439 acres would be retained for current authorized waterfowl species and opened for migratory bird hunting of mourning dove and snipe.

Hunting season dates are set by the State of Utah regulations for each species. On the refuge, hunting of chukar partridge and desert and mountain cottontail rabbit would end earlier than the state season to coincide with the last day of waterfowl hunting. This would limit disturbance to overwintering waterfowl and other migratory birds. Big game hunting of mule deer and pronghorn would be restricted to the state general archery deer and pronghorn seasons. The refuge would not be open to the extended archery season, and big game hunting on the refuge would end prior to the Youth Waterfowl Hunt. The hunting period for mourning dove would begin with the state season and end 15 days thereafter, prior to the Youth Waterfowl Hunt. All variations in big game, upland game, and migratory bird hunting season dates would align with similarly managed state waterfowl management areas.

The following is a list of proposed changes to the refuge hunting program. A more detailed description can be found in the hunting plan.

Areas to Be Opened

Create Chukar Unit (6,253 acres) and open to all permitted species except migratory birds.

Species to Be Taken – Migratory birds

Mourning dove to be hunted in areas open to migratory bird hunting (6,439 acres) with shotgun and nontoxic shot only for a 15-day season starting with the state season and in concurrence with state regulations. Mourning dove hunting on the refuge would end prior to the Youth Waterfowl Hunt.

Wilson's snipe to be hunted in areas open to migratory bird hunting (6,439 acres) with shotgun and nontoxic shot only in concurrence with state seasons and regulations.

Species to be Taken – Upland Game

Chukar partridge to be hunted in open areas of the refuge (12,692 acres) with shotgun, nontoxic shot, and archery equipment only in concurrence with state regulations and with an adjusted season closure that conforms with the last day of the regular waterfowl season.

Cottontail rabbit (desert and mountain) to be hunted in open areas of the refuge (12,692 acres) with shotgun, nontoxic shot, and archery equipment only in concurrence with state regulations and with an adjusted season closure that conforms with the last day of the regular waterfowl season.

Species to be Taken – Big Game

Mule deer to be hunted in open areas of the refuge (12,692 acres) in concurrence with state general archery season and regulations. Mule deer hunting on the refuge would end prior to the Youth Waterfowl Hunt.

Pronghorn to be hunted in open areas of the refuge (12,692 acres) in concurrence with state general archery season and regulations. Pronghorn hunting on the refuge would end prior to the Youth Waterfowl Hunt.

Proposed Regulation Changes

These refuge-specific regulations would be published in the Federal Register as part of the 2020–2021 refuge regulations:

(b) Fish Springs National Wildlife Refuge—

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

(i) We allow the use of small boats (15 feet or less) when hunting. We prohibit the use of gasoline motors and airboats.

(ii) You may enter the refuge two hours prior to legal sunrise and must exit the refuge by one and a half hours after legal sunset.

(iii) Migratory bird hunting is restricted to legal shotgun only. Crossbow, archery, and falconry hunting is prohibited.

(iv) You may possess only approved nontoxic shot while in the field.

(v) The refuge mourning dove hunting period will begin with the state season and end 15 days thereafter.

(2) Upland game hunting. We allow hunting of chukar partridge and cottontail rabbit (desert and mountain) in designated areas of the refuge subject to the following conditions:

(i) You may possess only approved nontoxic shot while in the field.

(ii) Upland game hunting is restricted to legal shotgun and archery equipment only. Crossbow, falconry, and handgun hunting is prohibited.

(3) Big Game Hunting. We allow hunting of mule deer and pronghorn on designated areas of the refuge subject to the following conditions:

(i) We are only open for the mule deer and pronghorn general archery season.

(ii) We are closed for the state any-legal weapon, muzzleloader, and extended archery seasons.

Mitigation Measures to Avoid Conflicts

Migratory bird hunting would be expanded to include mourning dove and snipe, but additional acres would not be open to this opportunity because doing so would not be compatible with the provisions of the MBCA. Increasing access to additional areas would exceed the 40 percent threshold of the inviolate sanctuary provisions for migratory birds (16 U.S. Code 668dd[d][1][A]). Waterfowl species would follow the UDWR regular state hunting season and not the extended light goose season. Hunting season for mourning dove would begin with state season and end 15-days thereafter. The mourning dove hunt period would end prior to the Youth Waterfowl Hunt in order to prevent conflicts with waterfowl hunters. This is in alignment with similarly managed state waterfowl management areas.

Upland game hunting of chukar partridge and cottontail rabbit (desert and mountain) would end on the last day of the UDWR regular waterfowl hunting season, which is earlier than the state season for these species. This is in alignment with similarly managed state waterfowl management areas. The purpose of the early end to these seasons is to limit disturbance to overwintering waterfowl and migratory birds.

Big game hunting of mule deer and pronghorn would be for the general archery season only and end prior to the start of the Youth Waterfowl Hunt. This is in alignment with similarly managed state waterfowl management areas. There are legitimate safety concerns associated with the use of long-range weapons during big game seasons that run concurrently with the waterfowl season. The terrain of the refuge is flat with no available backstops. There is also potential for conflict between big game and waterfowl hunters who use the same hunting areas at the same time. Both hunter groups tend to be well camouflaged in dense vegetation. As waterfowl hunters are generally shooting at a high angle into the air, big game hunters would be shooting along the ground, which could result in the severe injury or death of a nearby waterfowl hunter. Allowing long-range weapons would pose a safety concern for refuge employees who live and work in close proximity to the hunting units, as well as other public users of the refuge.

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

Biological Conflicts

The refuge reduces conflict related to biological resources by adopting a "wildlife first" principle explicitly stated in the Improvement Act. The staff would 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 otherwise hunted for migratory birds. These areas are off limits to all hunting and public access. 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.

An Endangered Species Act Section 7 consultation was conducted, and it was determined that the proposed alternative is not likely conflict with recovery or protection of two species. A determination of "No Effect" was made for the yellow-billed cuckoo, because the proposed project would not directly or indirectly affect (neither negatively nor beneficially) individuals of listed, proposed, or candidate species or designated or proposed critical habitat of such species. While a determination of "May affect but not likely to adversely affect" was made for Ute ladies-tresses, the proposed project is likely to cause insignificant, discountable, or wholly beneficial effects to individuals and designated critical habitat. Section 7 of the Endangered Species Act requires federal agencies to evaluate potential impacts on threatened and endangered species and their habitats and an EA under NEPA specifically for the hunting program, and addresses each of these species. A list of scientific names and categorization of species referred to in this document can be found in Appendix B.

Public Use Conflicts

In an effort to reduce conflicts with priority nonhunting 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” or “Area beyond This Sign Closed” signs. Overall, hunting impacts on visitor services/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.

Alternative B – Maintain Current Hunting Opportunities – No Action Alternative

Under this alternative, current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas 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.

This alternative would continue to exclude hunting of upland game species (chukar partridge and cottontail rabbit [desert and mountain]) and big game species (mule deer and pronghorn). This alternative would not open 12,692 acres to upland game and big game species. This alternative would continue to exclude hunting of mourning dove and snipe as migratory game birds on the 6,439 acres that is currently open to waterfowl hunting.

All other public uses on the refuge would not change and would continue to be managed as described in current plans, which are as follows:

- open to waterfowl hunting only on 6,439 acres;
- closed to waterfowl hunting and all public access on 11,553 acres;
- open to public use along 21 mile auto tour route from August 15 to April 15;
- partial closure of auto tour route from April 15 through August 15 to limit disturbance to breeding birds.

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

- Hunting of mule deer and pronghorn with all legal weapons per state regulations was considered but dismissed from further consideration.
- Opening additional areas to upland and big game hunting was considered, but areas with heavy public use, refuge staff quarters and work sites, and areas with sensitive cultural resources were determined not to be compatible for opening.

3.0 Affected Environment and Environmental Consequences

3.1 Affected Environment

The primary affected environment is the refuge, which encompasses 17,992 acres in Juab County, Utah, and the surrounding area. Refuge lands comprise many habitat types, such as marsh and open water (23 percent) (52 acres permanently flooded, 1,166 acres semi-permanently flooded, and 2,898 acres seasonally flooded); saturated or intermittently flooded wet meadow (20 percent); saturated or intermittently flooded playa (10 percent), wet shrubland (45 percent), dry-mesic shrubland (1.8 percent), and barren rockface (0.3 percent).

The refuge consists of nine major impoundments units that are controlled and maintained by a system of constructed ditches, earthen dams, and water control structures that allow manipulation of water levels in any one unit at any given time, based upon management objectives and the time of year.

The spring water flows for the refuge are part of the Great Salt Lake Desert regional ground water flow system, discharging along a fault line on the east side of the Fish Springs Mountain Range. The spring water is clear, warm (~74° F), brackish (3,000 to 5,000 µS/cm), and flows consistently at approximately 30 cubic-feet-second (cfs). As one of the more substantial and isolated wetlands in an otherwise arid environment, the refuge plays a regionally important role for migratory birds by providing stopover habitat in fall and spring, breeding habitat in summer, or as an overwintering area. Open water habitats maintained by thermal waters within spring basins and managed sites within the impoundments provide habitat for birds that overwinter on the refuge.

The proposed action would create the 6,253-acre Chukar Unit, composed mostly of wet shrubland and playa to increase hunting area for upland and big game species. (See map of the general area and proposed project site on the refuge in the hunting plan.)

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

For more information regarding the affected environment, please see Chapter 3 of the refuge's CCP (<https://ecos.fws.gov/ServCat/DownloadFile/1400>).

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 includes the written analyses of the environmental consequences on a resource when the impacts on that resource could be more than negligible and therefore considered an “affected resource.” Any resources that would not be more than negligibly impacted by the action have been dismissed from further analyses.

Tables 1 through 5 provide:

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

Table 6 provides a brief description of the cumulative impacts 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.

Affected Resources	<u>Alternative A (Proposed Action)</u> <i>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i>	<u>Alternative B (No Action)</u> <i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i>
Chukar Partridge		
<p>The chukar partridge, <i>Alectoris chukar</i>, is also known as the chukar and the Indian chukar. The chukar is native of the Middle East and Southern Asia. Efforts to establish this species in Utah began in 1951. This is a popular game bird species in Utah because it is known for being highly palatable. Global breeding population is estimated to be at 7.8 million with 390,000 in North America (Partners in Flight 2019). Chukars occur in dry high-elevation shrublands throughout Utah on steep, rocky hillsides with a mixture of brush, grasses, and forbs.</p>	<p>Estimated Hunter Numbers: 4 Estimated Take: 4</p> <p>During the breeding season, chukars require a nearby water source, which attracts them to the refuge. Chukars on the refuge breed and stay near a water source during the summer months and then move to higher elevations in the Fish Springs Mountain Range (range) west of the refuge in the fall and winter. More chukars are known to occur in the canyons of the Fish Springs Range, which is mostly on BLM property. The UDWR maintains guzzlers in these areas that are utilized by chukars. Chukar hunting on BLM property is currently open. The areas opened to chukar hunting on the refuge would be limited to areas that would not affect public and refuge staff safety. This would be a marginal area expansion for chukar hunting because there is more area available to hunt on BLM property. In 2018–19, chukar harvest statistics for Juab County indicated that 1.0 chukars bagged per hunter-day (Utah Upland Game Annual Report 2018–19).</p>	<p>There would be neutral effects on this species because no chukar partridges would be taken under this alternative. There is little opportunity for hunting chukar on the refuge outside of areas that have safety concerns, wildlife disturbance concerns, or areas of significant cultural resource concerns. There are relatively small numbers of chukars on the refuge during hunting season; therefore, there would be a negligible loss of a hunting opportunity.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i></p>
<p>Desert and Mountain Cottontail Rabbit</p>		
<p>There are two cottontail rabbit species in Utah, the desert cottontail, <i>Sylvilagus audubonii</i>, and the mountain cottontail, <i>Sylvilagus nuttalli</i>. These species are widely distributed across Utah, from the desert areas up to the lower slopes of the mountains. Generally, desert cottontails occupy areas below 6,000 feet in elevation and mountain cottontails above 6,000 feet. It is unlikely that desert cottontail would occur on the refuge.</p>	<p>Estimated Hunter Numbers: 10 Estimated Take: 8</p> <p>The highest density of desert cottontail rabbits (rabbit) on the refuge is in the vicinity of the headquarters, housing area, and Thomas Ranch Watchable Wildlife Area, which is likely attributed to the manicured grass lawns, open space for foraging with nearby cover, and lower predator densities (for example, coyote). The headquarters, housing, and other public use areas would be closed to hunting in order to provide for the safety of the public and staff. In the proposed areas open to hunting, rabbit populations are at a much lower density. It is therefore likely that most hunting of rabbits would be opportunistic; that is, a hunter would be engaged in some other activity and then harvest a rabbit if it happened to be observed. Predation pressure on the refuge is likely higher than the surrounding habitat on BLM property because of higher densities of coyotes on the refuge. Therefore, a hunt of rabbits would likely be more successful on surrounding BLM property than on the refuge open hunting areas. For this reason, the number of hunters and animals taken is considered to be relatively small and would have no population-level impacts. The elevation of the hunting area is under 6,000 feet; therefore, the take of mountain cottontail rabbits would be extremely unlikely. Hunting of mountain cottontail rabbit is permitted in order to simplify law enforcement actions. In 2018–19, cottontail rabbit harvest statistics for Juab County indicated 0.8 rabbits harvested per hunter-day (Utah Upland Game Annual Report 2018–19).</p>	<p>There would be neutral effects on this species because no desert and mountain cottontail would be taken under this alternative.</p>

Affected Resources	<p align="center"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i></p>	<p align="center"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i></p>
Mourning Dove		
<p>Mourning dove, <i>Zenaida macroura</i>, is one of the most abundant bird species in North America and occurs throughout Utah. At this time the responsibility to manage this species has been delegated to the Department of the Interior. The primary management goal of the Service is to maintain dove populations at a healthy and productive state. (Seamans 2018). The Service estimates approximately 709,000 dove hunters harvested 11,561,100 ± 3 percent mourning doves in 2017 at a national level. In Utah, there were 29,600 ± 55 percent doves harvested by 6,800 ± 32 percent hunters. Utah represents only 0.3 percent of the total doves harvested at a national level and only 1 percent of the total dove hunters nationally (Raftovich et al. 2018).</p>	<p>Estimated Hunter Numbers: 5 Estimated Take: 5</p> <p>The opportunity for mourning dove (dove) hunting on the refuge is limited by the distribution and number of birds. The highest density of doves is in the vicinity of the headquarters, housing area, and the Thomas Ranch Watchable Wildlife Area, which is likely attributed to the presence of the non-native Fremont cottonwood (<i>Populus fremontii</i>) for perching habitat. The headquarters, housing, and the other public use areas would be closed to hunting in order to provide for the safety of the public and staff. There is limited perching habitat in the proposed hunting area, and therefore mourning dove density is assumed to be considerably lower. Since 1971, counts (n = 62) during the proposed hunting season have averaged 27 ± 11.5 doves. Although the specific location of these counts is not known, a conservative estimate would be that at least half were in the proposed closed area. At the higher value of the mean, this would indicate a density of approximately three doves per acre in the area open to migratory bird hunting. With a density this low, it is likely that most hunting of doves would be opportunistic; that is, a hunter would be engaged in some other activity and then hunt a dove if it happened to be observed. For this reason, the number of hunters and animals taken is considered to be relatively small and would have no population level impacts.</p>	<p>There would be neutral effects on this species because no mourning dove would be taken under this alternative. The opportunity for mourning dove hunting on the refuge is limited by the distribution and number of birds; therefore, there would be little to no loss of a hunting opportunity.</p>

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i></p>
<p>Wilson's Snipe</p>		
<p>Wilson's snipe (<i>Gallinago delicata</i>), commonly referred to as snipe, can be found in all types of wet, marshy settings state wide and occurs throughout the year in northern Utah (which is on the southern edge of the species' breeding range), and during the winter in southern Utah. Numbers on the refuge are small. Global breeding population is estimated to be at 2 million (Partners in Flight 2019). The Service estimates approximately 22,500 snipe hunters harvested 42,400 ± 57 percent snipe in 2017 at a national level. In Utah, there were 400 ± 138 percent snipe harvested by 300 ± 153 percent hunters. Utah represents only 0.1 percent of the total snipe harvested at a national level and only 1.3 percent of the total snipe hunters nationally (Raftovich et al. 2018).</p>	<p>Estimated Hunter Numbers: 0 Estimated Take: 0</p> <p>The opportunity for snipe hunting on the refuge is limited by the distribution and number of birds. Since 1981, mid-winter counts (n=35) averaged 2 ± 0.7 snipe. The maximum number of snipe counted on the refuge was 10 in 2003. However, since 2003 the maximum count has been 4 (n = 13). Given that so few birds are present on the refuge, it is likely that most hunting of snipe would be opportunistic; that is, a hunter would be engaged in waterfowl hunting and then hunt a snipe if it happened to be observed. For this reason, the number of hunters and animals harvested is considered to be zero. A law enforcement concern may be that a hunter could misidentify a shorebird, such as dowitcher or yellowlegs species, for a snipe. However, given the small number of these shorebirds that are present during the hunting season and the low number of hunters that would be actively hunting snipe, the potential for accidental take to have an impact is also considered to be negligible.</p>	<p>There would be neutral effects on this species because no Wilson's snipe (snipe) would be taken under this alternative. The refuge contains small populations of snipe; thus, there would be little to no lost hunting opportunity for this species.</p>

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<p>Mule Deer</p>		
<p>The mule deer (<i>Odocoileus hemionus</i>) is indigenous to western North America and is only found on the western Great Plains, in the Rocky Mountains, in the United States Southwest, and on the West Coast of North America. In 2018, the Utah population estimate for mule deer was 372,500 deer (Utah Mule Deer Statewide Management Plan 2019).</p>	<p>Estimated Hunter Numbers: 2 Estimated Take: 1</p> <p>Mule deer may provide a hunting opportunity with the half-dozen deer that currently use the refuge. The average population of deer on the refuge and their use of the adjacent Fish Springs Range typically does not exceed 8–12 adult deer with 2–3 bucks (Banta, personal communication, 2019). It is likely that deer in the surrounding population use the refuge during the summer dry season. However, only a few seasonal/transient deer occupy nearby ranges in low densities.</p> <p>The nearby Fish Springs Range provides complete visibility of almost the entire refuge. A hunter would have the ability to pattern deer behavioral activity from this vantage point and then have a high likelihood of success harvesting an animal. In 2017, the total winter population estimate of the West Desert subunit was 9,500 (Utah Big Game Annual Report 2017). The refuge deer population represents approximately 0.13 percent of the regional deer population. Under the assumption that there is no new migration from the outside, if deer on the refuge are successfully harvested, they may no longer use refuge lands or usage may be restricted to the closed areas due to the increase in hunting pressure and small number of deer that are present. Over time, this would reduce the number of animals to harvest, which would reduce the number of hunter visits on an annual basis. It is likely a self-limiting hunting opportunity; that is, the number and success rate of hunters is limited by the number of deer present on the refuge. For this reason, the number of hunters and animals harvested is considered to be negligible to the regional deer population.</p>	<p>There would be neutral effects on this species because no mule deer would be taken under this alternative. Under this alternative, there would be the lost opportunity to hunt the mule deer that are present.</p>

Affected Resources	<u>Alternative A (Proposed Action)</u>	<u>Alternative B (No Action)</u>
	<p><i>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i></p>	<p><i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i></p>
	<p>Once hunting pressure is applied, it is possible that deer would no longer be observed in the open areas during the late summer and fall. However, other deer may migrate through from the surrounding area, which would replace those harvested individuals, and continue to provide opportunities for hunting, wildlife observation, and photography.</p>	
Pronghorn		
<p>The pronghorn (<i>Antilocapra americana</i>) is a species of artiodactyl (even-toed, hooved) mammal indigenous to interior western and central North America. It is estimated that approximately 800,000 pronghorn occur across their entire range. (Vore 2016). In Utah, a 2017 population estimate indicated 15,695 animals statewide, with only 350 in the West Desert, Snake Valley management unit in which the refuge resides (Utah Pronghorn Statewide Management Plan 2017).</p>	<p>Estimated Hunter Numbers: 0 Estimated Take: 0</p> <p>Pronghorn are rarely observed on the refuge during the late summer general archery season. It is far more likely for a hunter to encounter a pronghorn among the tens of thousands of acres of open BLM tracts while in transit to the refuge than to happen upon an animal using the open areas on the refuge. In 2017 there were only four limited-entry buck pronghorn permit holders that harvested three animals (Utah Big Game Annual Report 2017). Given the short season (14 days), few hunters, and the low chance of harvesting an animal on the refuge, no take of pronghorn would be expected to be any take of pronghorn on the refuge.</p>	<p>There would be neutral effects on this species because no pronghorn would be taken under this alternative. Pronghorn are observed on the refuge only sporadically and do not normally use the refuge during the hunting season. Because the refuge contains small populations of pronghorn, there would be no lost hunting opportunity for this species.</p>

Affected Resources	<u>Alternative A (Proposed Action)</u> <i>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i>	<u>Alternative B (No Action)</u> <i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i>
Waterfowl (Duck, Geese, American Coot)		
<p>In the Migratory Bird Hunting Activity and Harvest During the 2017–18 Hunting Seasons report (August 2018), the Service estimates that 225,700±16 percent ducks, 27,000±28 percent geese, 3,300 ± 76 percent (coot) were harvested in Utah by 16,300±23 percent (duck), 9,200±19 percent (goose), 1,200 ± 64 percent (coot) hunters. Each duck and goose hunter harvested an average of 15.6±10 percent and 5.8±17 percent, respectively. Total ducks harvested at the Pacific Flyway level 2,720,200±10 percent (Raftovich et al. 2018).</p>	<p>Estimated Additional Hunter Numbers: 0 Estimated Additional Take: 0</p> <p>The refuge is currently well known for its waterfowl hunting opportunities. Due to the relatively small increase in hunting opportunities there is not expected to be an increase in waterfowl hunters due to this proposed expansion to new species and areas. The hunting plan is designed to reduce conflicts between hunters which should prevent a decline of waterfowl hunters using the refuge.</p>	<p>Harvest numbers and the number of hunters would stay the same as previous years because no additional lands would be open for hunting waterfowl. In 2017 and 2018, there were 547 and 755 waterfowl hunting visits, respectively, on the refuge and it is estimated that there would be 600 waterfowl hunting visits in 2020. There is not expected to cause any population level effects on waterfowl species.</p>
Other Wildlife and Aquatic Species		
<p>Since 1960, a comprehensive list of wildlife species has been compiled for the refuge, documenting the occurrence of 12 species of reptiles, 2 species of amphibians, 4 species of fish, 44 species of mammals, and 291 species of birds. Of these, at least 24 species of mammals and 72 species of birds breed on the refuge (USFWS 2004). Numerous invertebrate species have also been recorded.</p>	<p>Increased hunting may result in additional short-term disturbance to wildlife over a larger area, because additional units would be open to hunting as well as additional opportunities for hunting of new species. Because the number of expected hunters is relatively low, the increase in disturbance to other wildlife and aquatic species is expected to be a small. Therefore, hunting impacts on other wildlife and their habitats and impacts on the biological diversity of the refuge, would not be significant.</p>	<p>Waterfowl hunting activities on the refuge do result in short-term disturbance to wildlife and aquatic species in the area where hunting is permitted. This disturbance includes temporary displacement of migratory and resident wildlife from vehicle and foot traffic moving through the area. Under this alternative, there would be no additional effect on wildlife and aquatic species because no additional hunting or access would be permitted.</p>

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<p><i>Birds</i></p> <p>The refuge was established because of the diversity and large number of waterfowl attracted to the wetland habitat surrounded by an arid landscape. During fall migration, up to 30,000 ducks—predominantly mallard, pintail, American wigeon, and green-winged teal—have been recorded. The refuge attracts hundreds of wetland dependent species during migration, and there are approximately 72 breeding species. Open-water habitats maintained by thermal waters within spring basins and managed sites within the impoundment system provide for more than 40 species of birds that overwinter on the refuge. A number of shorebird species, such as snowy plover, are present during summer months. Great blue herons and black-crowned night herons are year-round marsh residents.</p> <p><i>Mammals</i></p> <p>An inventory of mammalian species of the refuge was first completed in the summer of 1958 (Hansen 1958) and the refuge’s inventory list has since been periodically updated. The majority of species include small rodents and bats. Coyotes, rabbits, and introduced muskrats are commonly observed. A small mule deer population uses the refuge, primarily in late summer and fall. Pronghorn are occasionally observed.</p>		<p>Direct impacts on nonhunted migratory birds such as raptors and songbirds are considered negligible. Indirect impacts on migratory birds are also minimal and do not appreciably reduce their numbers at the population level. There would be negligible impacts to shorebirds and wading birds by hunting since, in most cases, they have already migrated through the area prior to the fall hunting season. Disturbance by hunting to non-hunted migratory birds would not have substantial negative indirect impacts because the majority of hunting does not coincide with the nesting season. Flushing disturbance to migratory birds by hunters would be short-term and have no impact on individuals or populations. As a way to mitigate this the refuge has permitted only the use of nontoxic ammunition. The active breeding season for most birds (with the exception of winter breeding raptors) is April–July. Hunting would not occur within this period; therefore, no conflict is expected.</p>

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<p><i>Reptiles and Amphibians</i></p> <p>There have been no recent monitoring or research studies completed on the refuge for reptile or amphibian species. The last report on file of an investigation on the refuge was completed by McKell et al. (1999) on the status of non-native bullfrogs and northern leopard frogs. Bullfrogs are most often observed in and near the refuge’s thermal springs, and northern leopard frogs are most often observed downstream from the springs in marsh areas well distant from the springs. Numbers of both species appears abundant and stable.</p> <p><i>Fish</i></p> <p>The Utah chub (<i>Gila atraria</i>) and speckled dace (<i>Rhinichthys osculus</i>) are currently present and native to Fish Springs; Western mosquitofish (<i>Gambusia affinis</i>) are non-native and currently distributed widely across the refuge. The name “Fish Springs” is believed to have originated from the numerous presences of Utah Chub in the waters of the springs.</p> <p>Least chub formerly existed across the Bonneville Basin and was believed to have historically inhabited the refuge, but is now limited to 10 isolated springs in other areas of central Utah (Oliver and Tuhly 2010). The nearest wild populations to Fish Springs include three populations within Snake Valley in Utah’s West Desert, including the Leland Harris Spring Complex, Gandy Marsh, and Bishop Spring Complex (USFWS 2014).</p>		<p>Meso-mammals, such as coyote and kit fox, may be disturbed; however, the impact would likely be infrequent and of short duration when they did occur. Bobcat is a nocturnal species that is not likely to interact with hunters. Small mammals such as voles, rats, and mice are generally nocturnal or secretive. Both of these qualities make hunter interactions with small mammals very rare. Hibernation, or torpor, of cold-blooded reptiles and amphibians also limits their activity during most of the hunting season when temperatures are low. Hunters would rarely encounter reptiles and amphibians during most of the hunting season.</p> <p>Some species of butterflies and moths are migratory and would not be present for most of the refuge hunting season. Resident invertebrates are not active during cold weather and would have few interactions with hunters during the hunting season. Impacts on these species due to habitat disturbance related to hunting are negligible at the local and flyway levels.</p>

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<p><i>Aquatic Invertebrates</i></p> <p>Aquatic invertebrates are an important food resource for breeding and migratory birds. Approximately 38 families of aquatic invertebrates have been identified on the refuge.</p>		
<p>Threatened and Endangered Species and Other Special Status Species</p>		
<p><i>Yellow-Billed Cuckoo</i></p> <p>The yellow-billed cuckoo (<i>Coccyzus americanus</i>) is a neotropical migratory bird. The decline of the western population of the yellow-billed cuckoo due to loss of riparian habitat has been reported consistently (Tate and Tate 1982, Finch 1992).</p> <p><i>Ute Ladies'-Tresses</i></p> <p>The Ute ladies'-tresses (<i>Spiranthes diluvialis</i>) is an orchid that occurs at elevations below 6,500 feet in moist to wet alluvial meadows, flood plains of perennial streams, and around springs and lakes (USFWS 1992). Once thought to be fairly common in low elevation riparian areas in Colorado, Utah, and Nevada, the orchid is currently rare in all three states.</p>	<p>The refuge does not contain the habitat requirements of the yellow-billed cuckoo, and there is no breeding activity known to occur. Therefore, the yellow-billed cuckoo is not expected to be affected by hunting because they would more than likely not be found on the refuge during hunting season, and if they are the effect would be limited to short-term disturbance.</p> <p>No surveys have been conducted on the refuge to determine the potential occurrence of the Ute ladies'-tresses. The blooming period is generally from late July through August. There is an overlap of the blooming period with the mid-August start of the hunting season of mule deer and pronghorn, and the early-September start of the hunting season of mourning dove and cottontail rabbit. Hunting activities could result in the foot trampling of blooming plants. The chance of this occurring is fairly small because the plant is typically found in relatively open areas and hunters prefer dense vegetative cover for camouflage. The presence of this species on the refuge is currently unknown, but it is assumed to be sparse. The hunting season of other migratory birds and upland game would occur outside of the blooming period and would have no effect to this species.</p>	<p>Same as the Proposed Action Alternative.</p>

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<p>Vegetation</p>		
<p>Vegetation of the refuge can broadly be divided into marsh and open-water (composed of submergent and emergent plants), wet meadow, wet shrubland, playa, and dry-mesic shrubland. Different plant community types are delineated based on water regime, dominant species, soil composition, and elevation (USFWS 2016).</p> <p>The open-water and submerged aquatic plants are intermixed with heavily vegetated aquatic to flood tolerant grass-dominated marshlands.</p> <p>Wet meadow consists of heavily vegetated, seasonally saturated to intermittently flooded, grasslands. Wet shrubland is sparsely to moderately vegetated shrubland.</p> <p>Playa consists of saturated to intermittently flooded non-vegetated alkali mudflat.</p> <p>Dry-mesic shrubland occurs as alluvial fans along the piedmont borders of the Fish Springs Range and is characterized by rocky-sandy soils.</p>	<p>Areas of the refuge currently open to waterfowl hunting would experience relatively small additional foot traffic due to the limited number of hunters that are expected to be added. The new Chukar Unit that is proposed to be opened would experience additional foot traffic, but the effects on the dominant vegetation types (wet shrubland and playa) is expected to be negligible.</p> <p>The spread of invasive species, both terrestrial and aquatic, would be possible via hunter activity; however, it is not expected to be significant.</p>	<p>There would be neutral effects on the plant community under this alternative.</p>

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<p>Geology and Soils</p>		
<p>The Fish Springs Flat is a down-faulted, sediment-filled basin formed between two tilted blocks of Paleozoic and Tertiary rock (USFWS 2016). One block forms the Thomas and Dugway ranges to the east of the refuge, the other forming the Fish Springs Range to the west (Oviatt 1991). Paleozoic strata in both ranges generally dip to the west or northwest. Surface deposits comprise late Pleistocene and Holocene alluvium. Playa covers the flat floor along northern portions of the flat.</p> <p>Marsh soils are generally sandy-clay and about 1.8 meters deep. These soils occur on top of an impervious hardpan layer. Peat deposits 1.2 meters deep or less occur in the drainage areas downstream from the major springs. These soils are mildly alkaline, having a pH of about 8.0. According to samples analyzed by McKnight and Low (1969), soils within Fish Springs marsh contain low levels of organic matter, between 1.6 percent and 10.8 percent.</p>	<p>Under this alternative there is expected to be some trampling of soil. Although it is not permitted for any vehicle to engage in activities off of the established roads, it is possible there may be an increase in illegal off-road vehicle activity attracted by the new species and areas proposed to be opened. However, because of the low number of hunters that are expected, these impacts on the soil and geology are expected to be negligible.</p>	<p>There would be neutral effects on the geology and soils this under this alternative.</p>

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<p>Water Resources</p>		
<p>The spring water flows for the refuge are part of the Great Salt Lake Desert regional ground water flow system, discharging along a fault line on the east side of the Fish Springs Range (USFWS 2016). The Service has exclusive water rights to the spring water flow for 43.88 cfs (permit 33136; October 15, 1968) (USFWS 1968b). Spring and summer rains have little influence on impoundment water elevations because natural-occurring dunes and protective levees and dikes limit basin runoff from entering the impoundment system. The spring water is clear, warm (~74° F), and brackish (3,000 to 5,000 µS/cm).</p> <p>The springs provide a consistent flow of water, nearly 30 cfs year round, unaffected by localized drought. Over the 9.3-kilometer north/south distance of the impoundment system, an approximately 6-meter gradual elevation drop (as much as 12 meters from the springs) allows flow of water to be directed and pooled by gravity forces through a series of constructed channels, water control structures, and dammed impoundments.</p>	<p>No effects on water resources related to water quality or quantity are expected as a direct or indirect result of increasing hunting opportunities and opening access to new areas.</p>	<p>Same as the Proposed Action Alternative</p>

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<p><i>Wetlands</i></p> <p>The refuge encompasses the largest spring complex in the Great Basin Province (greater than 73 kilometers squared; Ayala et al. 2007). As one of the more substantial and isolated wetlands in an otherwise arid environment, the refuge plays a regionally important role for migratory birds by providing stopover habitat in fall and spring, breeding habitat in summer, or as an overwintering area. Open water habitats maintained by thermal waters within spring basins and managed sites within the impoundments provide for more than 40 species of birds that overwinter on the refuge.</p>	<p>Negligible impacts on wetlands are expected to occur under both alternatives. Impacts would be associated with use of wetland habitat for hunting. As stated in the vegetation analysis, this is not expected to have positive or negative impacts on the wetland ecosystem. Harvest of species associated with wetlands would result in negligible impacts because hunting take limits are monitored and set for long-term viability of a species, which includes consideration of the impact on habitat.</p>	<p>Same as the Proposed Action Alternative.</p>

Key: BLM = Bureau of Land Management; UDWR = Utah Division of Wildlife Resources

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

<p>Affected Resources</p>	<p><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i></p>	<p><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i></p>
<p>The refuge is open to waterfowl hunting, wildlife observation, and photography, and there is some interpretation through the use of panels and direct communication. Since 2015 the refuge has averaged 1,347 visitors annually (Refuge Annual Performance Plan data). In 2018 the refuge had 1,403 visitors: hunting brought 755 visitors; wildlife observation brought 498 visitors; photography brought 70 visitors; and 80 visitors reported environmental education and interpretation related to cultural and historical resources as their primary purpose to visit. Visitor use is not evenly distributed throughout the year. Waterfowl hunting visits are from October through January, and most wildlife observation visits occur during spring and fall bird migration seasons.</p> <p>Although there are designated parking areas throughout the refuge, there is ample parking along the side of dike roads for all refuge visitors.</p> <p>In an effort to reduce conflicts with priority nonhunting recreational uses outlined in the Improvement Act and for public safety, the refuge designates areas open to hunting and enforces refuge-specific regulations.</p> <p>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” or “Area Beyond This Sign Close” signs.</p>	<p>Under this alternative, the refuge would be open to hunting earlier than it would be under the No Action Alternative. This may result in some conflict between wildlife observation visitors and hunters during the late summer and early fall season. The primary conflict would be the exposure of gunfire-related noise to other users, which may negatively affect the natural experience to which the nonhunting public is accustomed. However, due to the low number of new hunting visits expected, the impact of this conflict is expected to be minimal. Closed areas around high public-use areas would be maintained and adequately signed in order to reduce any direct conflicts.</p>	<p>Under this alternative, because current refuge hunting opportunities for waterfowl would continue in current open areas of the refuge, waterfowl hunting visits would not be affected.</p> <p>The number of visitors would likely remain the same. Because the refuge is already known for waterfowl hunting and wildlife observation, there would be no additional impact on these uses.</p> <p>Under this alternative, based on the number of hunters estimated annually for the new species being proposed, 21 hunting visits would be lost (4 chukar partridge hunters, 10 cottontail rabbit hunters, 5 mourning dove hunters, 2 mule deer hunters) However, this number is likely a maximum, because a portion of the chukar partridge and cottontail rabbit hunters are also likely to be waterfowl hunters. Therefore, the loss of connecting with certain segments of the public would be negligible.</p>

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

<p style="text-align: center;">Affected Resources</p>	<p style="text-align: center;"><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i></p>
<p>Most archaeologists believe that between 2,500 and 1,500 years ago existing groups of hunter-gatherers on the eastern Great Basin gradually developed into what is referred to as the Fremont people. Evidence suggests that the Fremont people lived in and around Fish Springs as early as 5,000 years ago (Madsen 1979). The Goshute tribe, an ethnographic branch of the Western Shoshonean culture, occupied this area from the 1400s to the 1900s.</p> <p>The water resources of Fish Springs were of historic importance in support of exploration, transportation, communications, and settlement of the West throughout the nineteenth and early twentieth centuries. The first documented Euro-American occupation was in 1859, when a station was established on a mail route between Salt Lake City and Sacramento, California (USFWS 1962, 2004c, 2011a).</p> <p>The Pony Express route ran through the present day refuge and riders came and went from the Fish Springs station. The Pony Express operated for about 18 months before its demise came with the completion of the Transcontinental Telegraph. The route through Fish Springs, however, proved to be a superior stage route for transporting passengers, and some form of stage service was maintained through the area until the 1920s.</p> <p>In 1913, the Lincoln Highway, the nation’s first transcontinental automobile road, was built across the refuge. After 1927, the Lincoln Highway was abandoned in the local area in favor of a more direct route. By 1925 most of the surrounding land was owned by the Fish Springs Livestock and Fur Company. This property remained in their possession until 1959 when it was purchased fee-title by the Service for inclusion in the refuge.</p>	<p>Hunters that would be accessing the new Chukar Unit may encounter scattered areas of cultural significance. Potential disturbance to these sites may occur but it is considered to be limited because of the low number of hunters that are expected in this area.</p> <p>All proposed installation or development of infrastructure (such as signage and parking improvements) undertaken in the future in association with, or as a result of, implementation of 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, the refuge would remain open to waterfowl hunting only. Hunters that gain access to open areas of the refuge may encounter artifacts of cultural significance and collect these items. However, these impacts are considered to be limited because the areas currently open to hunting have already been significantly disturbed, and the quantity of remaining artifacts in these areas is considered to be low.</p>

Table 4. 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>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i>	<u>Alternative B (No Action)</u> <i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i>
Land Use		
<p>The refuge provides habitat for migratory birds as well as certain species of resident mammals, birds, reptiles, and fish.</p> <p>Primary private land use in the surrounding areas is mining and sheep and cattle grazing. The means of automobile access to the refuge and a transit route for the surrounding area is the Pony Express Road. This road is used by local grazers and farmers, delivery vehicles, and outdoor recreationists. Sheep grazers move livestock along this route on a semiannual basis.</p> <p>The BLM owns and manages most land to the east, south, and west of the refuge. There are many public outdoor recreation uses for this land, such as hunting, camping, off-highway vehicle riding, biking, hiking, target shooting, and amateur geology (rock collecting).</p> <p>The area to the north of the refuge is owned and managed by the U.S. Army Garrison Dugway Proving Ground, which is a military training, testing, and evaluation facility. It is closed to all public access.</p>	<p>The refuge would continue to engage in habitat management activities during the hunting season to ensure that the refuge meets its other management objectives. Impacts would be reduced by ensuring that hunters, cooperators, and partners are aware of each other’s activities and timed to reduce conflict, when possible. No impacts are anticipated to habitat, buildings, infrastructure, traffic, or roadways. A negligible increase to traffic on local or adjacent roadways is anticipated, with no increased cost or impacts on infrastructure.</p>	<p>Same as the Proposed Action Alternative.</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>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i></p>	<p style="text-align: center;"><u>Alternative B (No Action)</u></p> <p style="text-align: center;"><i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i></p>
<p>Administration</p>		
<p>The refuge has historically, and currently, manages a waterfowl hunting program. The costs associated with staffing and maintaining the infrastructure needed to support the hunting program comes out of the refuge’s annual budget. Expenses include program management, staff resources, boundary posting, signage, brochures, parking lot maintenance, facility maintenance, gate installation, and other hunting specific activities.</p> <p>The refuge is administrated as a refuge complex with Bear River Migratory Bird Refuge, located 135 miles to the northwest in Brigham City, Utah. Fish Springs NWR is currently staffed with two full-time employees, a station manager and a maintenance/equipment operator. The station manager is required to live on site in refuge quarters. Public amenities include potable water, an indoor restroom, an outdoor vault toilet, trash receptacles, and a telephone.</p> <p>Law enforcement staff is supported by two federal wildlife officers (FWO) based in Bear River Migratory Bird Refuge. A FWO would schedule patrol activities to occur at expected peak hunting periods (for example, opening weekend, mid-season, and late season). Over the past 10 years, FWO visits has averaged between 5 and 10 days per year.</p>	<p>The refuge would open approximately 6,253 acres that were previously closed to hunting. This would account for approximately 21 miles of new hunting boundaries. The opening to new species would extend the hunting season to approximately 160 days.</p> <p>The annual cost associated with administering this alternative is expected to be approximately \$20,000.</p> <p>The initial startup costs associated with administering this alternative, such as procuring and installing new signs, updating refuge brochures, maps, entry kiosk, website, and installing a new information kiosk, are estimated to be between \$15,000 and \$25,000.</p>	<p>Under this alternative, the refuge would continue to operate a waterfowl hunting program on 6,439 acres (106 days in 2018, including a single day youth hunt). No additional costs beyond those currently being expended for the waterfowl hunting program would be incurred. The annual cost associated with administering this alternative is \$16,000. Included in this estimate are costs associated with salary, equipment, signage, road and parking maintenance, law enforcement (three visits during waterfowl hunting season to check hunters), and brochures.</p>

Key: BLM = Bureau of Land Management; FWO = federal wildlife officer

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

<p>Affected Resources</p>	<p><u>Alternative A (Proposed Action)</u></p> <p><i>The refuge would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.</i></p>	<p><u>Alternative B (No Action)</u></p> <p><i>Current refuge hunting opportunities for waterfowl migratory game birds would continue and remain the same throughout current open areas of the refuge.</i></p>
<p align="center">Local and Regional Economics</p>		
<p>The refuge is considered one of the most remote and isolated refuges in the continental United States, and thus contribution to the local economy is quite small. There are six farming and ranching communities that have a total population of less than 500 within a 50 mile radius, and none offer any goods or services to the general public. Delta, Utah, is about 68 driving miles from the refuge, has a population of 3,500, and offers the nearest goods and services. The Wasatch Front, part of the greater Salt Lake City metropolitan area, is a 3–4 hour drive to the refuge and has a population of approximately 2.6 million. Most visitors to the refuge come from the Wasatch Front area. Visitors, including hunters, usually buy a wide range of goods and services that contribute to the regional economy. Major expenditure categories include lodging, food, supplies, and gasoline.</p>	<p>Under this alternative, based on the number of hunters estimated annually for the new species being proposed, 21 hunting visits would be gained (4 chukar partridge hunters; 10 cottontail rabbit hunters; 5 mourning dove hunters; 2 mule deer hunters) However, this number is likely a maximum as a portion of, or all of, chukar partridge and cottontail rabbit hunters are also likely to be waterfowl hunters. The low number of additional hunters would have no economic impact on the local community and likely have a negligible impact on the regional economy. It is possible that a segment of the nonhunting public would avoid the refuge based on the disturbance as a result of hunting activity. Changes in expenditures are unknown but expected to be minimal.</p>	<p>Current visitation to the refuge would be expected to remain the same. Most users are likely from the Wasatch Front area.</p>
<p align="center">Environmental Justice</p>		
<p>Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities.</p>	<p>The Service has not identified any potential high and adverse environmental or human health impacts from this proposed action or any of the alternatives. The Service has identified no minority or low-income communities within the impact area. Minority or low-income communities would not be disproportionately affected by any impacts of this proposed action or any of the alternatives.</p>	<p>Same as the Proposed Action Alternative.</p>

3.3 Cumulative Impact Analysis

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

Table 6. Anticipated Cumulative Impacts of the Proposed Action and Any Alternatives.

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
Hunting in General	
<p>Waterfowl hunting has been found compatible with refuge purposes and permitted on the refuge since the early years of refuge establishment. Hunting and fishing occur throughout the entire state of Utah and across the U.S. because 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). Migratory bird hunters numbered 2.4 million people within the United States in 2016 while in that same year 595 people hunted on the refuge (0.02 percent of all hunters in the U.S. that year).</p>	<p><i>Alternative A</i></p> <p>The proposed action would have minor impacts on the environment of other hunting opportunities locally, regionally, or at the national level. The Service does not believe that increasing hunting opportunities on our land would decrease hunting opportunities on other lands near the refuge. Cumulative impacts of hunting on the refuge are likely negligible. Cumulative impacts on species hunted are discussed separately.</p> <p><i>Alternative B</i></p> <p>The proposed action would have no new impacts on the environment of other hunting opportunities locally, regionally, or nationally because there is no increased opportunity under this alternative.</p>
Upland Game Species (Chukar Partridge and Cottontail Rabbit)	
	<p><i>Alternative A</i></p> <p>Regional chukar surveys in 2018 indicated a 76 percent decrease in the population compared to a long-term average (Utah Upland Game Annual Report 2018–19). There were 45 hunters reported in Juab County and 299 within the region. Although four new hunters are estimated on the refuge, it is likely that they would be existing hunters to the county. The addition of new hunters is not expected because more chukars are known to occur on BLM property in the canyons of the refuge range than on refuge land. Chukar hunting on BLM property is currently open. The four chukars that are estimated to be taken on the refuge per year is 0.13 percent of the chukars harvested in Juab County (2,993) in 2018–19 and only 0.01 percent of the long-term average for annual chukar harvests (36,124) for the state. There is expected to be a negligible increase in hunting and estimated take on refuge lands; thus the cumulative impacts on the chukar population are considered insignificant.</p>

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
	<p>Statewide cottontail rabbit surveys in 2018 indicated a 6 percent decrease in the population compared to a long-term average (Utah Upland Game Annual Report 2018–19). There were 35 hunters reported in Juab County and 268 within the region. Although 10 hunters are estimated on the refuge, it is likely that they would be existing hunters to the county. The addition of new hunters is not expected since the proposed areas open to hunting are at a lower density compared to surrounding BLM property. It is therefore likely that most hunting of rabbits would be opportunistic. Rabbit hunting on neighboring BLM property is currently open. The eight rabbits that are estimated to be taken on the refuge per year is 0.69 percent of the rabbits harvested in Juab County (1,162) in 2018–19 and 0.008 percent of the long-term average for annual rabbit harvests (106,580) for the state. There is expected to be a negligible increase in hunting and estimated take on refuge lands; thus the cumulative impacts on the rabbit population is considered insignificant.</p> <p>Alternative B</p> <p>The proposed action would have no new impacts on upland game species locally, regionally or nationally because there is no increased opportunity under this alternative.</p>
<p>Migratory Game Birds (Duck, Goose, Coot, Mourning Dove, and Snipe)</p>	
	<p>Alternative A</p> <p>The proposed action would have no new cumulative impacts on duck, goose, or coot because there is no increased opportunity under this alternative.</p> <p>There were 44 dove hunters reported in Juab County and 297 within the region (Utah Upland Game Annual Report 2018–19). Although five hunters are estimated on the refuge, it is likely that they would be existing hunters to the county. The addition of new hunters is not expected because the proposed areas open to hunting are at a lower density compared to other areas within the county. It is therefore likely that most hunting of doves would be opportunistic. The five doves that are estimated to be taken on the refuge per year is 0.15 percent of the doves harvested in Juab County (3,262) in 2018–19 and 0.003 percent of the long-term average for annual dove harvests (174,423) for the state. There is expected to be a negligible increase in hunting and estimated take on refuge lands; thus the cumulative impacts to the dove population is considered insignificant.</p>

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
	<p>No snipe hunters or harvest of snipe on the refuge are expected because of the small number of individual animals that are present. It is likely that most hunting of snipe would be opportunistic; that is, a hunter would be engaged in waterfowl hunting and then harvest a snipe if it happened to be observed. For this reason, the number of hunters and animals taken is considered to be negligible and would not contribute to any cumulative impacts.</p> <p><i>Alternative B</i></p> <p>The proposed action would have no new impacts on migratory game birds locally, regionally, or nationally because there would be no increased opportunity under this alternative.</p>
Big Game Species (Mule Deer and Pronghorn)	
	<p><i>Alternative A</i></p> <p>It is estimated that one deer would be taken on an annual basis due to the new proposed hunting opportunity on the refuge. From 2008–2017, the average number of buck deer harvested per year in the West Desert subunit was 111 (Utah Big Game Annual Report 2017). In 2017, the general-season archery deer harvest was six deer at a success rate per hunter of 11.1 percent. In 2017, the total winter population estimate of the West Desert subunit was 9,500. The refuge deer population represents approximately 0.13 percent of the regional deer population. Under the assumption that there is no new migration from the outside and no deer use the closed area, following several years of successful harvests, deer may be extirpated from refuge lands due to the increase in hunting pressure and small number of deer that are present. This would result in no animals to harvest, which would reduce the number of hunter visits on an annual basis. It would likely be a self-limiting hunting opportunity; that is, the number and success rate of hunters would be limited by the number of deer present on the refuge. For this reason, the number of hunters and animals harvested is considered to be negligible to the regional deer population and would not contribute to any cumulative impacts. Once hunting pressure is applied, it is possible that deer would no longer be observed during the late summer and fall. However, other deer may migrate through from the surrounding area, which would replace those harvested individuals, and continue to provide opportunities for hunting, wildlife observation, and photography.</p>

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
	<p>In 2017, there were 288 pronghorn surveyed in the Snake Valley subunit (Utah Big Game Annual Report 2017). Pronghorn are rarely observed on the refuge during the late summer general archery season. There is a far higher likelihood of a hunter's encountering a pronghorn among the tens of thousands of acres of open BLM tracts while in transit to the refuge than happening upon an animal using the open areas on the refuge. In 2017 there were only four limited-entry buck pronghorn permit holders that harvested 3 animals (Utah Big Game Annual Report 2017). Given the short season (14 days), few hunters, and the low chance of harvesting an animal on the refuge, there is not expected to be any harvest of pronghorn on the refuge and thus no cumulative impacts.</p> <p>Alternative B</p> <p>The proposed action would have no new impacts on big game locally, regionally, or nationally because there is no increased opportunity under this alternative.</p>
Resident Wildlife	
	<p>Alternative A</p> <p>The only direct and indirect impact on 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, because there are enough resources for them to relocate on the refuge and respond, there are no negative impacts. Long-term impacts of short-term disturbance are not likely to occur, and cumulative impacts 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. So, even at the local level, the refuge only would add slightly to cumulative impacts on the resident wildlife, and a negligible amount to regional and statewide populations.</p> <p>Alternative B</p> <p>The proposed action would have no new impacts on resident wildlife locally, regionally or nationally because there is no increased opportunity under this alternative.</p>
Other Wildlife-Dependent Recreation	
<p>To support wildlife dependent recreation, the refuge has maintained roads and trails in conjunction with maintenance of the impoundment system. No network of roads or trails is causing cumulative impacts on the area that is being developed solely to support wildlife-dependent recreation opportunities. However, some wildlife-dependent recreation is reliant upon existing county roads and trails for access.</p>	<p>Alternatives A and B</p> <p>Wildlife-dependent recreation in either alternative is a socioeconomic driver locally, regionally, or at the state level. Future development of trails or access to support all wildlife-dependent recreational opportunities on the refuge are not expected to have a cumulative impact on the environment. As projects are proposed, they would go through additional environmental review.</p>

Other Past, Present, and Reasonably Foreseeable Activity Impacting Affected Environment	Descriptions of Anticipated Cumulative Impacts
Climate Change	
<p>Ecological stressors, whether they result from anthropogenic or natural sources, are expected to affect a variety of natural processes and associated resources. Precipitation availability may have a large impact on the availability of wetlands and grasslands across the primary breeding grounds in the U.S. and Canada. However, the complexity of ecological systems means that there is a tremendous amount of uncertainty about climate change effects. If major habitat changes are realized in the future, it may 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><i>Alternatives A and B</i></p> <p>Although the impacts of climate change on refuge wildlife and habitats are not certain, allowing hunting on the refuge would not add to the cumulative impacts of climate change. The refuge uses an adaptive management approach for its hunting program, annually monitoring and reviewing, and if necessary, revising it (through direct feedback from state and local user groups). The Service would adjust the hunting program, as necessary, to ensure that it would not contribute to the cumulative impacts of climate change on resident wildlife and migratory birds.</p>

Key: BLM = Bureau of Land Management; U.S. = United States

3.4 Mitigation Measures and Conditions

All mitigation measures have been discussed, because they are included in the proposed action and alternatives.

3.5 Monitoring

Due to its small staff, only limited monitoring activities take place at the refuge. Annual biological monitoring of some resident and migratory wildlife and their habitats is conducted on the refuge in cooperation with partners, including state and nongovernmental organizations and researchers at local universities. The station would continue communication with the U.S. Army Garrison Dugway Proving Ground, UDWR, and BLM to ensure that hunting of these new species is not having any unforeseen adverse effects on the regional populations or surrounding habitat.

3.6 Summary of Analysis

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

Alternative A – Proposed Action Alternative

The proposed action alternative would open approximately 12,692 acres to upland game (chukar partridge and cottontail rabbit), big game (mule deer and pronghorn), in addition to currently authorized waterfowl hunting opportunities on 6,439 acres, and open migratory bird hunting to include mourning dove and snipe.

At this time, we believe hunting use would not conflict with other visitor uses, and in the future if there is, the impact would be mitigated. There is not likely to be an adverse effect on any

endangered or threatened species. Effects on wildlife and habitat would be negligible. It is possible that there may be additional conflicts between user groups on the refuge. However, all foreseeable conflicts would be mitigated and adaptively managed.

This alternative would help meet the purpose and needs of the Service as described above, because it would provide additional hunting opportunities on the refuge, thus meeting the Service's priorities and mandates. The Service has determined that the proposed action is compatible with the purposes of the refuge and the mission of the Refuge System. The draft compatibility determination is located at <https://www.fws.gov/mountain-prairie/huntfish.php#>.

Alternative B – No Action Alternative

As described above, this alternative would continue to offer hunting of waterfowl species on the refuge; however, it would not provide more alignment with state regulations because hunting of upland game (chukar partridge and cottontail rabbit) and big game (mule deer and pronghorn), and the expansion of migratory bird (mourning dove and snipe) hunting would not be allowed. Hunting opportunities would be limited to those interested only in hunting species currently allowed for hunting on the refuge. Effects on wildlife and habitat would be negligible because there likely would be the same amount of use by hunters.

This alternative also meets the purpose and needs of the Service as described above, because it would provide wildlife-dependent recreation opportunities for youth and people with disabilities. The refuge would not increase its impact on the economy and would not provide hunting access opportunities. Although this alternative has the least direct impacts of physical and biological resources, it would not support our mandates under the NWRSA and Secretarial Order 3356.

3.7 List of Sources, Agencies and Persons Consulted

- Utah Division of Wildlife Resources: Jason Robinson
- Bureau of Land Management, Fillmore Field Office
- USFWS Personnel: Brian Allen, Erin Holmes, Michael Dunphy, Lisa Mullin, Greg Mullin, Zachary Arnold, Mike Artmann
- USFWS Retired personnel: Jay Banta

3.8 List of Preparers

Jonathan Shore, Station Manager

3.9 State Coordination

- Jason Robinson, UDWR District Biologist
- Blair Stringham, UDWR Migratory Game Bird Program Coordinator
- Lynn Zubeck, UDWR Manager, Clear Lake Waterfowl Management Area

3.10 Tribal Consultation

The Service mailed an invitation for comments to all tribes potentially affected by initiating an Environmental Assessment to open the refuge to additional hunting opportunities. The Service

extended an invitation to engage in government-to-government consultation in accordance with Executive Order 13175.

3.11 Public Outreach

An announcement was posted on the refuge kiosk, restroom, and vault toilet for at least three months during the waterfowl hunting season. The station manager opportunistically spoke directly to visitors and hunters using the refuge. The refuge will also make the public aware of the availability of the draft EA and hunting plan via public notices on the refuge’s website and the refuge’s headquarters office. During a 30-day public comment period, the Service will accept comments in writing, in person, electronically, or in any other form the public wishes to present comments or information. Upon close of the comment period, all comments and information will be reviewed and considered. The final EA will address the comments submitted.

3.12 Determination

This section will be filled out upon 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: _____

Reviewer Signature: _____ Date: _____

Name/Title: _____

3.13 References

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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.C. 1996 – 1996a; 43 CFR Part 7</p> <p>Antiquities Act of 1906, 16 U.S.C. 431-433; 43 CFR Part 3</p> <p>Archaeological Resources Protection Act of 1979, 16 U.S.C. 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.C. 470-470x-6; 36 CFR Parts 60, 63, 78, 79, 800, 801, and 810</p> <p>Paleontological Resources Protection Act, 16 U.S.C. 470aaa – 470aaa-11</p> <p>Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001-3013; 43 CFR Part 10</p> <p>Executive Order 11593 – Protection and Enhancement of the Cultural Environment, 36 Fed. Reg. 8921 (1971)</p> <p>Executive Order 13007 – Indian Sacred Sites, 61 Fed. Reg. 26771 (1996)</p>	<p>This alternative would have no impacts on cultural resources. Hunting is not expected to cause significant ground disturbance. Any activity that might have an effect on a historic property would be subject to a case-by-case Section 106 review.</p>
Fish and Wildlife	
<p>Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22</p> <p>Endangered Species Act of 1973, as amended, 16 U.S.C. 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.C. 742 a-m</p> <p>Lacey Act, as amended, 16 U.S.C. 3371 et seq.; 15 CFR Parts 10, 11, 12, 14, 300, and 904</p> <p>Migratory Bird Treaty Act, as amended, 16 U.S.C. 703-712; 50 CFR Parts 10, 12, 20, and 21</p> <p>Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001)</p>	<p>A consultation pursuant to Section 7 of the Endangered Species Act was conducted as part of this EA and the updated hunting plan. A determination of “No Effect” was made for the yellow-billed cuckoo, because the proposed project would not directly or indirectly affect (either negatively or beneficially) individuals of listed/proposed/candidate species or designated/proposed critical habitat of such species. Although a determination of “May affect but not likely to adversely affect” was made for Ute ladies’-tresses because the proposed project is likely to cause insignificant, discountable, or wholly beneficial effects on individuals and designated critical habitat.</p>

Statutes, Executive Orders, and Regulations	
Natural Resources	
<p>Clean Air Act, as amended, 42 U.S.C. 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.C. 1131 et seq.</p> <p>Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq.</p> <p>Executive Order 13112 – Invasive Species, 64 Fed. Reg. 6183 (1999)</p>	<p>No additional steps were required to comply with these laws.</p>
Water Resources	
<p>Coastal Zone Management Act of 1972, 16 U.S.C. 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.C. 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.C. 401 et seq.; 33 CFR Parts 114, 115, 116, 321, 322, and 333</p> <p>Safe Drinking Water Act of 1974, 42 U.S.C. 300f et seq.; 40 CFR Parts 141-148</p> <p>Executive Order 11988 – Floodplain Management, 42 Fed. Reg. 26951 (1977)</p> <p>Executive Order 11990 – Protection of Wetlands, 42 Fed. Reg. 26961 (1977)</p>	<p>No additional steps were required to comply with these laws.</p>

Key: CFR = Code of Federal Regulations; EA = Environmental Assessment; U.S.C. = United States Code

APPENDIX D. Species List
for Fish Springs NWR**Birds****Loons**

Pacific Loon	<i>Gavia pacifica</i>
Common Loon	<i>Gavia immer</i>
Yellow-billed Loon	<i>Gavia adamsii</i>

Grebes

Pied-billed Grebe	<i>Podilymbus podiceps</i>
Horned Grebe	<i>Podiceps auritus</i>
Eared Grebe	<i>Podiceps nigricollis</i>
Western Grebe	<i>Aechmophorus occidentalis</i>
Clark's Grebe	<i>Aechmophorus clarkii</i>

Pelicans

American White Pelican	<i>Pelecanus erythrorhynchos</i>
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Cormorants

Double-crested Cormorant	<i>Phalacrocorax auritus</i>
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Bitterns, Herons, and Egrets

American Bittern	<i>Botaurus lentiginosus</i>
Great Blue Heron	<i>Ardea herodias</i>
Great Egret	<i>Ardea alba</i>
Snowy Egret	<i>Egretta thula</i>
Cattle Egret	<i>Bubulcus ibis</i>
Green Heron	<i>Butorides virescens</i>
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>

Ibises and Spoonbills

White-faced Ibis	<i>Plegadis chihi</i>
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Storks

Wood Stork	<i>Mycteria americana</i>
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New World Vultures

Turkey Vulture	<i>Cathartes aura</i>
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Swans, Geese, and Ducks

Greater White-fronted Goose	<i>Anser albifrons</i>
Snow Goose	<i>Chen caerulescens</i>
Ross' Goose	<i>Chen rossii</i>
Canada Goose	<i>Branta canadensis</i>
Brant	<i>Branta bernicla</i>
Trumpeter Swan	<i>Cygnus buccinator</i>
Tundra Swan	<i>Cygnus columbianus</i>
Wood Duck	<i>Aix sponsa</i>

Gadwall	<i>Anas strepera</i>
Eurasian Wigeon	<i>Anas penelope</i>
American Wigeon	<i>Anas americana</i>
Mallard	<i>Anas platyrhynchos</i>
Blue-winged Teal	<i>Anas discors</i>
Cinnamon Teal	<i>Anas cyanoptera</i>
Northern Shoveler	<i>Anas clypeata</i>
Northern Pintail	<i>Anas acuta</i>
Green-winged Teal	<i>Anas crecca</i>
Canvasback	<i>Aythya valisineria</i>
Redhead	<i>Aythya americana</i>
Ring-necked Duck	<i>Aythya collaris</i>
Lesser Scaup	<i>Aythya affinis</i>
White-winged Scoter	<i>Melanitta fusca</i>
Black Scoter	<i>Melanitta nigra</i>
Long-tailed Duck	<i>Clangula hyemalis</i>
Bufflehead	<i>Bucephala albeola</i>
Common Goldeneye	<i>Bucephala clangula</i>
Hooded Merganser	<i>Lophodytes cucullatus</i>
Common Merganser	<i>Mergus merganser</i>
Red-breasted Merganser	<i>Mergus serrator</i>
Ruddy Duck	<i>Oxyura jamaicensis</i>

Osprey, Kites, Hawks, and Eagles

Osprey	<i>Pandion haliaetus</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Northern Harrier	<i>Circus cyaneus</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Northern Goshawk	<i>Accipiter gentilis</i>
Red-shouldered Hawk	<i>Buteo lineatus</i>
Swainson's Hawk	<i>Buteo swainsoni</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Ferruginous Hawk	<i>Buteo regalis</i>
Rough-legged Hawk	<i>Buteo lagopus</i>
Golden Eagle	<i>Aquila chrysaetos</i>

Falcons and Caracaras

American Kestrel	<i>Falco sparverius</i>
Merlin	<i>Falco columbarius</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Prairie Falcon	<i>Falco mexicanus</i>

Gallinaceous Birds

Chukar, Introduced	<i>Alectoris chukar</i>
Ring-necked Pheasant, Introduced	<i>Phasianus colchicus</i>

Rails

Virginia Rail	<i>Rallus limicola</i>
Sora	<i>Porzana carolina</i>
Common Moorhen	<i>Gallinula chloropus</i>
American Coot	<i>Fulica americana</i>

Cranes

Sandhill Crane	<i>Grus canadensis</i>
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Plovers

Black-bellied Plover	<i>Pluvialis squatarola</i>
American Golden-Plover	<i>Pluvialis dominica</i>
Snowy Plover	<i>Charadrius alexandrinus</i>
Semipalmated Plover	<i>Charadrius semipalmatus</i>
Killdeer	<i>Charadrius vociferus</i>
Mountain Plover	<i>Charadrius montanus</i>

Stilts and Avocets

Black-necked Stilt	<i>Himantopus mexicanus</i>
American Avocet	<i>Recurvirostra americana</i>

Sandpipers and Phalaropes

Greater Yellowlegs	<i>Tringa melanoleuca</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Solitary Sandpiper	<i>Tringa solitaria</i>
Willet	<i>Catoptrophorus semipalmatus</i>
Spotted Sandpiper	<i>Actitis macularia</i>
Wimbrel	<i>Numenius phaeopus</i>
Long-billed Curlew	<i>Numenius americanus</i>
Marbled Godwit	<i>Limosa fedoa</i>
Ruddy Turnstone	<i>Arenaria interpres</i>
Red Knot	<i>Calidris canutus</i>
Sanderling	<i>Calidris alba</i>
Semipalmated Sandpiper	<i>Calidris pusilla</i>
Western Sandpiper	<i>Calidris mauri</i>
Least Sandpiper	<i>Calidris minutilla</i>
Baird's Sandpiper	<i>Calidris bairdii</i>
Pectoral Sandpiper	<i>Calidris melanotos</i>
White-rumped Sandpiper	<i>Calidris fuscicollis</i>
Dunlin	<i>Calidris alpina</i>
Stilt Sandpiper	<i>Calidris himantopus</i>
Short-billed Dowitcher	<i>Limnodromus griseus</i>
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>
Common Snipe	<i>Gallinago gallinago</i>
Wilson's Phalarope	<i>Phalaropus tricolor</i>
Red-necked Phalarope	<i>Phalaropus lobatus</i>

Skuas, Jaegers, Gulls, and Terns

Parasitic Jaeger	<i>Stercorarius parasiticus</i>
Long-tailed Jaeger	<i>Stercorarius longicaudus</i>
Franklin's Gull	<i>Larus pipixcan</i>
Bonaparte's Gull	<i>Larus philadelphia</i>
Ring-billed Gull	<i>Larus delawarensis</i>
California Gull	<i>Larus californicus</i>
Herring Gull	<i>Larus argentatus</i>
Black-legged Kittiwake	<i>Rissa tridactyla</i>
Caspian Tern	<i>Sterna caspia</i>
Forster's Tern	<i>Sterna forsteri</i>
Least Tern	<i>Sterna antillarum</i>

Black Tern*Chlidonias niger***Pigeons and Doves**

Rock Dove, Introduced	<i>Columba livia</i>
White-winged Dove	<i>Zenaida asiatica</i>
Mourning Dove	<i>Zenaida macroura</i>

Cuckoos and Anis

Yellow-billed Cuckoo	<i>Coccyzus americanus</i>
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Barn Owls

Barn Owl	<i>Tyto alba</i>
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Typical Owls

Northern Saw-whet Owl	<i>Aegolius acadicus</i>
Great Horned Owl	<i>Bubo virginianus</i>
Burrowing Owl	<i>Athene cucularia</i>
Long-eared Owl	<i>Asio otus</i>
Short-eared Owl	<i>Asio flammeus</i>

Nightjars

Common Nighthawk	<i>Chordeiles minor</i>
Common Poorwill	<i>Phalaenoptilus nuttallii</i>

Swifts

White-throated Swift	<i>Aeronautes saxatalis</i>
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Hummingbirds

Black-chinned Hummingbird	<i>Archilochus alexandri</i>
Calliope Hummingbird	<i>Stellula calliope</i>
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>
Rufous Hummingbird	<i>Selasphorus rufus</i>

Kingfishers

Belted Kingfisher	<i>Ceryle alcyon</i>
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Woodpeckers

Lewis' Woodpecker	<i>Melanerpes lewis</i>
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>
Red-breasted Sapsucker	<i>Sphyrapicus ruber</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Northern Flicker	<i>Colaptes auratus</i>

Tyrant Flycatchers

Olive-sided Flycatcher	<i>Contopus cooperi</i>
Western Wood-Pewee	<i>Contopus sordidulus</i>
Willow Flycatcher	<i>Empidonax traillii</i>
Hammond's Flycatcher	<i>Empidonax hammondi</i>
Gray Flycatcher	<i>Empidonax wrightii</i>
Dusky Flycatcher	<i>Empidonax oberholseri</i>
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
Say's Phoebe	<i>Sayornis saya</i>
Vermilion Flycatcher	<i>Pyrocephalus rubinus</i>
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>
Cassin's Kingbird	<i>Tyrannus vociferans</i>

Western Kingbird	<i>Tyrannus verticalis</i>	Kinglets	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	Golden-crowned Kinglet	<i>Regulus satrapa</i>
Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>	Ruby-crowned Kinglet	<i>Regulus calendula</i>
Shrikes		Old World Warblers	
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>
Northern Shrike	<i>Lanius excubitor</i>		
Vireos		Thrushes	
Gray Vireo	<i>Vireo vicinior</i>	Western Bluebird	<i>Sialia mexicana</i>
Plumbeous Vireo	<i>Vireo plumbeus</i>	Mountain Bluebird	<i>Sialia currucoides</i>
Cassin's Vireo	<i>Vireo cassinii</i>	Townsend's Solitaire	<i>Myadestes townsendi</i>
Warbling Vireo	<i>Vireo gilvus</i>	Swainson's Thrush	<i>Catharus ustulatus</i>
		Hermit Thrush	<i>Catharus guttatus</i>
		American Robin	<i>Turdus migratorius</i>
		Varied Thrush	<i>Icterus naevius</i>
Crows, Jays, and Magpies		Mimic Thrushes	
Gray Jay	<i>Perisoreus canadensis</i>	Gray Catbird	<i>Dumetella carolinensis</i>
Steller's Jay	<i>Cyanocitta stelleri</i>	Northern Mockingbird	<i>Mimus polyglottos</i>
Western Scrub-Jay	<i>Aphelocoma californica</i>	Sage Thrasher	<i>Oreoscoptes montanus</i>
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	Brown Thrasher	<i>Toxostoma rufum</i>
Clark's Nutcracker	<i>Nucifraga columbiana</i>		
Black-billed Magpie	<i>Pica hudsonia</i>		
American Crow	<i>Corvus brachyrhynchos</i>		
Common Raven	<i>Corvus corax</i>		
Larks		Starlings	
Horned Lark	<i>Eremophila alpestris</i>	European Starling	<i>Sturnus vulgaris</i>
		Wagtails and Pipits	
Swallows		American (Water) Pipit	<i>Anthus rubescens</i>
Purple Martin	<i>Progne subis</i>		
Tree Swallow	<i>Tachycineta bicolor</i>	Waxwings	
Violet-green Swallow	<i>Tachycineta thalassina</i>	Bohemian Waxwing	<i>Bombycilla garrulus</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	Cedar Waxwing	<i>Bombycilla cedrorum</i>
Bank Swallow	<i>Riparia riparia</i>		
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	Silky-flycatchers	
Barn Swallow	<i>Hirundo rustica</i>	Phainopepla	<i>Phainopepla nitens</i>
Titmice and Chickadees		Wood Warblers	
Mountain Chickadee	<i>Poecile gambeli</i>	Orange-crowned Warbler	<i>Vermivora celata</i>
Juniper Titmouse	<i>Baeolophus inornatus</i>	Nashville Warbler	<i>Vermivora ruficapilla</i>
		Virginia's Warbler	<i>Vermivora virginiae</i>
Bushtit		Lucy's Warbler	<i>Vermivora luciae</i>
Bushtit	<i>Psaltriparus minimus</i>	Yellow Warbler	<i>Dendroica petechia</i>
		Magnolia Warbler	<i>Dendroica magnolia</i>
Nuthatches		Black-throated Blue Warbler	<i>Dendroica caerulescens</i>
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Yellow-rumped Warbler	<i>Dendroica coronata</i>
		Black-throated Gray Warbler	<i>Dendroica nigrescens</i>
Creepers		Townsend's Warbler	<i>Dendroica townsendi</i>
Brown Creeper	<i>Certhia americana</i>	Palm Warbler	<i>Dendroica palmarum</i>
		Blackpoll Warbler	<i>Dendroica striata</i>
Wrens		Black-and-white Warbler	<i>Mniotilta varia</i>
Rock Wren	<i>Salpinctes obsoletus</i>	American Redstart	<i>Setophaga ruticilla</i>
Canyon Wren	<i>Catherpes mexicanus</i>	Prothonotary Warbler	<i>Protonotaria citrea</i>
House Wren	<i>Troglodytes aedon</i>	Ovenbird	<i>Seiurus aurocapillus</i>
Winter Wren	<i>Troglodytes troglodytes</i>	Northern Waterthrush	<i>Seiurus noveboracensis</i>
Marsh Wren	<i>Cistothorus palustris</i>	MacGillivray's Warbler	<i>Oporornis tolmiei</i>
		Common Yellowthroat	<i>Geothlypis trichas</i>
		Wilson's Warbler	<i>Wilsonia pusilla</i>
		Yellow-breasted Chat	<i>Icteria virens</i>

Tanagers

Summer Tanager *Piranga rubra*
 Western Tanager *Piranga ludoviciana*

Sparrows and Towhees

Green-tailed Towhee *Pipilo chlorurus*
 Spotted Towhee *Pipilo maculatus*
 American Tree Sparrow *Spizella arborea*
 Chipping Sparrow *Spizella passerina*
 Brewer's Sparrow *Spizella breweri*
 Field Sparrow *Spizella pusilla*
 Vesper Sparrow *Poocetes gramineus*
 Lark Sparrow *Chondestes grammacus*
 Black-throated Sparrow *Amphispiza bilineata*
 Sage Sparrow *Amphispiza belli*
 Lark Bunting *Calamospiza melanocorys*
 Savannah Sparrow *Passerculus sandwichensis*
 Fox Sparrow *Passerelia iliaca*
 Song Sparrow *Melospiza melodia*
 Lincoln's Sparrow *Melospiza lincolni*
 White-throated Sparrow *Zonotrichia albicollis*
 Harris' Sparrow *Zonotrichia querula*
 White-crowned Sparrow *Zonotrichia leucophrys*
 Dark-eyed Junco *Junco hyemalis*
 McCown's Longspur *Calcarius mccownii*
 Lapland Longspur *Calcarius lapponicus*
 Chestnut-collared Longspur *Calcarius ornatus*

Cardinals, Grosbeaks, and Allies

Rose-breasted Grosbeak *Pheucticus ludovicianus*
 Black-headed Grosbeak *Pheucticus melanocephalus*
 Blue Grosbeak *Guiraca caerulea*
 Lazuli Bunting *Passerina amoena*
 Indigo Bunting *Passerina cyanea*

Blackbirds and Orioles

Bobolink *Dolichonyx oryzivorus*
 Red-winged Blackbird *Agelaius phoeniceus*
 Western Meadowlark *Sturnella neglecta*
 Yellow-headed Blackbird *Xanthocephalus xanthocephalus*
 Rusty Blackbird *Euphagus carolinus*
 Brewer's Blackbird *Euphagus cyanocephalus*
 Common Grackle *Quiscalus quiscula*
 Great-tailed Grackle *Quiscalus mexicanus*
 Brown-headed Cowbird *Molothrus ater*
 Bullock's Oriole *Icterus bullockii*

Finches

Gray-crowned Rosy-Finch *Leucosticte tephrocotis*
 Cassin's Finch *Carpodacus cassinii*
 House Finch *Carpodacus mexicanus*
 Red Crossbill *Loxia curvirostra*
 Pine Siskin *Carduelis pinus*
 Lesser Goldfinch *Carduelis psaltria*
 American Goldfinch *Carduelis tristis*
 Evening Grosbeak *Coccothraustes vespertinus*

Old World Sparrows

House Sparrow, Introduced *Passer domesticus*

Mammals

Vagrant Shrew *Sorex vagrans*
 California Myotis *Myotis californicus*
 Western Small-footed Myotis *Myotis ciliolabrum*
 Long-eared Myotis *Myotis evotis*
 Fringed Myotis *Myotis thysanodes*
 Long-legged Myotis *Myotis volans*
 Yuma Myotis *Myotis yumanensis*
 Silver-haired Bat *Lasiomyotis noctivagans*
 Western Pipistrelle *Pipistrellus hesperus*
 Townsend's Big-eared Bat *Plecotus townsendii*
 Pallid Bat *Antrozous pallidus*
 Brazilian Free-tailed Bat *Tadarida brasiliensis*
 Pygmy Rabbit *Brachylagus idahoensis*
 Desert Cottontail *Sylvilagus audubonii*
 Black-tailed Jackrabbit *Lepus californicus*
 Least Chipmunk *Tamias minimus*
 White-tailed Antelope
 Ground Squirrel *Ammospermophilus leucurus*
 Townsend's Ground Squirrel *Spermophilus tridecemlineatus*
 Botta's Pocket Gopher *Thomomys bottae*
 Little Pocket Mouse *Perognathus longimembris*
 Great Basin Pocket Mouse *Perognathus parvus*
 Long-tailed Pocket Mouse *Chaetodipus formosus*
 Dark Kangaroo Mouse *Microdipodops megacephalus*
 Chisel-toothed Kangaroo Rat *Dipodomys microps*
 Ord's Kangaroo Rat *Dipodomys ordii*
 Western Harvest Mouse *Reithrodontomys megalotis*
 Canyon Mouse *Peromyscus crinitus*
 Deer Mouse *Peromyscus maniculatus*
 Pinon Mouse *Peromyscus truei*
 Northern Grasshopper Mouse *Onychomys leucogaster*
 Desert Woodrat *Neotoma lepida*
 House Mouse *Mus musculus*
 Montane Vole *Microtus montanus*
 Common Muskrat *Ondatra zibethicus*
 Coyote *Canis latrans*
 Kit Fox *Vulpes macrotis*
 Red Fox *Canis rufus*
 Ringtail *Bassariscus astutus*
 Long-tailed Weasel *Mustela frenata*
 American Badger *Taxidea taxus*
 Western Spotted Skunk *Spilogale gracilis*
 Striped Skunk *Mephitis mephitis*
 Bobcat *Lynx rufus*
 Mule Deer *Odocoileus hemionus*
 Pronghorn Antelope *Antilocapra americana*

Fish, Amphibians, and Reptiles

Fish

Mosquito Fish, Introduced	<i>Gambusia affinis</i>
Speckled Dace	<i>Rhinichthys osculus</i>
Utah Chub	<i>Gila atraria</i>
Least Chub, Reintroduced	<i>Lotichthys phlegethontis</i>

Amphibians

Leopard Frog, Introduced	<i>Rana pipiens</i>
Bullfrog, Introduced	<i>Rana catesbeiana</i>

Reptiles

Common Collared Lizard	<i>Crotaphytus collaris</i>
Long-nosed Leopard Lizard	<i>Crotaphytus wislizeni</i>
Desert Horned Lizard	<i>Phrynosoma platyrhinos</i>
Great Basin Sagebrush Lizard	<i>Sceloporus graciosus</i>
Great Basin Fence Lizard	<i>Sceloporus occidentalis</i>
Side-blotched Lizard	<i>Uta stansburiana</i>
Great Basin Whiptail Lizard	<i>Chemidophorus tigris</i>
Striped Whipsnake	<i>Masticophis taeniatus</i>
Western Long-nosed Snake	<i>Rhinocheilus lecontei</i>
Wandering Garter Snake	<i>Thamnophis elegans vagrans</i>
Great Basin Rattlesnake	<i>Crotalus viridis lotus</i>
Great Basin Gopher Snake	<i>Pituophis melanoleucus deserticola</i>

Fish Springs NWR Plant List
Updated 8/1/98
Erich Gilbert

The list includes all plants identified by E. G. Bolen in 1960 and several anonymous additions to that list since that time. Scientific names were updated based on: 1) Welsh et al. 1987. A Utah Flora. Great Basin Naturalist Memoirs No. 9, Brigham Young University. and 2) Cronquist et al. 1977. Intermountain Flora - Vascular Plants of the Intermountain West, USA, Vol. 6. Columbia University Press. New York. Several archaic scientific names were not referenced in Welsh et al. or Cronquist et al. These names are preceded by an asterisk (*).

Note: Since the last full update in 1998, a few minor changes have been made as new information became known to Refuge staff, such as changes in species names and new plants identified.

Family	Species	Common Name
1. Characeae	<i>Chara</i> sp.	Muskgrass
2. Cupressaceae	<i>Juniperus osteosperma</i> (Torr.) Little	Utah juniper
	<i>Juniperus chinensis</i> , var. <i>Pfitzeriana</i>	Pfitzer juniper
3. Ephedraceae	<i>Ephedra nevadensis</i> S. Wats.	Mormon tea
4. Taxaceae	<i>Taxus baccata</i>	English yew
5. Typhaceae	<i>Typha domingensis</i> Pers.	Narrowleaf cattail
	<i>Typha latifolia</i> L.	Broadleaf cattail
6. Najadaceae	<i>Najas marina</i> L.	Spiny najad
	<i>Ruppia maritima</i> L.	Wigeongrass
7. Juncaginaceae	<i>Triglochin maritima</i> L.	Seaside arrowgrass
8. Gramineae	<i>Agropyron elongatus</i> Host	Tall wheatgrass
	<i>Agrostis alba</i> L.	Red top
	<i>Blepharidachne kingii</i> (S. Wats.) Hack.	Blepharidachne
	<i>Bromus tectorum</i> L.	Cheatgrass
	<i>Distichlis stricta</i> (Torr.) Rydb.	Desert saltgrass
	<i>Elymus triticoides</i> Buckl.	Beardless wildrye
	<i>Hilaria jamesii</i> (Torr.) Benth.	Galleta
	<i>Hordeum jubatum</i> L.	Foxtail barley
	<i>Muhlenbergia asperifolia</i> (Nees and Mey.) Parodi	Scratchgrass
	<i>Orizopsis hymenoides</i> (Roem. and Schult.) Ricker	Indian ricegrass
	<i>Phragmites australis</i> Trin.	Common reed

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	<i>Polygon monspeliensis</i> (L.) Desf.	Rabbitfoot grass
	<i>Sitanion hystrix</i> (Nutt.) J. G. Smith	Squirreltail
	<i>Spartina gracilis</i> Trin.	Alkali cordgrass
	<i>Sporobolus airoides</i> (Torr.) Torr.	Alkali sacaton
	<i>Sporobolus cryptandrus</i> (Torr.) Gray	Sand dropseed
9. Cyperaceae	<i>Eleocharis rostellata</i> Torr.	Spike rush
	<i>Scirpus acutus</i> Muhl.	Hardstem bulrush
	<i>Scirpus americanus</i> Per.	Olney's threesquare bulrush
	<i>Scirpus nevadensis</i> S. Wats.	Nevada bulrush
	<i>Scirpus pungens</i> Vahl	Common threesquare
	<i>Scirpus paludosus</i> A. Nels.	Alkali bulrush
10. Juncaceae	<i>Juncus arcticus</i> Willd., var. <i>montanus</i> Engelm.	Wire rush, Baltic rush
11. Liliaceae	<i>Allium nevadense</i> S. Wats.	Wild onion
	<i>Smilacina stellata</i> (L.) Desf.	False Solomon's seal
12. Salicaceae	<i>Populus alba</i> L.	White poplar
	<i>Populus fremontii</i> Wats.	Fremont cottonwood
	<i>Salix lutea</i> Nutt.	Yellow willow
13. Ulmaceae	<i>Ulmus pumila</i> L.	Siberian elm
14. Portulacaceae	<i>Portulaca oleracea</i>	Purslane
15. Polygonaceae	<i>Erigonum ovalifolium</i> Nutt.	Cushion buckwheat
	* <i>Erigonum demersum</i>	
	<i>Erigonum cernuum</i> Nutt.	Nodding buckwheat
	<i>Erigonum deflexum</i> Torr. in Ives var. <i>nevadense</i>	Skeletonweed buckwheat
16. Chenopodiaceae	<i>Allenrolfea occidentalis</i> (S. Wats.) Kuntze	Pickle weed
	<i>Atriplex canescens</i>	Fourwing saltbrush
	<i>Atriplex confertifolia</i> (Torr. and Frem.) S. Wats.	Shadscale
	<i>Atriplex patula</i> L., var. <i>hastata</i> A. Gray	Spearscale
	<i>Bassia hyssopifolia</i> (Pall.) Kuntze	Bassia
	<i>Chenopodium hybridum</i> L.	Mapleleaf goosefoot

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	<i>Halogeton glomeratus</i> (Bieb.) Mey.	Halogeton
	<i>Kochia scoparia</i> (L.) Schrader	Summer cypress
	<i>Kochia vestita</i> (S. Wats.) Rydb.	Green molly
	<i>Nitrophila occidentalis</i> (Nutt.) S. Wats.	Nitrophila
	<i>Salicornia pacifica</i> Standl., var. <i>utahensis</i>	(Tidest.) Munz Samphire
	<i>Salsola iberica</i> Sennen and Pau	Russian thistle
	<i>Sarcobatus vermiculatus</i> (Hook.) Torr.	Greasewood
	<i>Suaeda intermedia</i> S. Wats.	Seepweed
	<i>Suaeda occidentalis</i> S. Wats.	Seepweed
17. Ceratophyllaceae	<i>Ceratophyllum demersum</i> L.	Coontail
18. Ranunculaceae	<i>Delphinium andersonii</i> A. Gray	Delphinium
	<i>Ranunculus cymbalaria</i> Pursh., var. <i>saximontanus</i> Fern.	Buttercup
	<i>Ranunculus juniperinus</i> M. E. Jones	Buttercup
19. Cruciferae	<i>Cardaria draba</i>	Whitetop
	<i>Coringia orientalis</i> (L.) Dum.	Hare's ear
	<i>Descurainia incisa</i> (Engelm.) Britt.	Tansy-mustard
	<i>Descurainia sophis</i> (L.) Webb	Tansy-mustard
	<i>Lepidium dictyotum</i> Gray	Peppergrass
	<i>Lepidium latifolium</i> L.	Tall whitetop
	<i>Lepidium perfoliatum</i> L.	Clasping peppergrass
	<i>Malcolmia africana</i> (L.) R. Br.	Malcolmia
	<i>Physaria chambersii</i> Rollins	Double bladder-pod
20. Rosaceae	<i>Rosa woodsii</i> Lindl.	Woods rose
	* <i>Rosa rugosa</i>	Musk rose
	<i>Purshia mexicana</i> (D. Don) Welsh	Mexican cliffrose
21. Leguminosae	<i>Astragalus utahensis</i> T. and G.	Lady slipper
	<i>Gleditsia tricanthos</i> (L.)	Honey locust
	<i>Melilotus albus</i> Desr. ex Lam.	White sweet-clover
	<i>Melilotus officinalis</i> (L.) Pallas	Yellow sweet-clover
	<i>Mendicago sativa</i> (L.)	Alfalfa
22. Malvaceae	<i>Sphaeralcea coccinea</i> (Pursh.) Rydb.	Globe mallow

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	<i>Malva neglecta</i> Wallr.	Mallow, cheeseweed
23. Tamaricaceae	<i>Tamarix ramosissima</i> Ledeb.	Salt cedar
24. Cactaceae	<i>Opuntia rhodantha</i> Schum.	Prickly pear
25. Onagraceae	<i>Oenothera caespitosa</i> Nutt., var. <i>marginata</i> (Nutt.) Munz.	Evening primrose
26. Umbelliferae	<i>Aprium graveolens</i> L., var. <i>dulce</i> DC.	Celery
	<i>Berula erecta</i> (Huds.) Cov.	Water parsnip
	<i>Cymopterus longipes</i> S. Wats.	Cymopterus
	<i>Lomatium grayi</i> C. and R.	Desert parsley
27. Primulaceae	<i>Glauz maritima</i> L.	Saltwort
28. Gentianaceae	<i>Centaureum exaltatum</i> (Griseb.) Wight ex Piper	Centaury
29. Apocynaceae	<i>Apocynum sibiricum</i> Jacq.	Dogbane
30. Asclepiadaceae	<i>Asclepias incarnata</i> L.	Swamp milkweed
	<i>Asclepias speciosa</i> Torr.	Milkweed
31. Convolvulaceae	<i>Convolvulus arvensis</i> L.	Bindweed
	<i>Cressa truxillensis</i> H.B.K.	Cressa
32. Polemoniaceae	<i>Gilia inconspicua</i> (J.E. Sm.) Sweet	Gilia
	<i>Phlox longifolia</i> Nutt.	Longleaf phlox
33. Solanaceae	<i>Lycium andersonii</i> Gray	Anderson wolfberry
34. Orobanchaceae	<i>Orobanche multiflora</i> Nutt.	Broomrape
35. Scrophulariaceae	<i>Castilleja chromosa</i> A. Nels.	Common paint brush
	<i>Castilleja exilis</i> A. Nels.	Annual paint brush
	<i>Cordylanthus maritimus</i> Nutt. ex Benth.	Cordylanthus
	<i>Penstemon dolius</i> Jones ex. Pennell	Jones penstemon
36. Lentibulariaceae	<i>Utricularia vulgaris</i> L.	Common bladderwort
37. Compositae	* <i>Aplopappus racemosus</i> (Nutt.) Torr.	Aplopappus
	<i>Aster pauciflorus</i> Nutt.	Alkali aster
	<i>Centaurea virgata</i> Lam., var. <i>squarrosa</i>	Squarrose knapweed
	<i>Chaenactis douglasii</i> H. and A.	Douglas dustymaiden
	<i>Chrysothamnus nauseosus</i> (Pall.) Britt.	Rubber rabbitbrush
	<i>Chrysothamnus albidus</i> (Jones) Greene	Alkali rabbitbrush

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	<i>Cirsium arvense</i> (L.) Scop.	Canada thistle
	* <i>Cirsium drummondii</i> T. and G.	Thistle
	<i>Crepis runcinata</i> (James) T. and G.	Meadow hawksbeard
	<i>Enceliopsis nudicaulis</i> (Gray) A. Nels.	Nakedstem
	<i>Erigeron pumilus</i> Nutt.	Vernal daisy
	<i>Grindellia squarrosa</i> (Pursh) Dunal	Curly gumweed
	<i>Haplopappus nanus</i> (Nutt.) D.C. Eaton	Low goldenbush
	<i>Helianthus annuus</i> L.	Common sunflower
	<i>Helianthus nuttallii</i> T. and G.	Nuttall sunflower
	<i>Hymenopappus filifolius</i> Hook., var. <i>eripodus</i> (A. Nels)	Hyalineherb
	<i>Iva axillaris</i> L.	Poverty weed
	* <i>Lygodesmia exigua</i> A. Gray	Lygodesmia
	<i>Malacothrix sonchoides</i> (Nutt.) T. and G.	Malacothrix
	<i>Psathyrotes annua</i> (Nutt.) Gray	Mealy rosettes
	* <i>Senecio uintahensis</i> (A. Nels.) Greenm.	Senecio
	<i>Sonchus asper</i> (L.) Hill	Spiny sow-thistle
	<i>Stephanomeria tenuifolia</i> (Torr.) Hall	Slender wirelettuce
	<i>Tetradymia glabrata</i>	Littleleaf horsebrush
	<i>Tetradymia spinosa</i> H. and A.	Thorny horsebrush
	<i>Townsendia florifer</i> (Hook.) Gray	Townsendia
38. Elaeagnaceae	<i>Elaeagnus angustifolia</i> L.	Russian olive
39. Potamogetonaceae	<i>Potamogeton pectinatus</i> L.	Sago pondweed
40. Moraceae	<i>Morus alba</i> L.	White mulberry
41. Amaranthaceae	<i>Amaranthus hybridus</i> L.	Pigweed
42. Loasaceae	<i>Mentzelia laevicaulis</i> (Dougl.) T. and G.	Blazing star
43. Zygophyllaceae	<i>Tribulus terrestris</i> (L.)	Puncture vine, goathead
44. Caprifoliaceae	<i>Lonicera tartarica</i> L.	Tartarian honeysuckle
45. Geraniaceae	<i>Erodium cicutarium</i> (L.) L'Her.	Storksbill
46. Polygalaceae	<i>Polygala acanthroglada</i> Gray	Thorny milkwort