Glossary

Adaptive Management: The rigorous application of management, research, and monitoring to gain information and experience necessary to assess and modify management activities. A process that uses feedback from refuge research and monitoring and evaluation of management actions to support or modify objectives and strategies at all planning levels.

Alternative: 1) A reasonable way to fix the identified problem or satisfy the stated need (40 CFR 1500.2). 2) Alternatives are different means of accomplishing refuge purposes and goals and contributing to the System mission (Draft Service Manual 602 FW 1.5).

Biological Control: The use of organisms or viruses to control weeds or other pests.

Comprehensive Conservation Plan (CCP): A document that describes the desired future conditions of the refuge; and provides long-range guidance and management direction for the refuge manager to accomplish the purposes of the refuge, contribute to the mission of the System, and to meet other relevant mandates (Draft Service Manual 602 FW 1.5).

Concern: See definition of "Issue."

Cover Type: The present vegetation of an area.

Cultural Resources: The remains of sites, structures, or objects used by people in the past.

Cultural Resource Inventory: A professionally conducted study designed to locate and evaluate evidence of cultural resources present within a defined geographic area. Inventories may involve various levels, including background literature search, comprehensive field examination to identify all exposed physical manifestations of cultural resources, or sample inventory to project site distribution and density over a larger area. Evaluation of identified cultural resources to determine eligibility for the National Register follows the criteria found in .36 CFR 60.4 (Service Manual 614 FW 1.7).

Ecological Integrity: An ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes. In plain language, ecosystems have integrity when they retain their native components and complexity (plants, animals and other organisms) and processes (such as growth, reproduction, energy flow, and nutrient cycling) to maintain the ecosystem's capacity for self-organization through time.

Ecosystem: A dynamic and interrelating complex of plant and animal communities and their associated nonliving environment.

Ecosystem Management: Management of natural resources using system-wide concepts to ensure that all plants and animals in ecosystems are maintained at

viable levels in native habitats and basic ecosystem processes are perpetuated indefinitely.

Endangered Species (Federal): A plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range.

Endangered Species (State): A plant or animal species in danger of becoming extinct or extirpated in an individual State within the near future if factors contributing to its decline continue. Populations of these species are at critically low levels or their habitats have been degraded or depleted to a significant degree.

Environmental Assessment (EA): A concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose and need for an action, alternatives to such action, and provides sufficient evidence and analysis of impacts to determine whether to prepare an Environmental Impact Statement or Finding of No Significant Impact (40 CFR 1508.9).

Environmental Impact Statement (EIS): A detailed written statement required by section 102(2)(C) of the National Environmental Policy Act, analyzing the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources (40 CFR 1508.1 I).

Evapotranspiration: The combined water loss from a biotic community or ecosystem into the atmosphere caused by evaporation of water from the soil plus the transpiration of plants.

Fauna: All the vertebrate and invertebrate animals of an area.

Federal Trust Resources: A trust is something managed by one entity for another who hold the ownership. The FWS holds in trust many natural resources for the people of the United States of America as a result of Federal Acts and treaties. Examples are species listed under the Endangered Species Act, migratory birds protected by international treaties, and native plant or wildlife species found on a national wildlife refuge.

Federal Trust Species: All species where the Federal government has primary jurisdiction including federally endangered or threatened species, migratory birds, anadromous fish, and certain marine mammals.

Finding of No Significant Impact (FONSI): A document prepared in compliance with the National Environmental Policy Act, supported by an Environmental Assessment, that briefly presents why a Federal action will have no significant effect on the human environment and for which an Environmental Impact Statement, therefore, will not be prepared (40 CFR 1508.13).

Flora: All the plant species of an area.

Forb: A broad-leaved, herbaceous plant; for example, a columbine.

Goal: Descriptive, open-ended, and often broad statements of desired future conditions that conveys a purpose but does not define measurable units (Draft Service Manual 620 FW 1.5).

Geographic Information System (GIS): A computer system capable of storing and manipulating spatial data.

Habitat: Suite of existing environmental condition required by an organism for survival and reproductions. The place where an organism typically lives.

Habitat Type: See Vegetation Type.

Indicator Species: A species of plant or animal that is assumed to be sensitive to habitat changes and represents the needs of a larger group of species. Also referred to as a key species.

Integrated Pest Management: Methods of managing undesirable species (such as weeds) including: education, prevention, physical or mechanical methods of control, biological control, responsible chemical use, and cultural methods.

Issue: Any unsettled matter that requires a management decision; e.g., a Service initiative, opportunity, resource management problem, a threat to the resources of the unit, conflict in uses, public concern, or the presence of an undesirable resource condition (Draft Service Manual 602 FW 1.5).

Management Alternative: See Alternative.

Migration: The seasonal movement from one area to another and back.

Mission Statement: Succinct statement of a unit's purpose and reason for being.

Monitoring: The process of collecting information to track changes of selected parameters over time.

National Environmental Policy Act of 1969 (NEPA): Requires all agencies, including the Service, to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA with other planning requirements, and prepare appropriate NEPA documents to facilitate better environmental decision making (from 40 CFR 1500).

National Wildlife Refuge: A designated area of land, water, or an interest in land or water within the Refuge System.

National Wildlife Refuge System: Various categories of areas administered by the Secretary of the Interior for the conservation of fish and wildlife, including species threatened with extinction, all lands, waters, and interests therein administered by the Secretary as wildlife refuges, areas for the protections and conservation of fish and wildlife that are threatened with extinction, wildlife ranges, games ranges, wildlife management areas, or waterfowl production areas.

Native Species: Species that normally live and thrive in a particular ecosystem.

Natural: Pertains to the ecosystem components (biological, physical, chemical) and processes (geological, hydrological and biological) present on the refuge prior to the influence of western man.

Neotropical Migratory Bird: A bird species that breeds north of the U.S./Mexican border and winters primarily south of this border.

Notice of Intent (NOI): In the case of a Federal action, such as analyzed in this documentation, an NOI is a notice that an environmental impact statement will be prepared and considered (40 CFR 1508.22). Published in the *Federal Register*.

Notice of Availability: An NOA is a notice that documentation is available to the public on a Federal action, in this case, the Comprehensive Conservation Plan. Published in the *Federal Register*.

Noxious Weed: A plant species designated by Federal or State law as generally possessing one or more of the following characteristics: aggressive or difficult to manage; parasitic; a carrier or host of serious insect or disease; or nonnative, new, or not common to the United States, according to the Federal Noxious Weed Act (PL 93-639), a noxious weed is one that causes disease or had adverse effects on man or his environment and, therefore, is detrimental to the agriculture and commerce of the Untied States and to the public health.

Objective: An objective is a concise target statement of what will be achieved, how much will be achieved, when and where it will be achieved, and who is responsible for the work. Objectives are derived from goals and provide the basis for determining management strategies. Objectives should be attainable and time-specific and should be stated quantitatively to the extent possible. If objectives cannot be stated quantitatively, they may be stated qualitatively (Draft Service Manual 602 FW 1.5).

Passerine: Perching songbird; includes over half of all birds. For example - sparrows, finches, warblers.

Planning Area: A planning area may include lands outside existing planning unit boundaries that are being studied for inclusion in the System and/or partnership planning efforts. It may also include watersheds or ecosystems that affect the planning area.

Planning Team: A planning team prepared the Comprehensive Conservation Plan. Planning teams are interdisciplinary in membership and function. Teams generally consist of a planning team leader; refuge manager and staff; biologists; staff specialists or other representatives of Service programs, ecosystems or regional offices; and other governmental agencies as appropriate.

Planning Unit: A single refuge, an ecologically / administratively related complex of refuges, or distinct unit of a refuge.

Plant Association: A classification of plant communities based on the similarity in dominants of all layers of vascular species in a climax community.

Plant Community: An assemblage of plant species unique in its composition; occurs in particular locations under particular influences; a reflection or integration of the environmental influences on the site -- such as soil, temperature, elevation, solar radiation, slope, aspect, and rainfall; denotes a general kind of climax plant community, i.e., ponderosa pine or bunchgrass.

Preferred Alternative: This is the alternative determined (by the decision maker) to best achieve the Refuge purpose, vision, and goals; contributes to the Refuge System mission, addresses the significant issues; and is consistent with principles of sound fish and wildlife management.

Prescribed Fire: The skillful application of fire to natural fuels under conditions of weather, fuel moisture, soil moisture, etc., that allow confinement of the fire to a predetermined area and produces the intensity of heat and rate of spread to accomplish planned benefits to one or more

objectives of forest management, wildlife management, or hazard reduction.

Public: Individuals, organizations, and groups; officials of Federal, State, and local government agencies; Indian tribes; and foreign nations. It may include anyone outside the core planning team. It includes those who may or may not have indicated an interest in Service issues and those who do or do not realize that Service decisions may affect them.

Public Involvement: A process that offers affected and interested individuals and organizations an opportunity to become informed about, and to express their opinions on, Service actions and policies. In the process, these views are studied thoroughly and thoughtful consideration of public views is given in shaping decisions for refuge management.

Purpose(s) of the Refuge: The purpose of a refuge is specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorization, or expanding a refuge, refuge unit, or refuge subunit.

Refuge Operating Needs System (RONS): The Refuge Operating Needs System is a national database that contains the unfunded operational needs of each refuge. Projects included are those required to implement approved plans, and meet goals, objectives, and legal mandates.

Refuge Use: Any activity on a refuge, except administrative or law enforcement activity carried out by or under the direction of an authorized Service employee.

Refuge Goal: See Goal.

Refuge Purposes: The purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, a refuge unit, or refuge subunit (Draft Service Manual 602 FW 1.5).

Special Status Species: Plants or animals that have been identified through either Federal law, State law, or agency policy, as requiring special protection of monitoring. Examples include federally listed endangered, threatened, proposed, or candidate species; state listed endangered, threatened, candidate, or monitor species; U.S. Fish & Wildlife Service species of management concern and species identified by the Partners in Flight program as being of extreme or moderately high conservation concern.

Species of Management Concern: Those plant and animal species, while not failing under the definition of special status species, that are of management interest by virtue of being Federal trust species such as migratory birds, important game species including white-tailed deer, furbearers such as American marten, important prey species including red-backed vole, or significant keystone species such as beaver.

Step-down Management Plans: Step-down management plans provide the details necessary to implement management strategies identified in the comprehensive conservation plan (Draft Service Manual 602 FW 1.5).

Sound Professional Judgment: A finding, determination, or decision that is consistent with principles of sound fish and wildlife management and administration, available science and resources, and adherence to the requirements of the Refuge Administration Act and other applicable laws.

Strategy: A specific action, tool, or technique or combination of actions, tools, and techniques used to meet unit objectives (Draft Service Manual 602 FW 1.5).

Succession: Process of change and development in community components - soil, micro-organisms, animal and plant life and microenvironment.

Threatened Species (Federal): Species listed under the Endangered Species Act that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

Threatened Species (State): A plant or animal species likely to become endangered in an individual State within the near future if factors contributing to population decline or habitat degradation or loss continue.

Trust Species: Species for which the U.S. Fish & Wildlife Service has primary responsibility including most federally listed threatened and endangered species, anadromous fish once they enter inland U.S. waterways, and migratory birds. Also see "Federal Trust Species."

Vegetation Type, Habitat Type, Forest Cover Type: A land classification system based upon the concept of distinct plant associations.

Vision Statement: A concise statement of the desired future condition of the planning unit, based primarily upon the System mission, specific refuge purposes, and other relevant mandates (Draft Service Manual 602 FW 1.5).

Wilderness Study Areas: Lands and waters identified through inventory as meeting the definition of wilderness and undergoing evaluation for recommendation for inclusion in the Wilderness System. A study area must meet the following criteria: (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 contiguous roadless acres or is sufficient in size as to make practicable its preservation and use in an unimpaired condition (Draft Service Manual 61 0 FW 1.5).

Wilderness: See Designated Wilderness Area.

Wildfire: A free-burning fire requiring a suppression response; all fire other than prescribed fire that occurs on wildlands (Service Manual 621 FW 1.7).

Wildland Fire: Every wildland fire is either a wildfire or a prescribed fire (Service Manual 621 FW 1.3).

Wildlife-dependent Recreation: A use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation. The National Wildlife Refuge System Improvement Act of 1997 specifies that these are the six priority general public uses of the System.

Appendix A. Key Legislation and Policies

Antiquities Act (1906): Authorizes the scientific investigation of antiquities on Federal land and provides penalties for unauthorized removal of objects taken or collected without a permit.

Migratory Bird Treaty Act (1918): Designates the protection of migratory birds as a Federal responsibility. This Act enables the setting of seasons, and other regulations including the closing of areas, Federal or non-Federal, to the hunting of migratory birds.

Migratory Bird Conservation Act (1929): Establishes procedures for acquisition by purchase, rental, or gifts of areas approved by the Migratory Bird Conservation Commission.

Migratory Bird Hunting and Conservation Stamp Act (1934): Authorized the opening of part of a refuge to waterfowl hunting.

Fish and Wildlife Act (1956): Established a comprehensive national fish and wildlife policy and broadened the authority for acquisition and development of refuges.

Fish and Wildlife Coordination Act (1958): Allows the U.S. Fish & Wildlife Service to enter into agreements with private landowners for wildlife management purposes.

Refuge Recreation Act (1962): Allows the use of refuges for recreation when such uses are compatible with the refuge's primary purposes and when sufficient funds are available to manage the uses.

Land and Water Conservation Fund Act (1965): Uses the receipts from the sale of surplus Federal land, outer continental shelf oil and gas sales, and other sources for land acquisition under several authorities.

National Wildlife Refuge System Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd-668ee. (Refuge Administration Act): Defines the National Wildlife Refuge System and authorizes the Secretary to permit any use of a refuge provided such use is compatible with the major purposes for which the refuge was established. The Refuge Improvement Act clearly defines a unifying mission for the Refuge System; establishes the legitimacy and appropriateness of the six priority public uses (hunting, fishing, wildlife observation and photography, or environmental education and interpretation); establishes a formal process for determining compatibility; established the responsibilities of the Secretary of Interior for managing and protecting the System; and requires a Comprehensive Conservation Plan for each refuge by the year 2012. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

National Historic Preservation Act (1966) as amended: Establishes as policy that the Federal Government is to provide leadership in the preservation of the nation's prehistoric and historic resources.

Architectural Barriers Act (1968): Requires federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

National Environmental Policy Act (1969): Requires the disclosure of the environmental impacts of any major Federal action significantly affecting the quality of the human environment.

Endangered Species Act (1973): Requires all Federal agencies to carry out programs for the conservation of endangered and threatened species.

Rehabilitation Act (1973): Requires programmatic accessibility in addition to physical accessibility for all facilities and programs funded by the Federal government to ensure that anybody can participate in any program.

Archaeological and Historic Preservation Act (1974): Directs the preservation of historic and archaeological data in Federal construction projects.

Clean Water Act (1977): Requires consultation with the Corps of Engineers (404 permits) for major wetland modifications.

Executive Order 11988 (1977): Each Federal agency shall provide leadership and take action to reduce the risk of flood loss and minimize the impact of floods on human safety, and preserve the natural and beneficial values served by the floodplains.

American Indian Religious Freedom Act (1978): Directs agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve Native American religious cultural rights and practices.

Archaeological Resources Protection Act (1979) as amended: Protects materials of archaeological interest from unauthorized removal or destruction and requires Federal managers to develop plans and schedules to locate archaeological resources.

Emergency Wetlands Resources Act (1986): The purpose of the Act is "To promote the conservation of migratory waterfowl and to offset or prevent the serious loss of wetlands by the acquisition of wetlands and other essential habitat, and for other purposes."

Federal Noxious Weed Act (1990): Requires the use of integrated management systems to control or contain undesirable plant species, and an interdisciplinary approach with the cooperation of other Federal and State agencies.

Native American Graves Protection and Repatriation Act (1990): Requires Federal agencies and museums to inventory, determine ownership of, and repatriate cultural items under their control or possession.

Americans With Disabilities Act (1992): Prohibits discrimination in public accommodations and services.

Executive Order 12996 Management and General Public Use of the National Wildlife Refuge System (1996): Defines the mission, purpose, and priority public uses of the National Wildlife Refuge System. It also presents four principles to guide management of the System.

Executive Order 13007 Indian Sacred Sites (1996): Directs Federal land management agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, avoid adversely affecting the physical integrity of such sacred sites, and where appropriate, maintain the confidentiality of sacred sites.

Volunteer and Partnership Enhancement Act of 1998: To amend the Fish and Wildlife Act of 1956 to promote volunteer programs and community partnerships for the benefit of national wildlife refuges, and for other purposes. October 5, 1998

Director's Order 148 - Coordination with State Fish and Wildlife Agency Representatives on Management of the National Wildlife Refuge System (December 23, 2003): This Director's Order outlines procedures we will follow for ongoing and effective cooperation with States when developing policy and managing the National Wildlife Refuge System. It was developed in cooperation with a team of State representatives from Alaska, Arizona, Montana, New York, and South Carolina under the auspices of Intergovernmental Personnel Agreements. It builds upon the direction in the National Wildlife Refuge System Improvement Act and the Interior Policy on State-Federal Relationships (43 CFR 24).

Appendix B. Compatibility Determinations

Station Name:

Fish Springs National Wildlife Refuge

Date Established:

Fish Springs National Wildlife Refuge was approved for acquisition on June 18, 1958, by the Migratory Bird Conservation Committee.

Establishing and Acquisition Authorities:

Fish Springs National Wildlife Refuge - Migratory Bird Conservation Act of 1929, Public Land Order 1942 dated August 12, 1959; Public Land Order 2563 dated December 22, 1961.

Purpose for which Established:

Fish Springs National Wildlife Refuge was established under the Migratory Bird Conservation Act ". . . for use as inviolate sanctuaries, or for any other management purpose, for migratory birds." (16 U.S.C. 715D)

Mission of the National Wildlife Refuge System:

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.

Description of Proposed Uses:

Wildlife-dependent recreation, including hunting, wildlife observation and photography, environmental education and interpretation

Waterfowl hunting is allowed during the fall. All hunters are required to register at the visitor contact station prior to entering and upon exiting the Refuge for the purpose of hunting. A blind site for hunter with mobility impairments is maintained for use by reservation only and is available for reservation on Saturdays, Sundays, and Wednesdays during the waterfowl hunting season. Hunter parking areas are provided.

Wildlife observation and photography are facilitated by an auto-tour route. The universally accessible waterfowl hunting site is made available for photographers outside of the waterfowl hunting season. Visitors are permitted to hike or use boats without gas motors (electric motors are authorized) in areas open to the public.

The Fish Springs National Wildlife Refuge normally sponsors two public use events each year. One event is in conjunction with International Migratory Bird day and usually involves opportunities for the public to learn basic birding skills, how to attract migratory songbirds around the home, and opportunities to go birding on the Refuge with Utah experts. Attendance is normally around 50 visitors.

A second event normally scheduled is the Refuge Open House. Held since 1991 on the third Saturday in September, this

event highlights our fall waterfowl migration and is also a day when various Partners display exhibits regarding their work on the Refuge and in Utah. Visitation for the event is normally between 50 to 100 visitors.

Other opportunities for environmental education and interpretation occur when Boy or Girl Scout groups, church youth groups, and various other organizations such as Elderhostel, Sons of the Pioneers, etc., visit the Refuge. Sometimes these visits are scheduled well in advance although they are frequently accommodated on short notice. School groups visiting the Refuge, due to the extreme travel distances involved, are an uncommon occurrence. However, when they do visit, a tour and talk as well as structured environmental education to meet goals identified by accompanying instructors are part of our effort. Camping is allowed by the issuance of a special use permit for groups engaged in pre-arranged environmental education programs and for organizations involved in Refuge service projects.

Justification:

Based on the biological impacts described in the CCP and Environmental Assessment, the five public uses described here will have minimal, if any, adverse impacts on the wildlife-oriented purposes for which the Refuge was established or the purpose of the National Wildlife Refuge System.

At the same time, these five public uses help carry out the National Wildlife Refuge System Improvement Act mandate to "ensure that opportunities are provided within the System for compatible wildlife-dependent recreational uses."

Additionally, a secondary goal of the National Wildlife Refuge System is to provide opportunities for the public to develop an understanding and appreciation for wildlife. The five uses described here are identified as priority public uses in the National Wildlife Refuge System Improvement Act of 1997 and will help meet that goal on the Fish Springs National Wildlife Refuge with minimal conflicts with the wildlife conservation mission of the Refuge System.

Determination:

Wildlife-dependent recreation, including hunting, wildlife observation and photography, and environmental education and interpretation are compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility:

- Continue seasonal closures of some Refuge units during the spring breeding season and fall hunting season.
- Monitor use, regulate access, and maintain necessary facilities to prevent habitat degradation and wildlife disturbance in high public use areas.
- Monitor levels of use and effects on wildlife.
- Monitor participants to ensure activities are conducted in compliance with Refuge regulations.

Description of Proposed Use:

Research

The Fish Springs National Wildlife Refuge receives periodic requests to conduct scientific research. Priority would be given to studies that support Refuge purposes, goals, and objectives. This would include, for example, studies that contribute to the enhancement, protection, use, preservation, and management of native

Refuge wildlife populations and their habitats, and would include cultural resources. Research applicants must submit a proposal that would outline: 1) objectives of the study; 2) justification for the study; 3) detailed methodology and schedule; 4) potential impact on Refuge wildlife and/or habitat, including disturbance (short- and long-term), injury, or mortality; 5) personnel required; 6) costs to the Refuge; and 7) end products (i.e., reports, publications). Research proposal would be reviewed by Refuge staff and others, as appropriate. Evaluation criteria will include, but not be limited to, the following:

1) Research that will contribute to priority management activities will have highest priority.
2) Research projects that can be done off the Refuge are less likely to be approved without compelling reason.
3) Research that causes disturbance or is intrusive will be closely scrutinized. Level and type of disturbance will be carefully weighed when evaluating a request.
4) If staffing or logistics make it impossible for the Refuge to monitor researcher activity, this may be reason to deny the request.
5) The length of the project will be considered and agreed upon before approval.

Availability of Resources:

Resources to accommodate current levels of research are minimally adequate. If additional staff positions currently approved but not filled, shown in RONS projects listed in Appendix B, were filled, they would provide sufficient staff time needed to accommodate the increased research and monitoring efforts and associated administration, facility maintenance, and law enforcement needs.

Anticipated Impacts on Service Lands, Water, and Interests:

Minimal impact to Refuge wildlife and habitats will be expected with research studies. Some level of disturbance is expected with all research activities since most researchers will be entering areas that are normally closed to the public and may be collecting samples or handling wildlife. Special Use Permit conditions will include special conditions to ensure that impacts to wildlife and habitats are kept to a minimum.

Determination:

Use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility:

- All approved researchers must be issued Special Use Permits by the Refuge Manager.
- Researchers must comply with all Refuge regulations unless authorized otherwise under conditions of their Special Use Permit.
- All data collected by the researcher also become property of the Refuge. Copies of any reports, summaries, and data regarding the research must be submitted to the Refuge.
- Researchers are responsible for coordinating with various agencies to gain specific permits to complete their projects. Authorized projects will be in compliance with all local, State, and Federal laws.
- Refuge Manager may suspend/modify conditions/terminate on-Refuge

research that is already permitted and in progress, should unacceptable impacts or issues arise or be noted.

Justification:

Based on the biological impacts described in the CCP and Environmental Assessment, research as described here will have minimal, if any, adverse impacts on the wildlife-oriented purposes for which the Refuge was established or the purpose of the National Wildlife Refuge System.

Research projects will contribute to the enhancement, protection, use, preservation, and management of native wildlife populations and their habitats and cultural and geological resources. Most approved research projects would have significant potential to provide information that would enable Refuge staff to make management decisions that were based on increased levels of biotic soundness.

Signatures:

Jay K. Bartlo 10-05-04

Project Leader Date

Concurrence:

Steve Berger 10/7/04

Refuge Supervisor Date

Richard A. Coleman 10/7/04

Regional Chief, NWRS Date

Mandatory Re-Evaluation Date

This determination will be re-evaluated by the Refuge Manager after a period of not more than 15 years. If the conditions under which the use is permitted change significantly, or if significant new information exists regarding the effect of this use, then the determination shall be re-evaluated when those condition are known. Not withstanding any of the criteria identified in this paragraph, it is still the prerogative of the Refuge Manager to re-evaluate the compatibility of these uses at any time.

Appendix C. Planning Team

U.S. Fish & Wildlife Service

- Jay Banta, Refuge Manger, Fish Springs NWR
- James Graham, Refuge Operations Specialist, Fish Springs NWR
- Toni Griffin, Planning Team Leader, Region 6 Office
- Bridget McCann, Vice-Planning Team Leader, Region 6 Office
- Sean Fields, GIS Specialist, Region 6 Office
- Barbara Shupe, Vice-Writer/Editor, Region 6 Office

ERO Resources Corporation

- Richard Trenholme, Environmental Scientist
- Ron Beane, Wildlife Biologist
- Lance Carpenter, Wildlife Biologist
- Martha Clark, Editor and Document Production

Appendix D. Environmental Compliance

Environmental Action Statement

U.S. Fish and Wildlife Service
Region 6
Denver, Colorado

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record.

I have determined that the action of implementing the Fish Springs National Wildlife Refuge Comprehensive Conservation Plan is found not to have significant environmental effects, as determined by the attached Finding of No Significant Impact and the environmental assessment as found with the draft comprehensive conservation plan.

Ralph O. Morgenweck
Regional Director
Region 6, U.S. Fish and Wildlife Service
Denver, Colorado

9/24/04
Date

ACTING

Richard A. Coleman, Ph.D.
Assistant Regional Director, National Wildlife Refuge System
Region 6, U.S. Fish and Wildlife Service
Denver, Colorado

9/24/04
Date

Steve Berendzen
Refuge Program Supervisor
Region 6, U.S. Fish and Wildlife Service
Denver, Colorado

9/24/04
Date

Jay Banta
Refuge Manager
Fish Springs National Wildlife Refuge
Region 6, U.S. Fish and Wildlife Service
Dugway, Utah

09-17-04
Date

Finding of No Significant Impact

U.S. Fish and Wildlife Service
Region 6
Denver, Colorado

Fulfill the Fish Springs National Wildlife Refuge
Comprehensive Conservation Plan

Three management alternatives for the Fish Springs National Wildlife Refuge were assessed as to their effectiveness in achieving the Refuge purposes and their impact on the human environment. Alternative A, the No Action Alternative, would continue current management of the Refuge. Alternative B, the Refuge Restoration Alternative, would restore Refuge habitats to mimic pre-settlement conditions. Alternative C, Management for Wildlife Diversity, the Proposed Action, would focus on providing habitat for maximum wildlife diversity including migratory birds, and native mammal, mollusk, invertebrate, and amphibian communities. Based on this assessment and comments received, I have selected Alternative C for implementation.

The preferred alternative was selected because it best meets the purposes for which the Fish Springs National Wildlife Refuge was established and is preferable to the "no action" alternative in light of physical, biological, economic, and social factors. The preferred alternative will also provide public aces for wildlife-dependent recreation, environmental education, and interpretation.

I find that the preferred alternative is not a major Federal action that would significantly affect the quality of the human environment within the meaning of Section 102(2)(C) of the National Environmental Policy Act of 1969. Accordingly, the preparation of an Environmental Impact Statement on the proposed action is not required.

The following is a summary of anticipated environmental effects from implementation of the preferred alternative:

- The preferred alternative will not adversely impact endangered or threatened species or their habitat.
- The preferred alternative will not adversely impact archaeological or historical resources.
- The preferred alternative will not adversely impact wetlands nor does the plan call for structures that could be damaged by or that would significantly influence the movement of floodwater.
- The preferred alternative will not have a disproportionately high or adverse human health or environmental effect on minority or low-income populations.
- The State of Utah has been notified and given the opportunity to review the Comprehensive Conservation Plan and associated environmental assessment.

Ralph Morgenweck

Ralph Morgenweck
Regional Director
Region 6, U.S. Fish & Wildlife Service
Denver, Colorado

9/24/09
Date

Appendix E. Section 7 Biological Evaluation

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION

Originating Persons: Jay Banta
Toni Griffin
Telephone Numbers: (435) 831-5353 x 2
(303) 236-4378
Date: May 21, 2004

I. Region: 6

II. Service Activity (Program): Refuges & Wildlife, Fish Springs National Wildlife Refuge

III. Pertinent Species and Habitat

A. Federally Listed species and/or their critical habitat within the action area
1. bald eagle, Haliaeetus leucocephalus (listed threatened and proposed delisting)
2. There is no federally designated critical habitat on the action area (Fish Springs NWR)

B. Proposed species and/or proposed critical habitat within the action area
1. None

C. Candidate species within the action area
1. Western yellow-billed cuckoo, Coccyzus americanus
2. least chub, Iotichthys phlegethontis

D. Include species/habitat occurrence on a map
1. see attachment

IV. Geographic area or station name and action

Station: Fish Springs National Wildlife Refuge
Action: Issuance and Implementation of Comprehensive Conservation Plan for Fish Springs NWR

V. Location (map attached)

A. Ecoregion Number and Name: Fish Springs NWR is located within the Service's Region 6, Mountain-Prairie Region and specifically in the Interior Basins Ecosystem

B. County and State: Juab County, Utah

C. Section, township, and range: Fish Springs NWR includes parts or all of Sections 1, 2, 3, 10, 11, 12, 13, 14, 23, 25, 26, 35, and 36, Township 14 West , Range 11 South; Sections 4, 5, 6, 7, 8, 9,16, 17, 18, 27, 28, 29, 30, 31, 32, Township 12 South, Range13 West.

D. Distance & direction to nearest town: Fish Springs NWR is approximately 78 miles northeast of Delta, UT

E. Species/habitat occurrence

1. bald eagle: This species occurs only as a migrant and winter species. Wintering numbers are typically 2-3 with a range of 0-5. Bald eagle activity occurs throughout the wetland portions of the Refuge. Diurnal roostng is concentrated in the large tree found at the Thomas Ranch Watchable Wildlife Area.
2. western yellow-billed cuckoo: This species is present as a very rare migrant. There are three records of sitings in 40 years. All have been in the vicinity of the Refuge headquarters and residential compound or at the Thomas Ranch Watchable Wildlife.
3. least chub: Least chub have been introduced into Walter and Deadman springs but are present only in Walter spring at this time.

VI. Description of proposed action: Issuance and Implementation of Comprehensive Conservation Plan for Fish Springs NWR

VII. Determination of effects

A. Explanation of effects of the action on species and critical habitats in items III. A, B & C

1. There is no federally designated critical habitat on the action area (Fish Springs NWR) and the CCP does not find a need to propose designating critical habitat within the Refuge at this time.

B. Explanation of actions to be implemented to reduce adverse effects

1. The actions of the CCP will cause little to no negative impacts upon migrant and wintering bald eagles. There may be a slight increase in visitation to the refuge, but current visitation levels are much lower than most field stations. A project to increase available, secure and undisturbed roosting sites will enhance bald eagle habitat. Habitat improvements that attract a larger waterfowl population will enhance foraging opportunities.
2. Current least chub population would not be negatively impacted by the proposed action. Current, proposed and ongoing efforts to expand the least chub population in conjunction with the Utah Division of Wildlife Resources could substantially increase the population of this species on the Refuge.

VIII. Effect determination and response requested

[* = optional]

A. Listed species/designated critical habitat:

Determination	Response requested
No effect/no adverse modification (species: NONE)	✓ *Concurrence
May affect, but is not likely to adversely affect species/adversely modify critical habitat (species: bald eagle)	_____ Concurrence
likely to jeopardize the continued existence of species and adversely modify or destroy their critical habitat	_____ Formal Consultation

(species: NONE)

B. Proposed species/proposed critical habitat:

Determination	Response requested
No effect on proposed species/no adverse modification of proposed critical habitat (species: NONE)	✓ *Concurrence
Is likely to jeopardize proposed species adversely modify proposed critical habitat (species: NONE)	_____ Conference

C. Candidate Species:

Determination	Response requested
No effect (species: yellow-billed cuckoo, least chub)	✓ *Concurrence
Is likely to jeopardize candidate species (species: NONE)	_____ Conference

Jay K. Banta

Jay Banta, Refuge Manager, Fish Springs National Wildlife Refuge

06-21-14
Date

IX. Reviewing ESO Evaluation

A. Concurrence _____ Non-concurrence _____

B. Formal Consultation required _____

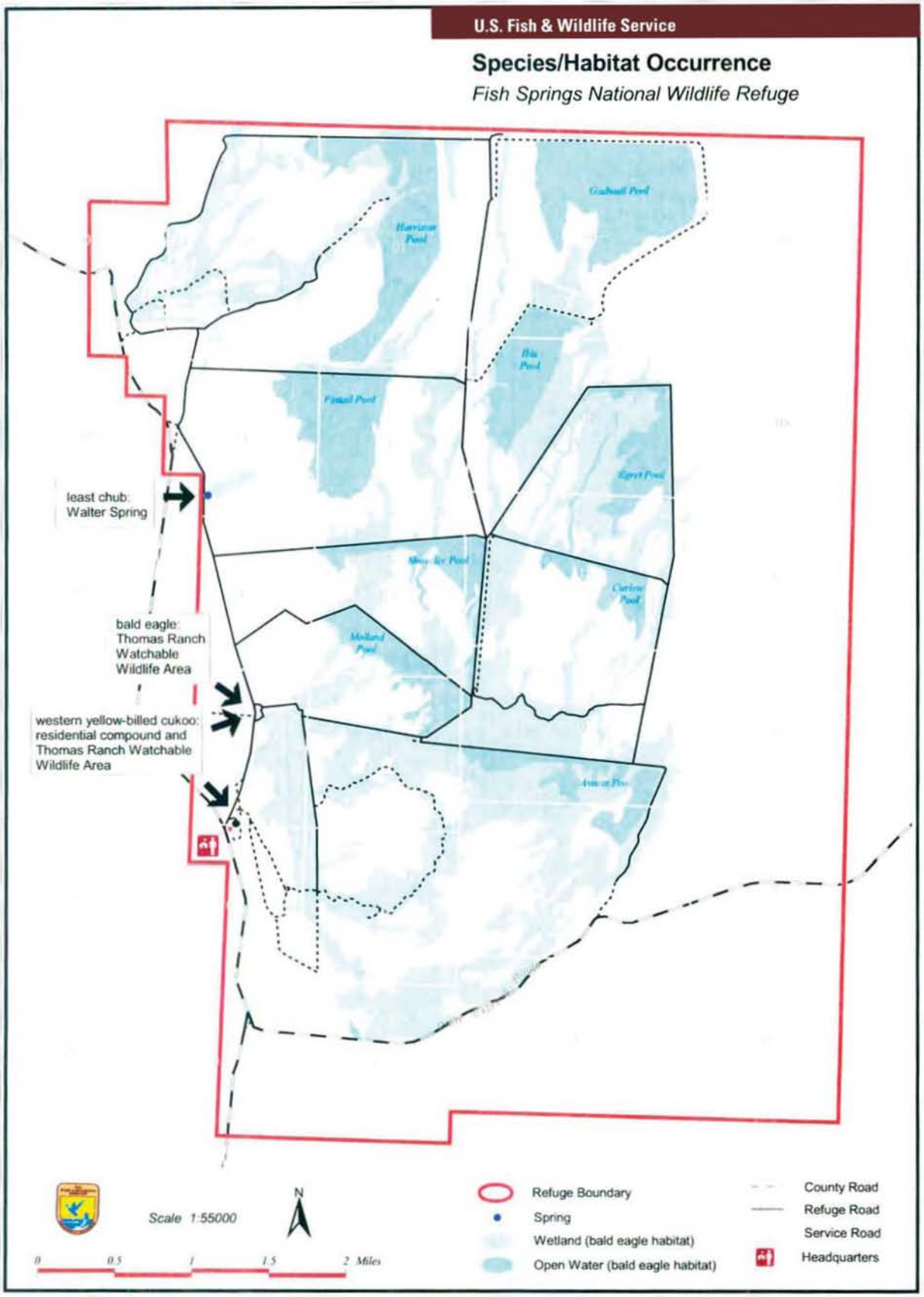
C. Conference required _____

D. Informal conference required _____

E. Remarks

Henry Maddux, Utah Field Supervisor, U.S. Fish & Wildlife Service

6/14/04
Date


U.S. Fish & Wildlife Service
Species/Habitat Occurrence
Fish Springs National Wildlife Refuge
least chub:
Walter Spring
bald eagle:
Thomas Ranch
Watchable
Wildlife Area
western yellow-billed cukoo:
residential compound and
Thomas Ranch Watchable
Wildlife Area
Scale 1:55000
N
0
0.5
1
1.5
2 Miles
Refuge Boundary
Spring
Wetland (bald eagle habitat)
Open Water (bald eagle habitat)
County Road
Refuge Road
Service Road
Headquarters

Appendix F. Mailing List

Federal Officials

- Senator Robert Bennett, Washington, D.C. and Salt Lake City, UT
- Rep. Rob Bishop, Washington, D.C. and Ogden, UT
- Senator Orrin G. Hatch, Washington, D.C. and Salt Lake City, UT

Federal Agencies

- BLM, Salt Lake City, UT; Fillmore, UT
- Dugway Proving Ground, Dugway, UT
- Great Basin National Park, Baker, NV
- Hill AFB (00-ALC/EM), UT
- National Long Distance Trails Office, Salt Lake City, UT
- US EPA, Denver, CO
- USFWS, Albuquerque, NM; Anchorage, AK; Arapaho NWR, CO; Arlington, VA; Arrowwood NWR, ND; Atlanta, GA; Bear River MBR, UT; Denver, CO; Fort Snelling, MN; Hadley, MA; Juneau, AK; Air Quality Branch, Lakewood, CO; Des Lacs NWR, ND; Ecological Services Field Office, West Valley City, UT; J.Clark Salyer NWR, ND; Lost Trail NWR, MT; Medicine Lake NWR, MT; Ouray NWR, UT; Portland, OR; Sacramento, CA; Sherwood, OR; Sand Lake NWR, SD; Seedskadee NWR, WY; Shepherdstown, WV; Upper Souris NWR, ND
- USGS, BRD, Rick Schroeder, Fort Collins, CO

State Officials

- Governor Mike Leavitt, Salt Lake City, UT
- Rep. Eli H. Anderson, Tremonton, UT
- Senator Leonard M. Blackham, Monono, UT
- Rep. James R. Gowans, Tooele, UT
- Rep. Darin G. Peterson, Nephi, UT
- Rep. Michael R. Styler, Delta, UT

State Agencies/Tribes

- Central Utah Water Conservancy District, Orem, UT
- Confederate Tribes of Goshute Reservation, Ibapah, UT
- Forestry, Fire and State Lands Division, Salt Lake City, UT
- Illinois Dept. of Natural Resources, Washington, D.C.
- Intermountain West Joint Venture, West Valley City, UT
- State Historical Society, Salt Lake City, UT
- Utah Division of Wildlife Resources, Springville, UT
- Utah Museum of Natural History, Salt Lake City, UT
- Utah Natural Heritage Program, UT

City/County/Local Governments

- Juab County Commission, Nephi, UT

Organizations

- Animal Protection Institute, Sacramento, CA
- Audubon Society, Washington, D.C.
- Defenders of Wildlife, Washington, D.C.
- Duck Unlimited, Porterville, UT
- Fund for Animals, Silver Spring, MD
- Great Salt Lake Audubon Society, Holladay, UT
- KRA Corporation, Bethesda, MD
- Lincoln Highway Association, Tooele, UT
- National Trappers Association, New Martinsville, WV
- National Wildlife Refuge Association, Colorado Springs, CO
- Pony Express Trail Association, Sacramento, CA
- Salt Lake Birders, Salt Lake City, UT
- Sierra Club, Salt Lake City, UT
- Southern Utah Wilderness Alliance, Salt Lake City, UT
- The Nature Conservancy, Moab, UT; Boulder, CO
- Utah County Birders, Elk Ridge, UT
- Utah Historic Trails Consortium, Salt Lake City, UT
- Utah Native Plant Society, Salt Lake City, UT
- Utah Wildlife Federation, Salt Lake City, UT
- The Wilderness Society, Washington, D.C.
- Wildlife Management Institute, Fort Collins, CO; Washington, D.C., Pratt, KS

Libraries

- Delta City Library, Delta, UT
- Tooele City Public Library, Tooele, UT
- Post Library, Dugway, UT

Schools/Universities

- Brigham Young University, Salt Lake City, UT
- Southern Utah University
- Forest, Range, and Wildlife Sciences, USU, Logan, UT
- Southern Utah University
- Northwestern University, Paul Friesema, Evanston, IL

Individuals

- Kathy Baer
- Glenn Elison
- Joe Engler
- Kim Forrest
- Brent Giezentanner
- Erich Gilbert
- Jim Good
- Jim Graham
- Lynn Greenwalt
- Peter Hovingh
- Patricia Hunter
- David Jabusch
- Selene Jacobs
- Dr. John Kadlec
- Rolf Kraft
- Steve Martin
- Bridget McCann
- Tom Neuman
- Ron Perry
- Clyde Pritchett
- Terry Sadler
- Jim Savery
- Mark Stackhouse
- Amy Sullivan
- David Zippin

Appendix G. Species List for Fish Springs NWR

Birds

Loons

Pacific Loon	*Gavia pacifica*
Common Loon	*Gavia immer*
Yellow-billed Loon	*Gavia adamsii*

Grebes

Pied-billed Grebe	*Podilymbus podiceps*
Horned Grebe	*Podiceps auritus*
Eared Grebe	*Podiceps nigricollis*
Western Grebe	*Aechmophorus occidentalis*
Clark's Grebe	*Aechmophorus clarkii*

Pelicans

American White Pelican	*Pelecanus erythrorhynchos*

Cormorants

Double-crested Cormorant	*Phalacrocorax auritus*

Bitterns, Herons, and Egrets

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

Ibises and Spoonbills

White-faced Ibis	*Plegadis chihi*

Storks

Wood Stork	*Mycteria americana*

New World Vultures

Turkey Vulture	*Cathartes aura*

Swans, Geese, and Ducks

Greater White-fronted Goose	*Anser albifrons*
Snow Goose	*Chen caerulescens*
Ross' Goose	*Chen rossii*
Canada Goose	*Branta canadensis*
Brant	*Branta bernicla*
Trumpeter Swan	*Cygnus buccinator*
Tundra Swan	*Cygnus columbianus*
Wood Duck	*Aix sponsa*
Gadwall	*Anas strepera*
Eurasian Wigeon	*Anas penelope*
American Wigeon	*Anas americana*
Mallard	*Anas platyrhynchos*
Blue-winged Teal	*Anas discors*
Cinnamon Teal	*Anas cyanoptera*
Northern Shoveler	*Anas clypeata*
Northern Pintail	*Anas acuta*
Green-winged Teal	*Anas crecca*
Canvasback	*Aythya valisineria*
Redhead	*Aythya americana*
Ring-necked Duck	*Aythya collaris*
Lesser Scaup	*Aythya affinis*
White-winged Scoter	*Melanitta fusca*
Black Scoter	*Melanitta nigra*
Long-tailed Duck	*Clangula hyemalis*
Bufflehead	*Bucephala albeola*
Common Goldeneye	*Bucephala clangula*
Hooded Merganser	*Lophodytes cucullatus*
Common Merganser	*Mergus merganser*
Red-breasted Merganser	*Mergus serrator*
Ruddy Duck	*Oxyura jamaicensis*

Osprey, Kites, Hawks, and Eagles

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

Falcons and Caracaras

American Kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Peregrine Falcon	*Falco peregrinus*
Prairie Falcon	*Falco mexicanus*

Gallinaceous Birds

Chukar, Introduced	*Alectoris chukar*
Ring-necked Pheasant, Introduced	*Phasianus colchicus*

Rails

Virginia Rail	*Rallus limicola*
Sora	*Porzana carolina*
Common Moorhen	*Gallinula chloropus*
American Coot	*Fulica americana*

Cranes

Sandhill Crane	*Grus canadensis*

Plovers

Black-bellied Plover	*Pluvialis squatarola*
American Golden-Plover	*Pluvialis dominica*
Snowy Plover	*Charadrius alexandrinus*
Semipalmated Plover	*Charadrius semipalmatus*
Killdeer	*Charadrius vociferus*
Mountain Plover	*Charadrius montanus*

Stilts and Avocets

Black-necked Stilt	*Himantopus mexicanus*
American Avocet	*Recurvirostra americana*

Sandpipers and Phalaropes

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

Skuas, Jaegers, Gulls, and Terns

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

Pigeons and Doves

Rock Dove, Introduced	*Columba livia*
White-winged Dove	*Zenaida asiatica*
Mourning Dove	*Zenaida macroura*

Cuckoos and Anis

Yellow-billed Cuckoo	*Coccyzus americanus*

Barn Owls

Barn Owl	*Tyto alba*

Typical Owls

Northern Saw-whet Owl	*Aegolius acadicus*
Great Horned Owl	*Bubo virginianus*
Burrowing Owl	*Athene cunicularia*
Long-eared Owl	*Asio otus*
Short-eared Owl	*Asio flammeus*

Nightjars

Common Nighthawk	*Chordeiles minor*
Common Poorwill	*Phalaenoptilus nuttallii*

Swifts

White-throated Swift	*Aeronautes saxatalis*

Hummingbirds

Black-chinned Hummingbird	*Archilochus alexandri*
Calliope Hummingbird	*Stellula calliope*
Broad-tailed Hummingbird	*Selasphorus platycercus*
Rufous Hummingbird	*Selasphorus rufus*

Kingfishers

Belted Kingfisher	*Ceryle alcyon*

Woodpeckers

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

Tyrant Flycatchers

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

Western Kingbird	*Tyrannus verticalis*
Eastern Kingbird	*Tyrannus tyrannus*
Scissor-tailed Flycatcher	*Tyrannus forficatus*

Shrikes

Loggerhead Shrike	*Lanius ludovicianus*
Northern Shrike	*Lanius excubitor*

Vireos

Gray Vireo	*Vireo vicinior*
Plumbeous Vireo	*Vireo plumbeus*
Cassin's Vireo	*Vireo cassinii*
Warbling Vireo	*Vireo gilvus*

Crows, Jays, and Magpies

Gray Jay	*Perisoreus canadensis*
Steller's Jay	*Cyanocitta stelleri*
Western Scrub-Jay	*Aphelocoma californica*
Pinyon Jay	*Gymnorhinus cyanocephalus*
Clark's Nutcracker	*Nucifraga columbiana*
Black-billed Magpie	*Pica hudsonia*
American Crow	*Corvus brachyrhynchos*
Common Raven	*Corvus corax*

Larks

Horned Lark	*Eremophila alpestris*

Swallows

Purple Martin	*Progne subis*
Tree Swallow	*Tachycineta bicolor*
Violet-green Swallow	*Tachycineta thalassina*
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*
Bank Swallow	*Riparia riparia*
Cliff Swallow	*Petrochelidon pyrrhonota*
Barn Swallow	*Hirundo rustica*

Titmice and Chickadees

Mountain Chickadee	*Poecile gambeli*
Juniper Titmouse	*Baeolophus ridgwayi*

Bushtit

Bushtit	*Psaltriparus minimus*

Nuthatches

Red-breasted Nuthatch	*Sitta canadensis*

Creepers

Brown Creeper	*Certhia americana*

Wrens

Rock Wren	*Salpinctes obsoletus*
Canyon Wren	*Catherpes mexicanus*
House Wren	*Troglodytes aedon*
Winter Wren	*Troglodytes troglodytes*
Marsh Wren	*Cistothorus palustris*

Kinglets

Golden-crowned Kinglet	*Regulus satrapa*
Ruby-crowned Kinglet	*Regulus calendula*

Old World Warblers

Blue-gray Gnatcatcher	*Polioptila caerulea*

Thrushes

Western Bluebird	*Sialia mexicana*
Mountain Bluebird	*Sialia currucoides*
Townsend's Solitaire	*Myadestes townsendi*
Swainson's Thrush	*Catharus ustulatus*
Hermit Thrush	*Catharus guttatus*
American Robin	*Turdus migratorius*
Varied Thrush	*Ixoreus naevius*

Mimic Thrushes

Gray Catbird	*Dumetella carolinensis*
Northern Mockingbird	*Mimus polyglottos*
Sage Thrasher	*Oreoscoptes montanus*
Brown Thrasher	*Toxostoma rufum*

Starlings

European Starling	*Sturnus vulgaris*

Wagtails and Pipits

American (Water) Pipit	*Anthus rubescens*

Waxwings

Bohemian Waxwing	*Bombycilla garrulus*
Cedar Waxwing	*Bombycilla cedrorum*

Silky-flycatchers

Phainopepla	*Phainopepla nitens*

Wood Warblers

Orange-crowned Warbler	*Vermivora celata*
Nashville Warbler	*Vermivora ruficapilla*
Virginia's Warbler	*Vermivora virginiae*
Lucy's Warbler	*Vermivora luciae*
Yellow Warbler	*Dendroica petechia*
Magnolia Warbler	*Dendroica magnolia*
Black-throated Blue Warbler	*Dendroica caerulescens*
Yellow-rumped Warbler	*Dendroica coronata*
Black-throated Gray Warbler	*Dendroica nigrescens*
Townsend's Warbler	*Dendroica townsendi*
Palm Warbler	*Dendroica palmarum*
Blackpoll Warbler	*Dendroica striata*
Black-and-white Warbler	*Mniotilta varia*
American Redstart	*Setophaga ruticilla*
Prothonotary Warbler	*Protonotaria citrea*
Ovenbird	*Seiurus aurocapillus*
Northern Waterthrush	*Seiurus noveboracensis*
MacGillivray's Warbler	*Oporornis tolmiei*
Common Yellowthroat	*Geothlypis trichas*
Wilson's Warbler	*Wilsonia pusilla*
Yellow-breasted Chat	*Icteria virens*

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	*Pooecetes 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 lincolnii*
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	*Surnella 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	*Lasionycteris 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	*Gambusia affinis*
Speckled Dace	*Rhinichthys osculus*
Utah Chub	*Gila atraria*
Least Chub, Reintroduced	*Lotichthys phlegethontis*

Amphibians

Leopard Frog , Introduced	*Rana pipiens*
Bullfrog, Introduced	*Rana catesbeiana*

Reptiles

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

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

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

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

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

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

Appendix H. Refuge Operating Needs System

Priority Projects in Refuge Operations Needs System (RONS) Database						
Rank	Related to CCP Goals*	Project Description	One-time Costs	Recurrin g Costs	Total First Year Costs	FTE
1	H, EI, VS, P	Enhance Refuge Biological Capability (Wildlife Biologist)	$65,000	$74,000	$139,000	1.0
2	H, EI, VS, P	Construct Refuge Residence (for biologist)	$196,000	$11,000	$235,000	
3	H, EI, VS, CR	Enhance Facility Maintenance and Construction Capability (Maintenance Worker)	$33,000	$24,000	$57,000	0.5
4	H, EI	Conduct Essential Biotic Data Gathering	$282,000	$4,000	$286,000	
5	H, EI, VS	Enhance Provision of Wildlife Oriented Visitor Services (Biological Technician)	$65,000	$53,000	$118,000	1.0
6	H, EI	Invasive Plant Control and Monitoring	$144,000	$3,000	$147,000	
7		Modify Residence	$55,000	$2,000	$57,000	
8	H, EI, VS, CR	Enhance Refuge Shop Security and Capability	$167,000	$3,000	$170,000	
9	EI, VS, CR	Enhance Wildlife and Cultural Resource Protection (Refuge Officer)	$65,000	$59,000	$124,000	1.0
10	H, EI, CR, P	Enhance Refuge GPS/GIS/Computer Graphic Capability	$29,000	$5,000	$34,000	
11	H, EI	Vegetative Establishment of Hardstem Bulrush and Fremont Cottonwood	$25,000		$25,000	
12	EI	Sensitive Aquatic Species Reintroductions (Least Chub)	$20,000		$20,000	
13	EI, VS	Facility Monitoring and Resource Recovery Enhancements	$28,000	$5,000	$33,000	
14	CR	Cultural Resources Survey	$99,000	$1,000	$100,000	
15	H, EI	Water Flow Measuring and Impoundment Level Gauging Improvements	$22,000	$2,000	$24,000	
		Totals	$1,295,000	$246,000	$1,569,000	3.5
* H = Habitat, EI = Ecological Integrity, VS = Visitor Services, CR = Cultural Resources, P = Partnerships						

Appendix I. Maintenance Management System

Priority Projects in the Maintenance Management System (MMS) Database			
Rank	**Related to CCP Goals***	**Project Description**	**Estimated Costs**
1	N/A - personnel housing	Replace Dilapidated Quarters	$250,000
2	N/A - vehicle maintenance	Rehabilitate Refuge Shop	$126,000
3	H, VS, EI, CR	Spread Gravel on Public Use Roads	$30,000
4	H	Replace Old Worn-out Muskeg Tractor	$257,000
5	H, VS	Rehabilitate Bridge #12	$25,000
6	VS	Rehabilitate Visitor Contact Station	$35,000
7	H, VS	Replace Old Worn-out Dump Truck	$99,000
8	H, EI, VS	Replace 1994 Ford Pickup	$29,000
9	H, EI, VS	Replace Aging Farm Tractor	$79,000
10	H, EI, VS	Replace Worn-out ATV	$7,000
		Total	$937,000
* H = Habitat, EI = Ecological Integrity, VS = Visitor Services, CR = Cultural Resources, P = Partnerships			

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