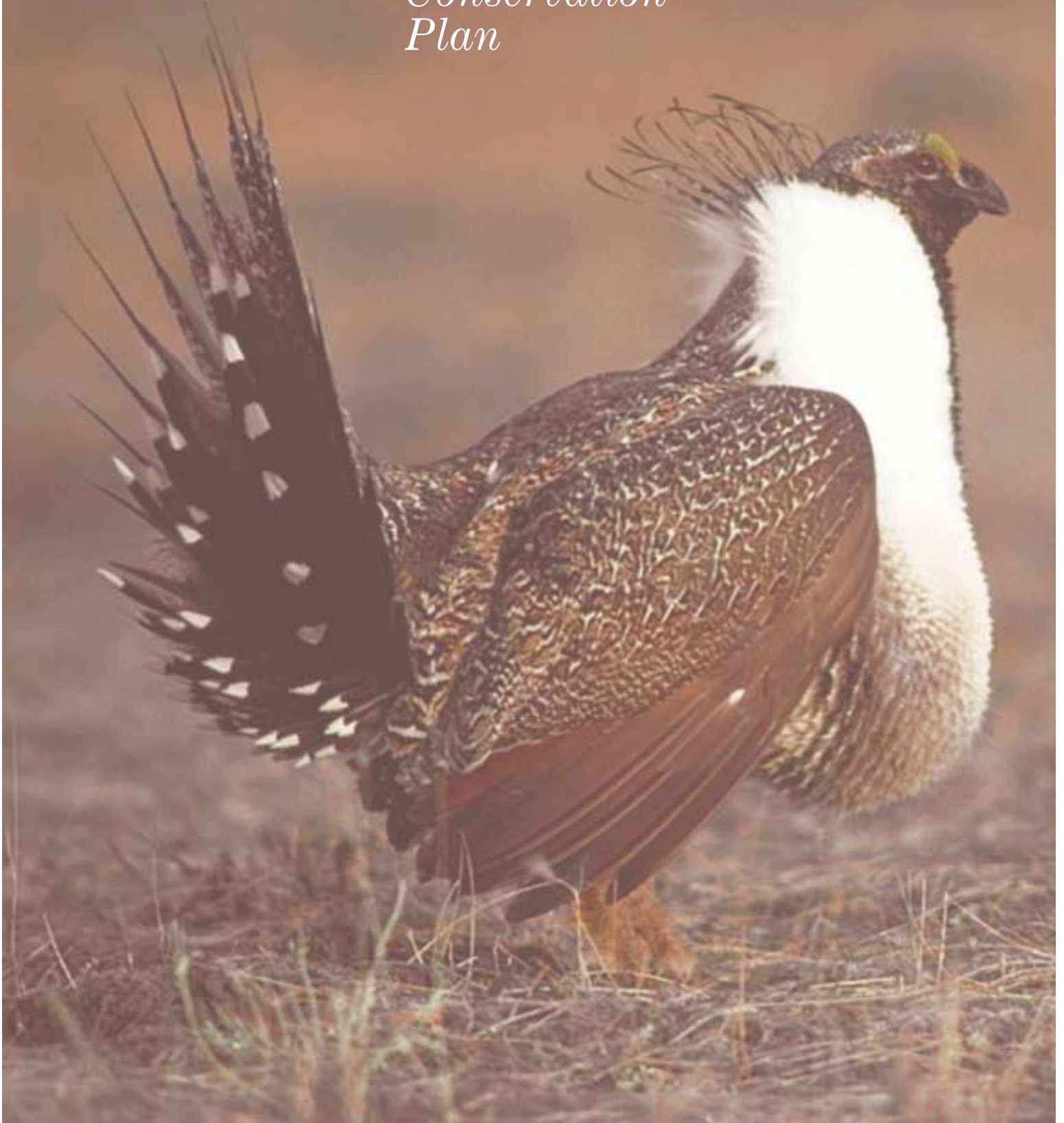


U.S. Fish & Wildlife Service

Seedskaadee

National Wildlife Refuge

*Comprehensive
Conservation
Plan*



CCPs provide long-term guidance for management decisions and set forth goals, objectives, and strategies needed to accomplish refuge purposes and identify the Service's best estimate of future needs. These plans detail program planning levels that are sometimes substantially above current budget allocations and, as such, are primarily for Service strategic planning and program prioritization purposes. The plans do not constitute a commitment for staffing increases, operational and maintenance increases, or funding for future land acquisition.

Seedskafee National Wildlife Refuge

Comprehensive Conservation Plan

September 2002

Prepared by U.S. Fish & Wildlife Service

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Date: 9/24/02

**Seedskadee National Wildlife Refuge
Comprehensive Conservation Plan Approval
U.S. Fish and Wildlife Service, Region 6**

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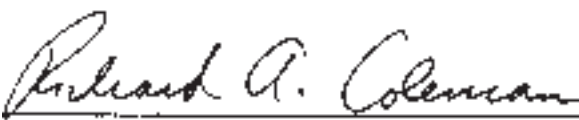
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Summary

Seedskaadee National Wildlife Refuge (NWR) is 26,382 acres in size and located within the Green River Basin in southwestern Wyoming (Map 1). The Refuge is a unique and ecologically important component of the National Wildlife Refuge System (System) which includes more than 530 refuges totaling over 93 million acres across the United States. Seedskaadee NWR was established in 1965 through the Colorado River Storage Project Act of 1956. Section 8 of this Act provided for the establishment of wildlife habitat development areas to offset the loss of wildlife habitat resulting from reservoir development in the Colorado River Drainage. The Seedskaadee Reclamation Act of 1958 specifically authorized acquisition of lands for Seedskaadee NWR.

In 1997, Congress passed the National Wildlife Refuge System Improvement Act. This Act required development of a Comprehensive Conservation Plan (CCP) for each refuge and that management of each refuge be consistent with the CCP. In addition, the Act required that each refuge be managed to fulfill the mission of the National Wildlife Refuge System as well as the specific purposes for which each refuge was established. Seedskaadee NWR's purpose is defined by two pieces of Federal enabling legislation. The principal purpose of Seedskaadee NWR is to provide for the conservation, maintenance, and management of wildlife resources and its habitat including the development and improvement of such wildlife resources. Additionally, the Refuge is charged to protect the scenery, cultural resources, and other natural resources and provide for public use and enjoyment of compatible wildlife-dependent activities.

The two pieces of enabling legislation are:

1. Fish and Wildlife Coordination Act: "... shall be administered by him/her (Secretary of the Interior) directly or in accordance with cooperative agreements . . . and in accordance with such rules and regulations for the conservation, maintenance and management of wildlife, resources thereof, and its habitat thereon, . . ." 16 U.S.C. 664
2. Colorado River Storage Act (section 8): "In connection with the development of the Colorado River Storage Project (CRSP) and of the participating projects, the Secretary is authorized and directed to investigate, plan, construct, operate, and maintain . . . (1) public recreational facilities on lands withdrawn or acquired . . ." for the Colorado River Storage Project or participating projects in order to ". . . conserve the scenery, the natural, historic, and archaeological objects, and the wildlife on said lands, and to provide for public use and enjoyment of the same and of the water areas created by these projects by such means as are consistent with primary purposes of said projects . . . and (2) facilities to mitigate losses of and improve conditions for, the propagation of fish and wildlife." The Secretary may ". . . dispose of . . ." the facilities ". . . to Federal . . . agencies . . . upon such terms and conditions as will best promote their development and operation in the public interest." 43 U.S.C. 620g

Besides these two pieces of enabling legislation, the thirty-fifth legislature of the State of Wyoming passed enrolled Act No. 54 in 1959 "providing consent of the State of Wyoming to the acquisition by the United States where approved by the Wyoming Game and Fish Commission and the State Land Board, of lands for the establishment of migratory bird refuges." In the Act, the State of Wyoming has consented to the acquisition of up to 20,000 acres of land in Wyoming for the establishment and maintenance of migratory bird refuges in accordance with and for the purposes of the Migratory Bird Conservation Act and the Migratory Bird Hunting Stamp Act. Thus, if ever any of these authorities, and associated funds, were invoked for the acquisition of new lands for Seedskaadee NWR, these lands would be managed for "use as an inviolate sanctuary, or for any other management purpose, for migratory birds" (16 U.S.C. 715d) in accordance with the Migratory Bird Conservation Act. To date, all lands acquired have been through Section 8 of the 1956 Colorado River Storage Project Act.

All efforts leading to the preparation of the draft Comprehensive Conservation Plan (CCP) were undertaken to provide the Refuge with: 1) a vision for the future; 2) guidelines for wildlife and habitat management over the next 15 years to ensure progress is made toward attaining the mission and goals of Seedskaadee NWR and the Refuge System; and 3) to comply with Congressional mandates stated in the National Wildlife Refuge System Improvement Act of 1997. The CCP planning effort provided opportunities for interested people, Federal and State agencies, State and local governments, and private organizations to give input on future management of the Refuge. This CCP provides clear goals and objectives for management of Refuge habitats, wildlife, threatened and endangered species, cultural and paleontological resources, other compatible public uses, and partnerships. It also provides implementation strategies and recommended staffing and funding.

The Seedskaadee CCP will be used to prepare step-down management plans and revise existing plans. It also will be used to prepare budgets which describe specific actions to be taken by the Refuge over the next 15 years. Given that new information, guidance, and technology frequently change and become available, the CCP and/or step down management plans will be updated as necessary throughout the 15-year period. At a minimum the CCP will be reviewed and updated every 15 years.

The draft CCP considered various alternatives for management of Seedskaadee NWR. Each of the alternatives were evaluated for environmental consequences in accordance with the National Environmental Policy Act (NEPA). The draft CCP contains the goals, objectives, and strategies found by the Service to best aid the Refuge and the National Wildlife Refuge System to attain their mission. For a summary of the alternatives considered during the planning process, see the Seedskaadee NWR Environmental Assessment published in the draft CCP dated September 2001. The CCP is the preferred alternative.

Vision Statement:

Seedskaadee NWR will strive to preserve, restore, and enhance the biological integrity of the Green River riparian corridor and associated uplands as habitat for migratory birds and other indigenous wildlife for the benefit of present and future generations of Americans. Seedskaadee National Wildlife Refuge will manage for a variety of native plants and wildlife, with emphasis on migratory birds and threatened and endangered species. Natural habitats of the Green River will be preserved or restored. The Refuge will provide interpretation of the natural and human history of the area and provide for wildlife-dependent recreation that is compatible with Refuge purposes. To meet this Vision, the Service will seek partnerships with other agencies, interest groups, landowners, and local communities.

The management focus of the CCP is summarized by the following goals that are supported by a series of objectives and implementation strategies. The goals are:

Wildlife:

- To restore, enhance, or protect threatened and endangered flora and fauna that currently occur or have historically occurred in the area of Seedskaadee NWR.
- Preserve, restore, and enhance the ecological diversity and abundance of migratory and resident wildlife with emphasis on native species.

Habitat:

- Protect and restore riparian habitats along the Green River to provide for the annual life needs of migratory birds and native wildlife utilizing the Green River Basin.
- Wetlands will be managed to meet the breeding and migratory requirements of waterfowl, shorebirds, wading birds, and other wetland-dependent species.
- Preserve, restore, and enhance the ecological diversity of indigenous flora associated with the Great Basin upland desert shrub and grassland habitats to support native wildlife found in the Green River Basin.
- The Refuge staff, in collaboration with Wyoming Game and Fish Department and U.S. Bureau of Reclamation (Reclamation), will manage water quality and quantity in the Green River to maintain and/or restore the riparian and cottonwood forests and provide habitat for waterfowl, trumpeter swans, fish, and other native species dependent on river and forested habitat.
- Restore and maintain indigenous flora diversity by controlling the invasion of exotic plant species on the Refuge.

Public Use and Recreation:

- Nurture an understanding of and appreciation for wildlife and other natural resources of the Green River Basin by providing opportunities for compatible wildlife-dependent recreation while maintaining the primitive, uncrowded nature of the area.
- Educate and inform the public about the Refuge, U.S. Fish & Wildlife Service, the National Wildlife Refuge System, and the Upper Colorado Ecosystem by providing quality environmental education and interpretation opportunities.
- Protect Refuge resources from adverse natural and/or man-made impacts.
- Protect and interpret significant historic and prehistoric cultural sites and objects associated with Refuge lands.
- Foster partnerships to promote wildlife conservation and habitat management in the Green River Basin and to help Seedskaadee NWR accomplish its vision and goals.

The achievement of these goals and associated objectives will fulfill the mission and purposes of the Refuge and Refuge System.

Potential Refuge Expansion

After the release of the first draft CCP and EA for Seedskaadee NWR, Reclamation announced to the Service its intention to dispose of most of the lands acquired under the "Seedskaadee Project." Remaining Seedskaadee Project lands owned by Reclamation are to be transferred to another Federal agency for management. A portion of the lands available from Reclamation surround the Big Sandy River and adjoin the Refuge.

In the draft CCP (dated September 2001) we identified interest in amending the Refuge boundary if additional tracts of land become available which would contribute to the Refuge's mission. Included for consideration are lands surrounding the Big Sandy River, a significant tributary that joins the Green River inside the Refuge boundary.

Careful consideration was given to including an analysis in the draft CCP of amending the Refuge boundary to include lands associated with the Big Sandy River. However, the decision was made to not include the Big Sandy analysis in this CCP process for two primary reasons: 1) the CCP is too far along in the review process; and 2) a separate review process, independent of this CCP, would provide a more thorough analysis of any possible land acquisition, including better public scoping and participation in the process. Currently, the Refuge is beginning an internal review to evaluate the feasibility of amending the Refuge boundary to include lands along the Big Sandy River. If a decision is made to pursue a land transfer, a full public process will ensue complete with public involvement consistent with the National Environmental Policy Act (NEPA).

Summer storm over the Hawley Wetland Unit. The Hawley Wetland Unit provides habitat for a variety of wildlife species including mule deer, moose, Canada geese, mallards, Wilson's phalarope, yellow-headed black-birds, and sora rails.



Floating and fishing are two popular activities enjoyed by many folks who visit Seedskadee National Wildlife Refuge. These anglers are departing from the Upper Dodge Bottoms boat ramp for a day of fly fishing.





Trumpeter swans in flight over Seedskadee National Wildlife Refuge. Trumpeter swans breed and winter on the Refuge and are easily observed year-round.



The Green River and associated riparian habitats as viewed from McCullen Bluff. The riparian forested habitat along the Green River is very important to both migratory birds and resident wildlife species like mule deer and sage grouse.



A buck pronghorn antelope traverses the upland sagebrush habitat. Pronghorn antelope are abundant on the Refuge and are often seen along the Refuge auto tour route.

I. Introduction/Background

Refuge Overview: History of Establishment, Acquisition and Management

Seedskadee NWR Overview

This Comprehensive Conservation Plan (CCP) is being developed specifically for Seedskadee National Wildlife Refuge (Seedskadee NWR or Refuge). Seedskadee NWR is located in southwestern Wyoming, 37 miles northwest of the City of Green River. The Refuge is managed by the U.S. Fish & Wildlife Service (Service) as a component of the National Wildlife Refuge System (Refuge System). The entire Refuge is within Sweetwater County, Wyoming and within the Green River Basin. Geographically, the Refuge is long and narrow, and bisected throughout its length by the Green River. The north boundary of the Refuge is seven miles downstream from Fontenelle Dam. From here, the Refuge extends 37 miles downstream and ranges in width from one to two miles. Total relief within the Refuge is 300 feet. The highest elevation is 6,490 feet near the north end of the Refuge at McCullen Bluff. The lowest elevation is 6,190 feet at the south end of the Refuge, below Big Island. (See Map 1)

History of Seedskadee NWR Establishment, Acquisition, and Management

Seedskadee NWR was authorized by the Colorado River Storage Project Act of 1956 (CRSP). The CRSP authorized and funded construction of Bureau of Reclamation Colorado River storage facilities and related projects including Fontenelle Dam and the Seedskadee Irrigation Project. Section 8 of the CRSP provides for the establishment of wildlife habitat development areas to offset the loss of wildlife habitat resulting from reservoir construction in the Colorado River drainage. The Seedskadee Reclamation Act of 1958 specifically authorized acquisition of lands for Seedskadee NWR. Seedskadee NWR was established on November 30, 1965, through a Memorandum of Understanding between U.S. Bureau of Reclamation (Reclamation) and the Service.

The U.S. Fish & Wildlife Service may acquire lands consistent with legislation, other congressional guidelines or Executive Orders for the conservation of fish and wildlife and their associated habitat and to provide wildlife-dependent public use for education and recreation purposes. Service policy is to acquire lands only when other means of achieving program goals and objectives are not appropriate, available, or effective (USFWS, 341 FW1). In compliance with Section 8 of the Colorado River Storage Project Act, Reclamation is responsible for funding land acquisitions within the Refuge and funding Refuge developments to offset the loss of wildlife habitat resulting from reservoir construction. Since 1958, the Service and Reclamation have worked cooperatively to mitigate the habitat losses. Thus far over 4.5 million dollars have been made available by Reclamation for land acquisition and project development at Seedskadee NWR.

The original Refuge acquisition boundary was designated in Public Land Order 4834 (Federal Register, Vol. 35 - Wyoming 14982) on May 25, 1970, and encompassed 22,112 acres for the mitigation of habitat lost due to the construction of Fontenelle Dam and Reservoir. In the 1990s, the Refuge boundary area increased with the purchase of additional acreage of “uneconomic remnants” and in 1998 when additional acres were acquired from Reclamation withdrawn lands to “roundout” boundary irregularities and improve management opportunities. Today’s 1999 boundary includes 26,382.23 acres. All lands are fee-title and located within Sweetwater County, Wyoming. Two 2.5-acre privately-owned parcels remain within the boundary of the Refuge. Lands acquired for Seedskafee NWR were all acquired under Section 8 of the 1956 Colorado River Storage Act. No lands have been acquired for the Refuge under the authority of the Migratory Bird Conservation Act or Migratory Bird Hunting Stamp Act.

| Table 1.1 Total Acreage | | | |
|--------------------------------|----------------------|---|------------------|
| Tract No. | Acquired Date | Tract Name | Acres |
| 1-5 | 11/6/61 | Union Pacific Resources Company | 3,483.70 |
| 1 | 5/20/70 | USA | 7,940.76 |
| 1 | 9/10/92 | USA | 440.77 |
| 10 | 1/28/74 | Thoman et al. | 1,036.05 |
| 11 | 11/30/65 | Hawley | 916.48 |
| 12, a-k | 11/26/96 | Rock Springs Grazing Assn. | 3,366.67 |
| 13, a | 12/13/95 | Crosson Ranches (Pal Tract) | 395.84 |
| 16 | 11/26/96 | Taliaferro | 294.28 |
| 17, a-h | 4/23/93 | UP Land Resources Corp. | 3,552.15 |
| 2-5 | 7/30/62 | State of Wyoming | 719.29 |
| 5 | 6/13/81 | Riverside Livestock | 160.00 |
| 2, aec | 8/25/93 | State of Wyoming | 1,959.24 |
| | 1998 | USA Roundout (Reclamation to USFWS) | 2,117.00 |
| 3 | 9/30/89 | Meandered acres (881.54 acres included in the USA Roundout) | |
| Total Acres | | | 26,382.23 |

Initial mitigation strategies on the Refuge were intended to follow preliminary mitigation concept. This included creation of ponds, other open waters, and wetlands primarily for waterfowl use. However, it proved too costly to install and operate pumps for pond filling, return flows from irrigation use would not have been available, and construction of new diversions, water systems, and dikes would have required extensive planning and budget commitment. Instead, actual development in the 1960s focused on use of pre-refuge diversions and irrigation ditches to develop wetlands. During the next decade, minor dike improvements were made to increase wetland size, but no extensive wetland development or management occurred.

Substantial wetland development did not occur until the 1980s with creation of the Hamp, Hawley, Lower Hawley, and Dunkle water management units. Development of these areas included gravity flow diversions from the Green River and a series of ditches and dikes to create impoundments, marshes, and irrigated wet meadows. These units totaled about 1,700 acres. The Refuge's objectives as stated in a 1987 management plan were:

1. To develop and maintain wetland habitat (primarily as nesting and brood-rearing habitat for Canada geese and other waterfowl).
2. To preserve habitat conditions for the benefit of native wildlife species thus ensuring wildlife diversity in the area, as well as providing habitat for rare and endangered species which frequent the area.
3. To provide opportunities for interpretation and recreation to the visiting public.

About 4,338 acres of riparian area parallel the Green River through the Refuge; however, there has been little management of this resource to date. Upland habitat management has historically centered on habitat protection through fencing and prescribed burning. Fencing of the entire Refuge has been completed. Acreages of existing habitat and locations are described and mapped in the Vegetation and Wildlife Habitat Section.

While the management emphasis at Seedskadee NWR was initially on waterfowl habitat, in recent years there is a growing awareness that the habitat of other migratory and native species dependent on the Green River have been impacted by construction and operation of the Fontenelle Dam. Artificial manipulation of the natural flows of the Green River have reduced sedimentation in River flows and increased down-cutting (incision) of the river channel. This has created negative effects on the health of the riparian forest downstream from Fontenelle Dam. Because these effects were not immediate nor fully anticipated, the extent and implications of the riparian habitat changes were not identified as mitigation targets in initial Seedskadee Project planning. Even now these impacts are not easily quantifiable nor are their implications fully understood for wildlife that are dependent on the riparian river corridor. There is a consensus that Reclamation mitigation actions should continue post Seedskadee Project construction to maintain, enhance, and/or restore riparian habitat downstream of Fontenelle Dam (Auble and Scott, 1998; Bitterroot Consultants, 1996; Berk, 1998).

The Service's management approach to Seedskadee NWR has a broader focus today than anticipated in the 1958 Fish and Wildlife Service Report. Managers today and into the foreseeable future are focused on maintaining quality habitat for migratory and native species which use the Refuge. In addition, when compatible with the Refuge's wildlife and habitat management goals, the Refuge also seeks to provide compatible wildlife-dependent public use opportunities, interpretation and protection of cultural resources, and interpretive and educational information on the Refuge's habitat, wildlife, and cultural resources.

Purpose of and Need for Comprehensive Conservation Plan

The Service has recognized the need for strategic planning for all the components of the Refuge System. The System is currently comprised of more than 530 refuges and 3,000 waterfowl production areas, totaling approximately 93,604,644 acres (U.S. Fish & Wildlife Service 1999). Seedskadee NWR, located in southwestern Wyoming, is a unique and ecologically important component of this System.

In September 1996, Executive Order 12996 was enacted which gave the System guidance on issues of compatibility and public uses of its land. Congress passed the National Wildlife Refuge System Improvement Act in October 1997. This “organic act,” for the first time in the System’s history, established the core mission of the Refuge system. Refuge’s were to be managed as a system of units dedicated to wildlife and wildlife habitat. As part of this, each Refuge was to prepare a CCP within 15 years.

The CCP planning effort helped the Refuge system address the changing needs of wildlife species and the public. CCP planning efforts provide the opportunity to meet with Refuge neighbors, elected representatives, user groups, and customers, and other agencies to ensure that CCP’s are relevant and truly address natural resource issues and public interests. This CCP also explains the planning process, a Refuge’s characteristics and purposes, and the direction management will take during the next 15 years to attain the stated purpose of the Refuge.

The purpose for developing this CCP for Seedskadee NWR is to provide the Refuge and the public with a 15-year management plan for the conservation of fish, wildlife, and plant resources and their related habitats found on the Refuge; while providing opportunities for compatible wildlife-dependent recreational uses. The CCP, when completed, will guide the Refuge in meeting its management objectives and contribute to the mission of the Refuge system while meeting all legal mandates.

The Service’s goals for the Comprehensive Conservation Planning Process are:

1. To provide a clear and comprehensive statement of desired future conditions (vision) for each refuge or planning unit.
2. To provide a forum for the public to comment on the type, extent, and compatibility of uses on refuges.
3. To ensure that the refuge is managed to fulfill the mission of the System as well as the specific purposes for which it was established.
4. To ensure public involvement in refuge management decisions by providing a process for effective coordination, interaction, and cooperation with affected parties, including Federal agencies, State conservation agencies, Tribal governments, local governments, conservation organizations, adjacent landowners, and interested members of the public.
5. To encourage that we conduct refuge planning in concert with an ecosystem approach.
6. To demonstrate support for management decisions and their rationale by sound professional judgment, biological initiative, and public involvement.
7. To provide a uniform basis for budget requests for operational, maintenance, and capital improvement programs.

U.S. Fish & Wildlife Service Mission

The U.S. Fish & Wildlife Service manages the National Wildlife Refuge System which is comprised of Federal lands that are acquired and managed for the conservation of fish, wildlife, plants and their habitats. The Service's origins date back to 1871, when Congress established the U.S. Fish Commission to study the decrease of the nation's food fishes and recommend ways to reverse the decline. The Fish Commission eventually evolved into the "U.S. Fish & Wildlife Service" and was located within the Department of the Interior in 1956. The Service's scope of responsibilities broadened throughout the years to include migratory birds, endangered species, certain marine mammals, freshwater and anadromous fish, law enforcement, and national wildlife refuges.

Our mission is working with others to conserve, protect, and enhance fish and wildlife and plants and their habitats for the continuing benefit of the American people.

The Service carries out these responsibilities through several functional entities. The National Wildlife Refuge System is one of those entities.

The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57).

National Wildlife Refuge System Mission, Goals, and Guiding Principles

The National Wildlife Refuge System (System) is the world's largest collection of lands set aside specifically for the protection of fish, wildlife and plant populations and their habitats. The first unit of the System was created in 1903, when President Theodore Roosevelt designated 3-acre Pelican Island, a pelican and heron rookery in Florida, as a bird sanctuary.

In 1966, Congress passed the National Wildlife Refuge System Administration Act that assembled the refuges into a unified "System" and codified their administration. This System has grown from 300 refuges totaling 28 million acres in 1966 to today's 530+ refuges in all 50 States and a number of U.S. Territories, and Waterfowl Production Areas in 10 States, totaling over 93 million acres.

However, the Refuge Administration Act did not establish a mission for the System or contain any planning requirements.

On March 25, 1996, President Clinton signed Executive Order 12996, on management and public use of the System. The Executive Order served as the foundation for the permanent statutory changes made by the National Wildlife Refuge Improvement Act of 1997. The Executive Order modified the management direction of Refuges by including provisions for opportunities for six wildlife-dependent recreational uses. The Executive Order recognized "compatible wildlife-dependent recreational uses involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation as priority public uses of the System." These six wildlife-dependent recreational uses are recognized as priority public uses of System lands. These, and other uses, are allowed on refuges only after finding that they are compatible with the purpose of the refuge and the Refuge System. Uses are allowed through a special regulation process, individual special use permits, or sometimes through State fishing and hunting regulations.

Enactment of the National Wildlife Refuge System Improvement Act of 1997 provided the System with a true “organic” act, furnishing a mission for the System, policy direction, and management standards for all Refuge System units.

However, the System’s importance goes far beyond these services. It contributes directly and indirectly to human welfare through a number of ecosystem services and functions. Chapter 4 contains a detailed discussion of ecosystem services. For the entire biosphere, the estimated annual economic value of all the world’s ecosystem services and functions is about \$33 trillion (Constanza, *et al.* 1997).

The following broad goals, aimed at fulfilling the System’s mission, describe the level of responsibility and concern for wildlife resources as a result of the National Wildlife Refuge System Improvement Act of 1997:

- a. *To fulfill our statutory duty to achieve refuge purpose(s) and further the System mission;*
- b. *Conserve, restore where appropriate, and enhance all species of fish, wildlife, and plants that are endangered or threatened with becoming endangered;*
- c. *Perpetuate migratory bird, interjurisdictional fish, and marine mammal populations;*
- d. *Conserve a diversity of fish, wildlife, and plants;*
- e. *Conserve and restore, where appropriate, representative ecosystems of the United States, including the ecological processes characteristic of those ecosystems;*
- f. *To foster understanding and instill appreciation of fish, wildlife, and plants, and their conservation, by providing the public with safe, high-quality, and compatible wildlife-dependent public use. Such use includes hunting, fishing, wildlife observation and photography, and environmental education and interpretation.*

In addition, individual national wildlife refuges are acquired under a variety of legislative acts and administrative orders and authorities. These orders and authorities usually have one or more purposes for which land can be transferred or acquired. These System units provide important habitat for many native mammals, birds, reptiles, amphibians, fish, invertebrates, and plants. The System also plays a vital role in preserving endangered and threatened species and offers a wide variety of wildlife-dependent public uses. Annually, national wildlife refuges receive 34 million visitors.

Individual refuges provide specific requirements for the preservation of trust resources such as migratory birds. For example, waterfowl breeding refuges in South and North Dakota provide important wetland and grassland habitat to support breeding populations of waterfowl as required by the Migratory Bird Treaty Act and the North American Waterfowl Management Plan. Seedskadee NWR also supports breeding populations as well as providing migration habitat during spring and fall periods. Other refuges in Louisiana and Texas provide wintering habitat for these populations. The network of lands is critical to these birds survival. A deficiency in one location can affect the species and the entire networks ability to maintain adequate populations.

Other refuges may provide habitat for threatened and endangered plants or animals. Refuges in these situations ensure that populations are protected and habitat is suitable for their use. Refuges, by providing a broad network of lands throughout the United States, help prevent species from being listed as threatened or endangered by providing secure habitat for their use and providing recovery habitats in portions or all of a species range.

Seedskadee National Wildlife Refuge Purpose(s)

Each refuge in the Refuge system is managed to fulfill the mission of the Refuge System as well as the specific purposes for which the refuge was established. Seedskadee NWR's purpose is defined by two pieces of enabling Federal legislation. The principal purpose of Seedskadee NWR is to provide for the conservation, maintenance, and management of wildlife resources and habitat including the development and improvement of such wildlife resources. Additionally, the Refuge is charged to protect the scenery, cultural resources, and other natural resources and provide for public use and enjoyment of compatible wildlife-dependent activities.

The two pieces of enabling legislation are:

1. Fish and Wildlife Coordination Act: "... shall be administered by him/her (Secretary of the Interior) directly or in accordance with cooperative agreements . . . and in accordance with such rules and regulations for the conservation, maintenance and management of wildlife, resources thereof, and its habitat thereon, . . ." 16 U.S.C. 664
2. Colorado River Storage Act (section 8): "In connection with the development of the Colorado River Storage Project (CRSP) and of the participating projects, the Secretary is authorized and directed to investigate, plan, construct, operate, and maintain . . . (1) public recreational facilities on lands withdrawn or acquired . . ." for the Colorado River Storage Project or participating projects in order to "... conserve the scenery, the natural, historic, and archaeological objects, and the wildlife on said lands, and to provide for public use and enjoyment of the same and of the water areas created by these projects by such means as are consistent with primary purposes of said projects . . . and (2) facilities to mitigate losses of and improve conditions for, the propagation of fish and wildlife." The Secretary may "... dispose of ..." the facilities "... to Federal . . . agencies . . . upon such terms and conditions as will best promote their development and operation in the public interest." 43 U.S.C. 620g

Besides these two pieces of enabling legislation, the thirty-fifth legislature of the State of Wyoming passed enrolled Act No. 54 in 1959 "providing consent of the State of Wyoming to the acquisition by the United States where approved by the Wyoming Game and Fish Commission and the State Land Board, of lands for the establishment of migratory bird refuges." In it, the State of Wyoming is consenting to the acquisition of up to 20,000 acres of land in Wyoming for the establishment and maintenance of migratory bird refuges in accordance with and for the purposes of the Migratory Bird Conservation Act and the Migratory Bird Hunting Stamp Act. Thus, if ever any of these authorities, and associated funds, were invoked for the acquisition of new lands for Seedskadee NWR, these lands would be managed for "use as an inviolate sanctuary, or for any other management purpose, for migratory birds" (16 U.S.C. 715d) in accordance with the Migratory Bird Conservation Act. To date, all lands acquired have been through Section 8 of the 1956 Colorado River Project Storage Act.

Seedskadee National Wildlife Refuge Vision Statement

Seedskadee NWR will strive to preserve, restore, and enhance the biological integrity of the Green River riparian corridor and associated uplands as habitat for migratory birds and other indigenous wildlife for the benefit of present and future generations of Americans.

Seedskadee National Wildlife Refuge will manage for a variety of native plants and wildlife, with emphasis on migratory birds and threatened and endangered species. Natural habitats of the Green River will be preserved or restored. The Refuge will provide interpretation of the natural and human history of the area and provide for wildlife-dependent recreation that is compatible with Refuge purposes. To meet this vision, the Service will seek partnerships with other agencies, interest groups, landowners, and local communities.

Legal and Policy Guidance

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (System), the designated purpose(s) of the Refuge unit as described in the establishing legislation and/or executive orders, Service laws and policy, and international treaties (for a complete list see Appendix E).

Key concepts included in laws, regulations, and policies that guide management of the System include primary versus multiple-use public lands, compatibility, and priority wildlife-dependent recreational activities. Examples of relevant guidance include the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, the Refuge Recreation Act of 1962 (50 CFR), Executive Order 12996 (Management and General Public Use of the National Wildlife Refuge System), and selected portions of the Code of Federal Regulations and Fish and Wildlife Service Manual.

The National Wildlife Refuge System Administration Act of 1966, as amended, provided guidelines and directives for administration and management of all areas in the System, including wildlife refuges, areas for the protection and conservation of fish and wildlife threatened with extinction, wildlife ranges, game ranges, wildlife management areas, and waterfowl production areas. Use of any area within the System was permitted, provided that such uses were compatible with the major purposes for which such areas were established.

The National Wildlife Refuge System Improvement Act of 1997 amends the Refuge System Administration Act by including a unifying mission for the System, a new formal process for determining compatible uses on refuges, and a requirement that each refuge will be managed under a Comprehensive Conservation Plan (CCP or Plan). This Act states that wildlife conservation is the priority of the System lands and that the Secretary of the Interior (Secretary) shall ensure that the biological integrity, diversity, and environmental health of refuge lands are maintained. Each refuge must be managed to fulfill the mission of the System and the specific purposes for which it was established. Additionally, this Act identifies and establishes the legitimacy and appropriateness of the six wildlife-dependent recreational uses. These are hunting, fishing, wildlife observation and photography, and environmental education and interpretation. As priority public uses of the System, these uses will receive enhanced consideration over other uses in planning and management. Furthermore, this Act requires that a CCP be in place for each refuge by the year 2012 and that the public have an opportunity for active involvement in plan development and revision. It is Service policy that CCPs are developed in an open public process and that the agency is committed to securing public input throughout the process. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

Lands within the System are different from other, multiple-use public lands in that they are closed to all public uses unless specifically and legally opened. Unlike other Federal lands that are managed under a multiple-use mandate (i.e., national forests administered by the U.S. Forest Service and public lands administered by the U.S. Bureau of Land Management), the Refuge System is managed specifically for the benefit of fish, wildlife, and plant resources and their habitats. Compatible wildlife-dependent recreation is a legitimate and appropriate general public use of the System.

Compatible wildlife-dependent recreational uses involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation are priority public uses of the System. These uses must receive enhanced consideration over other public uses in refuge planning and management.

Before any uses, including wildlife-dependent recreational activities, are allowed on national wildlife refuges, Federal law requires that they be formally determined to be “compatible.”

A compatible use is defined as a use that, in the sound professional judgement of the refuge manager, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the Refuge. Sound professional judgement is further defined as a finding, determination, or decision that is consistent with the principles of sound fish and wildlife management and administration, available science, and resources (funding, personnel, facilities, and other infrastructure), and adherence with applicable laws. If financial resources are not available to design, operate, and maintain an activity, the refuge manager will take reasonable steps to obtain outside assistance from the State and other conservation interests. No refuge use may be allowed unless it is determined to be compatible.

The Service has completed compatibility determinations for Seedskadee NWR (see Appendix D).

The Refuge Recreation Act, as amended, authorized the Secretary to administer refuges, hatcheries, and other conservation areas for recreational use when such uses did not interfere with the area’s primary purpose.

Executive Order 12996 (March 23, 1996) identified a new mission statement for the System; established six priority public uses (hunting, fishing, wildlife observation and photography, environmental education and interpretation); emphasized conservation and enhancement of the quality and diversity of fish and wildlife habitat; stressed the importance of partnerships with Federal and State agencies, Tribes, organizations, industry, and the general public; mandated public involvement in decisions on the acquisition and management of refuges; and required identification, prior to acquisition of new refuge lands, of existing compatible wildlife-dependent uses that would be permitted to continue on an interim basis pending completion of comprehensive planning.

Existing Partnerships

Legal, administrative, policy, and planning guidelines provide the framework within which management activities are proposed, developed, and implemented. This framework also provides the basis for a continued and improved partnership between the Service, Reclamation, and other natural resource agencies.

In compliance with Section 8 of the Colorado River Storage Project Act of 1956, Reclamation is responsible for funding land acquisitions within the Refuge and funding Refuge developments to offset the loss of wildlife habitat resulting from reservoir construction. Since 1958, the Service and Reclamation have worked cooperatively to mitigate the habitat losses. The Service and Reclamation will continue to cooperate in close partnership for the benefit of the natural resources involved. The CCP is a means of assuring those benefits are achieved.

See Chapter 3 for further information on Bureau of Reclamation/U.S. Fish & Wildlife Service partnership history on the Seedskadee Project and development of Seedskadee NWR.

The Refuge also works with a variety of other organizations and individuals on natural resource projects including:

- local law enforcement agencies (general enforcement)
- Wyoming Game and Fish (wildlife and fish surveys, habitat management, enforcement, public outreach, public use)
- Sweetwater County weed and pest (invasive species control)
- Trout Unlimited (stream and river restoration, Take A Kid Fishing Day)
- Rural fire protection districts (wildfire suppression)
- Private landowners (partners for wildlife program)
- Universities (research on wildlife, vegetation, public use)
- Wyoming Partners in Flight (bird monitoring)
- Trumpeter Swan Society (swan management)
- Local school districts (environmental education)
- Scout organizations (community and refuge projects)
- Sweetwater County Chamber of Commerce (eco-tourism, special events)
- Green River Chamber of Commerce
- Big Sandy Working Group (river and riparian restoration)
- Bureau of Land Management (grazing, historical interpretation and restoration, public use)
- Intermountain Joint Venture (coalition partners)
- Rock Springs Grazing Association (livestock grazing management via a contractual agreement)
- Green River Green Belt Committee (wetland restoration)
- Highland Desert Flies (Take a Kid Fishing Day)
- Volunteers (local community folks, Good Sams Club, Student interns)
- USGS (riparian research)
- Audubon Wyoming

Potential for Refuge Expansion

After the release of the first draft CCP and EA for Seedskadee NWR, the U.S. Bureau of Reclamation (Reclamation) announced to the Service its intention to dispose of most of the lands acquired under the “Seedskadee Project” - which, among other things, resulted in the creation of the Refuge in 1965. Remaining Seedskadee Project lands owned by Reclamation are to be transferred to another Federal agency for management. A portion of the lands available from Reclamation surround the Big Sandy River and adjoin the Refuge.

In the draft CCP (dated September 2001), we identified interest in amending the Refuge boundary if additional tracts of land become available which would contribute to the Refuge’s mission. Included for consideration are lands surrounding the Big Sandy River, a significant tributary that joins the Green River inside the Refuge boundary. As stated in the draft document: “Other lands would be considered for acquisition on a willing seller basis if information indicated that additional acres were necessary for management of selected species or for mitigation purposes. Such areas may include . . . lands surrounding the Big Sandy River. Any additional land acquisition . . . would go through a public involvement process and be on a willing seller basis only.”

Careful consideration was given to including an analysis in the draft CCP of amending the Refuge boundary to include lands associated with the Big Sandy River. However, the decision was made to not include the Big Sandy analysis in this CCP process for two primary reasons: 1) the CCP is too far along in the review process; and 2) a separate review process, independent of this CCP, would provide a more thorough analysis of any possible land acquisition, including better public scoping and participation in the process.

Currently, the Refuge is beginning an internal review to evaluate the feasibility of amending the Refuge boundary to include lands along the Big Sandy River. The land surrounding the Big Sandy River, which is proposed for disposal by Reclamation, is considered a “study area.” Prior to any formal action, the Refuge will complete an internal analysis of these lands and make a recommendation to the Regional Director to pursue, or not to pursue, the transfer of these lands to the Refuge. If a decision is made to pursue a land transfer, a full public process will ensue complete with public involvement consistent with the National Environmental Policy Act (NEPA).

II. Planning Process

Description of the Planning Process

The development of this CCP was guided, in the beginning, by the Refuge Planning Chapter of the Fish and Wildlife Service Manual (Part 602 FW2.1, November 1996) and later also by the Service's Final Comprehensive Conservation Planning Policy. Key steps include:

1. Planning;
2. Identifying issues and developing a vision;
3. Gathering information;
4. Analyzing resource relationships;
5. Developing alternatives and assessing their environmental effects;
6. Developing management goals, objectives, and strategies;
7. Identifying a preferred alternative;
8. Publishing the Draft Plan and soliciting public comments on the Draft Plan;
9. Review of comments and effecting necessary and appropriate changes to the Draft CCP; and,
10. Preparation of the final CCP for approval by the Region 6 Regional Director, and finally
11. Implementation of the CCP.

During the course of this CCP planning effort, several formal and informal meetings were held to determine the issues relative to Seedskaadee NWR. Meetings with Federal agencies, State agencies, and members of the public assisted the Service and Reclamation in identifying most of the natural resource and public use issues. See Appendix K for details.

The following list of planning and environmental assessment issues was derived from the comments generated during the public process, from interested jurisdictions, and from the Seedskaadee NWR staff.

Planning Issues

Issues, concerns, and opportunities were identified through discussions with planning team members and key contacts and through the public scoping process. Comments were received orally at the meetings, via e-mail, and in writing, both before and during the scoping process. The following issues, concerns, and comments are a compilation and summary of those expressed by the public, other Federal and State agencies, local and county governments, private organizations and individuals, and environmental groups.

Wildlife and Habitat Management Issues

Threatened and Endangered Wildlife and Plants

What measures are taken to protect threatened, endangered, and candidate species and species of management concern? What measures are taken to protect and manage indigenous species?

There are concerns regarding conflicts between human use, wildlife use, and sensitive vegetation at the Refuge. Minimizing disturbance of wildlife, especially during nesting, wintering, or other sensitive seasons, is an issue.

Riparian Habitats

How will riparian habitat losses be mitigated to support migratory birds and native wildlife species?

The hydrology and morphology of the Green River through Seedskaadee NWR have been altered by the construction and operation of Fontenelle Dam. Changes in channel morphology, such as downcutting, have occurred and overbank flooding is rare to nonexistent. Water temperatures have decreased and river flows have been significantly altered from their historical levels and patterns. Cottonwood gallery forests are not regenerating under the current water management regime. Riparian forest communities are losing their structural diversity and becoming single storied. Existing stands of cottonwoods and willows show evidence of severe drought stress and are heavily browsed by native ungulates and some trespass livestock. Existing stands of trees are also susceptible to wildlife, particularly in drought years. A major loss of these forests could occur on the Refuge in 20 to 50 years if nothing is done. Cottonwood forests provide very important habitat for migratory birds.

Wetlands

How will wetland losses be mitigated to support migratory birds and native wildlife species? How will wetlands be managed to support migratory birds and native wildlife species?

The Refuge was established as a means to mitigate for loss of wildlife habitat from dam and reservoir construction within the upper Colorado River System. The Fish and Wildlife Service is concerned about impacts to wetland habitat because of their importance to migratory birds and native wildlife species. The extent to which wetland creation or enhancement ought to occur to achieve mitigation, and the types and management of wetlands that should be pursued to support the mix of migratory birds and native wildlife species are issues.

Upland Habitats

How would upland shrub and grassland habitat be managed to support native wildlife species and migrating birds?

Upland areas within the Refuge, including the Dry Creek Unit, have not been managed with the intensity of the River corridor. A mosaic of successional stages is desirable from a wildlife habitat standpoint. Opportunities may exist to use a variety of management tools to alter the successional state of upland shrub habitats and provide more habitat diversity.

Riverine Habitats

How are fisheries managed on the Refuge?

The public is concerned about future management of the fishery. One concern is that the Refuge installed water diversions and other structures in the River, and their potential affect on fish and resources.

Weeds

To what extent are weeds (invasive, nonnative plants) controlled?

Noxious weeds, such as pepperweed, salt cedar, Canada thistle, Russian knapweed, cheatgrass, and musk thistle are invading most Refuge habitats and dominating the vegetation in some areas. Control methods for some weed species are unknown or not completely effective. Former land management practices and current active management activities have created many opportunities for weeds to become established. How to manage the Refuge to control the spread of weeds and reclaim weed-dominated habitats are issues.

Predators and Nuisance Species

How are predators and nuisance species controlled?

In the past, the Refuge has engaged in controlled trapping of nest predators during the waterfowl nesting season. Beaver have been removed when significant tree losses occur. There is concern about how, and to what extent, predators and nuisance species should be controlled.

Fire Management

How is fire managed on the Refuge?

Wildfires are contained and extinguished on the Refuge. Using controlled fires in certain habitats as a management tool is a concern. How much prescribed burning is required to manage certain habitats is also a concern.

Public Use and Recreation Issues

Access Management

How is access/travel managed on the Refuge?

The Refuge needs to seek a balance of access for wildlife-dependent recreation while providing adequate protection for wildlife. Off-road vehicle use is prohibited within the boundary of the Refuge; however, unauthorized off-road vehicle use persists. New two-track roads are being created continuously. Significant habitat degradation and wildlife disturbance is occurring throughout the Refuge. In addition, other designated Refuge roads create high levels of wildlife disturbance, particularly during sensitive seasons, such as nesting and wintering. Determining how travel should be managed on the Refuge is an issue. Additionally, the public is interested in the development of walking trails. Some mountain bike use is occurring. Improved access on designated roads, trail development, location, management, and use are concerns.

Universal Access

To what extent is universal access to public use facilities and activities provided?

There is a desire to provide special activities/facilities for people with disabilities.

Wildlife Viewing and Photography

To what extent are opportunities provided for wildlife viewing and photography?

Wildlife observation and photography are priority wildlife-dependent recreational activities. There is interest in developing or enhancing opportunities for visitors to better view wildlife and wildlife habitats. Proposals include photography and viewing overlooks/sites; auto tour routes; and walking/hiking trails.

Hunting

What types of hunting opportunities are provided on the Refuge?

Hunting is a priority wildlife-dependent public use on refuges. There are conflicting points of view about how hunting is managed. How will areas “closed to hunting” be managed to provide adequate sanctuary for wildlife species? There are concerns about what species should be hunted and what are the Refuge’s goals and objectives with respect to management of game species. There is some interest in the Refuge providing duck hunting blinds.

Recreational Trapping

What types of recreational trapping are allowed on the Refuge?

A question arose about whether trapping should be used for predator control and if this could be accomplished through recreational trapping.

River Access

How is River access managed?

Where and how should public River access, parking, and boat launch ramps and associated public use facilities be provided are issues.

Sport Fishing

What types of sport fishing opportunities are provided on the Refuge?

The Refuge's fishery is popular for bank and float fishing including both commercially guided and recreational fishing. There are conflicting points of view among anglers and fishing guides about how fishing is regulated.

Commercial Guide Fishing

Is commercially guided fishing allowed and how is it managed?

There are concerns about what level of commercial and recreational fishing on the Green River is appropriate in order to avoid negative affects on wildlife. If Seedskaadee NWR staff continues to allow commercial guide fishing, issuance of Special Use Permits should be based upon the desirable level of River use.

Camping

Is camping allowed and, if so, where and how are sites developed and the use managed?

Camping is not considered wildlife-dependent recreation. However, at Seedskaadee NWR, there is demand for camping opportunities, especially from people floating the 35 miles of River through the Refuge.

Campgrounds are located upstream from the Refuge at Fontenelle and primitive upland camping occurs downstream from the Refuge on Rock Springs Grazing Association lands and on adjacent BLM land. There are questions about whether or not camping is a compatible use and should be permitted.

Boating

What types of boating are allowed on the Green River through the Refuge?

There are concerns that use of motorized watercraft on the Green River may impact wildlife and the area's solitude.

Visitor Use Level

What is the appropriate visitor use level of the Refuge?

How are visitor use levels determined within the Refuge? There is question about the extent of impact from public use, including recreation and interpretive programs. Any determinations of visitor use levels are complicated by the need to minimize wildlife disturbance, to avoid encroachment on solitude, and by the nature and capacity of visitor facilities, parking, and amenities.

Environmental Education

What type of environmental education programing is provided to the public?

The Refuge staff provides educational opportunities on an "as needed" basis. There are opportunities to partner with other agencies to provide an environmental education program and facilities that promote an awareness of the basic ecological foundation for the interrelationship between human activities and the natural system.

Environmental Interpretation

To what extent are opportunities pursued to interpret natural resources, especially wildlife and their habitat for the visiting public?

Interpretive signs at the Refuge are limited to the kiosks and the auto tour. Those that exist on the Refuge are outdated. Determining opportunities and locations for interpretation for wildlife, habitat, and cultural resources are issues.

Resource Protection and Public Information

How is information on the Refuge, its resources, and regulations provided to the public and what are the effects of public use, including recreation and interpretive programs, on Refuge resources?

There are general concerns about better communication with the public, neighbors, local jurisdictions, and other agencies on the purpose and mission of the Refuge—why it and its management policies are important, both locally and to the broader ecosystem.

Cultural Resources

How are cultural resources protected? To what extent are opportunities pursued to interpret cultural resources for the visiting public?

Potential impacts to cultural resources from facilities development, habitat manipulation, visitor use, and Refuge operations and maintenance are concerns. There is also an interest in developing more interpretive opportunities of cultural resources such as locating interpretive displays at sites/cabins and public points of interest.

Partnerships

To what extent are partnership opportunities pursued with volunteers, local service groups, organizations, individuals, schools, and other governmental agencies?

Determining opportunities for Refuge management to “partner” with local groups, organizations, individuals, schools, local and State governments, and other agencies to achieve the Refuge’s mission and goals and to conserve and enhance wildlife in the Green River ecosystem is an issue. Likewise, finding opportunities to encourage and utilize volunteers is an interest.

Administrative Management Issues

Land Acquisition

Is further land acquisition or land disposal planned?

Land acquisition within the Refuge boundary is essentially complete. Two 2.5-acre parcels remain to be acquired should there be willing sellers. A proposal was set forth several years ago to transfer land along the Big Sandy River from Reclamation to the Service to be managed as part of the Seedska-dee NWR. Other potential lands available for exchange include the riparian areas between Fontenelle Reservoir and Big Piney. There are questions about whether there is an interest in exchanging, acquiring, or disposing of lands within or adjacent to the Refuge boundary.

Minerals

How will privately-owned minerals be developed?

Development of minerals on or immediately adjacent to the Refuge may impact wildlife, wildlife habitats, and the quality of the visitor experience. There is a question about whether seismic activity should be allowed and, if so, under what circumstances. Protecting the wildlife resources from unacceptable impacts is a concern.

Right-of-Way

What is the Service's policy toward requests for grants of right-of-way across the Refuge?

There is a question about how Refuge staff responds to right-of-way requests.

Livestock Access

How is access to water for livestock provided?

The Refuge has traditionally provided access to the River for watering livestock from adjacent private/public land allotments. Water access lanes to the River are difficult to secure; for example, preventing trespass from livestock. How can the Refuge provide livestock access to water while maintaining the integrity of the Refuge boundary and preventing trespass?

Grazing

Is grazing allowed on the Refuge? What is Refuge management doing to prevent livestock trespass?

The Refuge has been fenced to prevent livestock from entering, thus improving and protecting habitat for wildlife. Grazing may be an appropriate tool to manage some of the Refuge's habitats. Construction of new fences, maintenance of existing or new fences, and the removal of old fence and wire are concerns.

III. Refuge and Resource Descriptions

Geographic / Ecosystem Setting

Seedskaadee NWR is 26,382 acres in size and located in southwestern Wyoming along the Green River (Map 1). The entire Refuge is within Sweetwater County in the heart of the Green River Basin. Geographically, the Refuge is long and narrow and bisected throughout its length by the Green River. Biogeographers have divided North America into provinces; natural regions that share similar climate, soils, topography, and vegetation. The Refuge is within the *Wyoming Basin* province—a high elevation Great Basin shrub dominated habitat.

The Service has adopted an ecosystem approach to national natural resource management and has identified 52 ecosystems within the United States. An effective ecosystem management approach encompasses a landscape level approach to land management and must recognize and incorporate local, regional, and system-wide roles. Within the U.S. Fish & Wildlife Service's ecosystem organization, the Refuge lies within the Upper Colorado River Ecosystem (Map 2). The Upper Colorado River Ecosystem incorporates the watersheds, headwaters, tributaries (including the Green River), and mainstem of the Colorado River in Wyoming, Utah, and Colorado. Browns Park National Wildlife Refuge in northwestern Colorado and Ouray National Wildlife Refuge in northeastern Utah are two other national wildlife refuges in the ecosystem. The three refuges share many similarities. All are located along the Green River, the primary tributary to the Colorado River system and have significant amounts of marsh and riparian habitat. Together, the three refuges form a valuable complex of wildlife habitat.

The proposed management priority issues and goals for the Upper Colorado River Ecosystem focus on national trust resources (endangered species, migratory birds, and wetlands). Further, recreation is recognized as a high priority where conflicts with native species and their habitats do not occur. The following are the priority resource issues and goals for the Upper Colorado River Ecosystem.

Priority Resource Issue: Decline of native aquatic communities due to construction of dams and reservoirs; and . . . recovery of native aquatics while recognizing competing demand for recreational use of nonnative sport fishing.

Goal: Restore and maintain an aquatic system capable of supporting the diversity of native aquatic communities to achieve recovery of listed and candidate species and prevent the need for future listings.

Priority Resource Issue: The quality and quantity of native wetland and riparian habitats continue to decline via floodplain development, intensive land use, and impoundments of water courses throughout the Upper Colorado River Ecosystem. Changes in flow regimes and channel manipulation result in significant management issues for continued health.

Goal: Reverse the trend; restore, maintain, and enhance the species composition, areal extent, and spatial distribution of wetland and riparian habitats.

Priority Resource Issue: Terrestrial biological diversity within the Upper Colorado River Ecosystem has declined due to the degradation of terrestrial habitats. Range and forest land management practices, both public and private, have resulted in the fragmentation, degradation, and loss of terrestrial habitats.

Goal: Promote terrestrial biological diversity and ecosystem stability through sound land management practices thereby avoiding fragmentation, degradation and loss of terrestrial habitats.

Climate

The Refuge's climate is characterized by long, cold winters and short, warm summers with a growing season of about 90 days. Temperatures typically range from minus 30 degrees Fahrenheit to 90 degrees Fahrenheit with frost penetration to 50 inches. Most precipitation falls during spring and early summer. December and January are the driest months. Winds are predominately from the west-northwest and average 8 to 10 mph. Average annual precipitation is 6.48 inches.

Geological Resources

Beds of limestone, sandstone, and shale, ranging in age from Upper or Middle Cambrian to Upper Cretaceous, underlie the area. Overlying this are gently warped Tertiary sediments averaging several thousand feet in depth and extending up onto the flanks of the surrounding mountains from which they were derived. Upper Green River Basin formations contain rich deposits of coal, oil, natural gas, and soda ash (trona).

Soil Resources

The soils located within the Seedskaadee NWR are described in the BLM Green River Resource Area Resource Management Plan (1992) to include the following four soil units:

- II Cambarge, Pepal, Huguston, Leckman soils (northern and western portion of the Refuge)
 - Deep, well drained, gravely sandy loam and fine sandy loam soils formed on nearly level or sloping stream terraces and alluvial fans. Elevations are from 6,200 to 6,500 feet. Precipitation ranges from 7 to 9 inches per year.

- II Teagulf, Huguston, Haterton, Wint, Tasselmann, Seedskaadee, Leckman, Kandaly soils (eastern portion of the Refuge)
 - These soils are moderately deep to very shallow, well drained soils formed on rolling upland plains dissected by rock ravines, short escarpments, and draws. Elevations are from 6,100 to 6,700 feet. Precipitation ranges from 7 to 9 inches per year.

- II Kandaly, Westvaco, Haterton, Teagulf, Huguston soils (eastern portion of the Refuge)
 - Deep sand dunes intermingled with moderately deep to very shallow, well drained, strongly alkaline soils formed on rolling upland plains and fans. Included in this unit are some areas of badlands. Elevations are from 6,300 to 7,000 feet. Precipitation ranges from 7 to 9 inches per year.

- II Dines, Quealman, Chrisman soils (mid- to southern-portion of the Refuge, bottomlands)
 - Deep, poorly to well-drained soils formed on nearly level or sloping floodplains, bottomlands, and alluvial fans. Some soils in this unit are strongly saline and/or alkaline. Elevations are from 6,000 to 6,600 feet. Precipitation ranges from 7 to 9 inches per year.

Seedskaadee NWR's sandy soils (Kandaly, Westvaco, Huguston) are very susceptible to wind erosion when the protective vegetative cover has been removed. Soluble salt levels in some soils affect management potentials due to toxicity, reduced infiltration rates, limits on nutrient availability, and reduction of water available to plants. Major causes of increased salinity contribution from public lands are irrigation, overgrazing, off-road vehicles, and energy exploration and extraction. These activities cause some compaction of the soil surface, with a reduction of plant cover, which in turn leads to increased runoff carrying salt laden sediments into drainages. Within the region, moderately saline soils can be found along major drainages such as the Green River, Big Sandy River, Bitter Creek, and Blacks Fork River. Soils especially susceptible to surface disturbing activities include unstable soils, sandy soils and erosive soils.

The Seedskadee Project and Mitigation - Early Proposals

Based upon Bureau of Reclamation feasibility studies completed in 1950, the Seedskadee Project was authorized for construction as one of the series of projects included in the 1956 Colorado River Storage Project Act. The original primary purposes of the Seedskadee Project were: 1) diversion of water from the Green River and delivery of irrigation water to 60,720 acres of previously undeveloped desert lands, and 2) development of a wildlife refuge as mitigation for losses of fish and wildlife habitat as a result of Fontenelle and Flaming Gorge Dams. The lands proposed for irrigation were to parallel the Green River on both sides and include 51,690 acres of family farm units and 9,030 acres of community pasture. The Refuge was to be located along the Green River surrounded by irrigated community pasture and privately-owned and operated farmlands.

Project feasibility studies continued after project authorization. By Act of Congress in 1958, authorization was provided for withdrawals of public lands and acquisition of privately-owned lands to achieve project purposes, namely, project works and canals, lands for agricultural use, and lands for mitigation developments. By 1959, it was determined that a dam and storage reservoir (Fontenelle), as opposed to the originally proposed diversion structure, would be necessary to regulate Green River flows and to deliver water to farm units, community pastures, and the Seedskadee NWR. The 1959 Definite Plan proposed an 18,000-acre refuge with water supplies from return irrigation flows, direct Green River flows, and storage releases from Fontenelle Reservoir.

By the mid-1960s, approximately 193,850 acres had been withdrawn or acquired by Reclamation for project purposes. Prior to dam and reservoir construction, the 1959 Definite Plan was modified to include a larger dam and reservoir to provide municipal and industrial water storage. The dam was completed in April 1964, creating a 20-mile-long reservoir upstream from Seedskadee NWR and with a total storage capacity of 345,000 acre-feet that at full pool, inundates almost 13 square miles. However, even prior to completion of the dam, the economic feasibility of the original Seedskadee Project concept began to unravel. A stop-order was issued by Reclamation in May 1962 to suspend construction of delivery canals and irrigation features until economic viability of the proposed high altitude farm units could be reasonably demonstrated.

In 1972, a revised Definite Plan for the Seedskadee Project was prepared that significantly scaled back and phased in the acreage which might be made available for irrigable farmland; increased commitments for downstream industrial and municipal water; planned a 34,000 acre-feet annual water supply for the Seedskadee National Wildlife Refuge; and continued to provide flood control and power generation purposes. The 1972 Reclamation Plan reported that \$430,000 had been spent-to-date on acquisition of Refuge lands and Refuge planning and construction.

Eventually, it was determined that irrigated farm units and community pastures, the original driving motivation for development of the Seedskadee Project, were not economically viable at this location and altitude, and that there could be conflicts between development of irrigated farmlands and the successful extraction of underlying and adjacent Green River Basin trona deposits. The development of the farm units and the farm irrigation water delivery systems was abandoned. Although the key element in the Seedskadee Project was never realized, the motivation and interest in successful mitigation for habitat loss continued.

Fontenelle Dam and Reservoir and River Hydrology

Today, Reclamation's Fontenelle Dam and Reservoir purposes include water storage and regulation of the flows of the Green River for:

- 1) power generation,
- 2) municipal and industrial use,
- 3) fish and wildlife, and
- 4) recreation.

Fontenelle Dam is an earthen filled structure with a crest of 4,820 feet and a height of 116 feet above riverbed. Fontenelle Reservoir has a total storage capacity of 345,000 acre-feet. A power plant is located adjacent to the toe of the dam consisting of a 12 megawatt generator and one 16,000-horsepower hydraulic turbine. Although it is not a specified purpose of the facility, the reservoir provides incidental flood control on the Green River from the dam downstream to Flaming Gorge Reservoir.

Recreation facilities have been developed at Fontenelle by Reclamation including picnic areas, campgrounds, and boat launch facilities. Three Reclamation developed campgrounds (Tailrace, Weeping Rock, and Slate Creek) are located on the Green River below Fontenelle Dam and just upstream from Seedskafee NWR. These recreation facilities are now managed by the Bureau of Land Management.

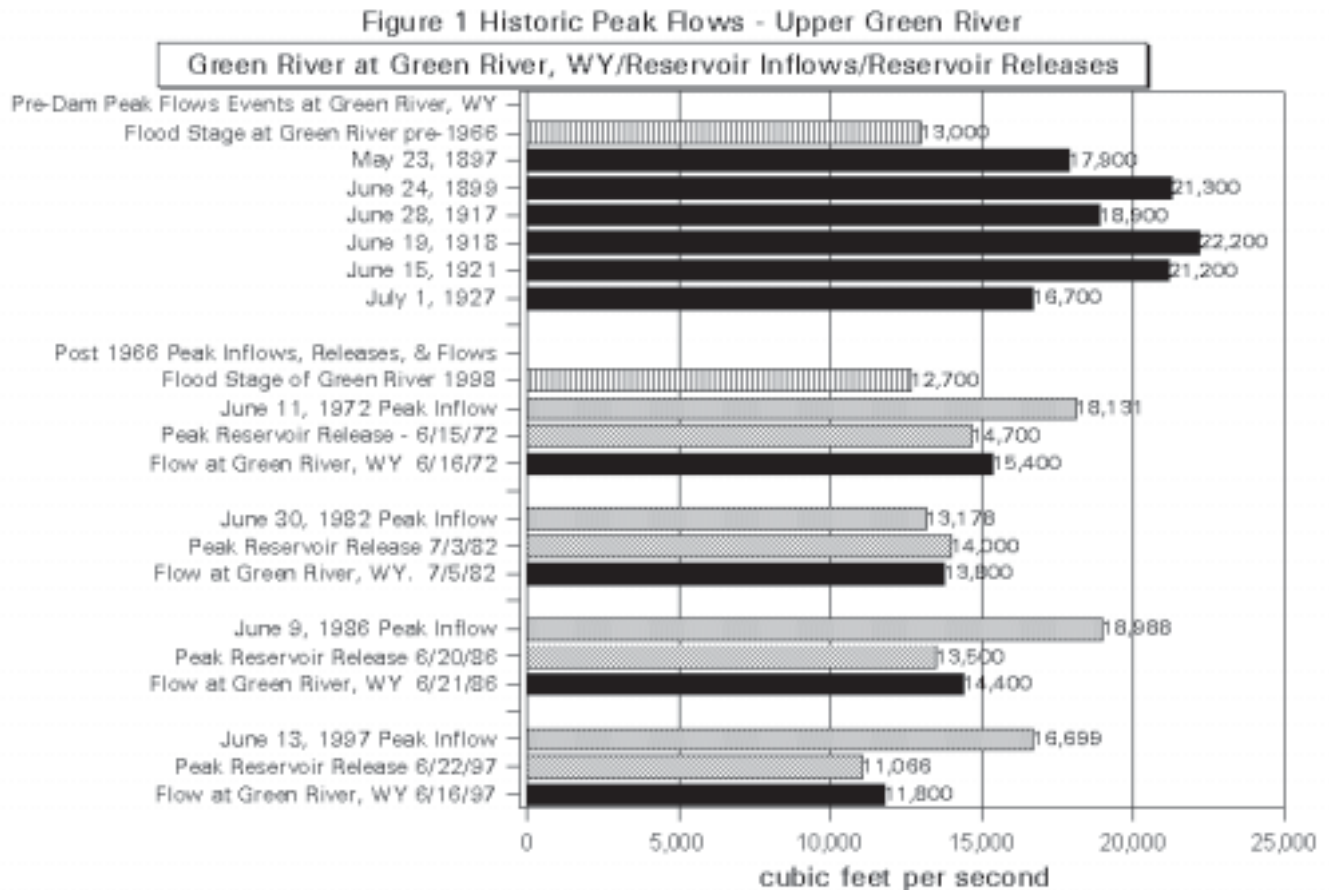
Operation of the dam and reservoir has moderated the historical downstream flows of the Green River. A number of factors guide operation of the reservoir and downstream releases. Among these are providing a marketable water yield from the reservoir to satisfy water commitments, providing minimum downstream flows for maintenance of the fishery and waterfowl habitat (a minimum flow of 300 cfs), power production, and dam safety.

Fontenelle Reservoir's storage capacity is small in relation to the inflows from the Upper Green River Basin (Ryan, 1998). Because the storage capacity is small compared to the inflow volume, there is limited operational flexibility available. In order to accommodate spring inflows, reservoir levels are dropped through the winter and early spring down to its minimum pool, 93,000 acre-feet, by April 1. This provides a runoff storage capacity of 252,000 acre-feet.

Flood control was not an original purpose of Fontenelle Dam and Reservoir. Outside of the City of Green River and its environs, few structures exist within the floodplain between Fontenelle Dam and Flaming Gorge Reservoir. The official flood stage at Green River, Wyoming is now set at 15,000 cfs; however, the National Weather Service would issue flood warnings to the City of Green River at 12,700 cfs (Ryan, 1998).

Because storage capacity is limited in relation to the river's flow volume, releases mimic natural river flow patterns but greatly moderate the highs and lows. These circumstances result in changes of the River hydrology downstream from the dam. Figure 1 displays some examples of changes in peak flow events. Historical flood event data (USDI, BOR 1959), showed periods of flows at the City of Green River exceeded 13,000 cfs between 1897 and 1921. These high flow events were of varying magnitude and duration (from two days in 1927 to nearly a month in 1899) and were of irregular frequency, but were substantially higher flows than those experienced at the City of Green River since 1966.

Figure 1 also displays flow data since 1966 and operation of the reservoir. Since 1966, there have been five flow events in which inflows into Fontenelle Reservoir have exceeded 13,000 cfs. The chart displays four of the five major flow events including the date and volume of peak reservoir inflow, the date and peak reservoir release, and the date and volume at the City of Green River for each event. An initial observation for these four events is that not only is the flow at the City of Green River substantially less than the historical peak flow events at the top of the chart, but the inflows into the reservoir are also less than three of the historical high flows at the City of Green River.



It would appear that even if the dam and reservoir were not in operation, flood events greater than 20,000 cfs, like those experienced in 1899, 1918, and 1921 would not have occurred on the Green River through Seedskadee and the City of Green River since 1966. However, the chart also displays that the peak flow volumes that were experienced on the Upper Green River since 1966 were substantially moderated with operation of the dam.

In three of the four peak flow events since 1966, peak flows below the dam and through the Refuge were substantially lower than the peak flows entering the reservoir. Note that for 1972, 1986, and 1997, flows at the City of Green River exceeded the flow release from the reservoir reflecting downstream contributions from tributaries, notably the Big Sandy River.

In addition to moderating the peaks of high flows below the dam, reservoir operations have stabilized and raised winter low flows below the dam. Winter flows are maintained at higher than reservoir inflow rates to realize fishery and hydropower production benefits. Table 3.1 displays the range and average of inflows for December through February for each of the past four winters as well as the range and average of reservoir releases for the same time periods. Winter release rates are calculated to gradually and evenly drain the reservoir back down to its 93,000 acre-foot minimum pool by April 1 so that it has capacity to receive and store spring runoff. By gradually releasing the remaining storage pool, minimum flows and power production can be maintained throughout the winter season.

| Table 3.1 Winter Flows in cfs Above and Below Fontenelle Reservoir | | | | | | |
|---|--------------------|-------------------|-----------------------|---------------------|--------------------|------------------------|
| December, January and February | High Inflow | Low Inflow | Average Inflow | High Release | Low Release | Average Release |
| Winter 1994-1995 | 674 | 224 | 423.2 | 894 | 796 | 841.1 |
| Winter 1995-1996 | 891 | 227 | 508.3 | 1,332 | 1,134 | 1,253.8 |
| Winter 1996-1997 | 810 | 308 | 638.7 | 1,321 | 1,106 | 1,208.4 |
| Winter 1997-1998 | 902 | 447 | 626.6 | 1,469 | 1,326 | 1,411.1 |

The relationship between inflows and releases at Fontenelle on the Green River are graphically depicted on consolidated hydrographs in Appendix H and provide a visual depiction and summary of the above discussions. The operation of Fontenelle Dam and Reservoir moderates flows of the Green River below the dam from what would be experienced if the dam were not in place. The high peaks of major high flow events are substantially reduced below the dam. The time between high peak inflows and high peak releases into the River below the dam is usually only a few days. Winter flow releases are fairly stable and substantially exceed inflows.

Area Socio-Economics

Prior to the mid-1800s, the region was populated by native Americans and occasional explorers, fur trappers, and traders. For several years, fur trappers and traders would travel long distances to annually swap goods, tales, and furs at rendezvous along the Green River. Starting with the 19th Century migration of settlers to the west coast and Utah, remote trading outposts and military posts were established, marking the first modern permanent settlement in the region. Hundreds of thousands of people and their livestock passed through southwestern Wyoming. They traveled the Mormon Trail, the Oregon Trail, the California Trail, and numerous cutoffs and shortcuts, all crossing the Green River and many passing through today's Seedskadee NWR.

The completion of the Union Pacific Railroad in May 1869 developed the first major Wyoming communities: Cheyenne, Laramie, Rawlins, Green River, and Evanston. Rock Springs, Superior, Frontier, Kemmerer, and other towns grew up where coal was successfully mined and used to fuel the rail engines.

Upon statehood, the Federal government retained lands that had not been converted to private ownership and the State of Wyoming was provided from those lands two sections in each township. Thus, by the end of the 19th Century, the landownership patterns were set. Privately-owned lands are primarily lowlands along streams and rivers, town sites, and the Union Pacific land grant. Generally, Wyoming owns two sections per township. But, most lands are Federally-owned being managed by the Bureau of Land Management, the U.S. Forest Service, the U.S. Fish & Wildlife Service, the Bureau of Reclamation, or the National Park Service. Of the 6,773,340 acres in Sweetwater County, 1,828,641 acres are privately-owned, and they are held primarily by the railroad.

Rich natural resources underlie much of the Green River Basin and surrounding lands. Coal, trona, oil, and natural gas have been discovered and extracted in enormous quantities, often through lease of Federally-owned minerals. These mining operations and their processing operations and related coal-fired power plants have provided significant employment and growth opportunities for the region.

The region's economy is a product of history and environment. Principal sources of employment and income are mineral extraction and processing industries, tourism, service industries, government employment, and agricultural—primarily ranching, and transportation. The population density of Wyoming is low at 4.9 persons per square mile. People live in isolated ranches or relatively smaller cities and towns and are accustomed to traveling long distances for work, recreation, and shopping.

Population Growth

In 1950, the populations of the cities closest to Seedskadee NWR were 10,857 (Rock Springs), 3,187 (Green River), and 1,667 (Kemmerer). The 1990 census for these communities were 19,050, 12,711, and 3,020 respectively, establishing a net 121 percent growth. However, based on 2000 census data Rock Springs and Green River populations decreased to 18,708 and 11,805, respectively. Between 1990 and 2000, Sweetwater County's population decreased 3 percent while Lincoln County increased 15 percent. Wyoming's population in 2000 was 493,782 and is projected by the U.S. Bureau of Economic Analysis to grow slowly over the next 10 years.

Income

Per capita personal income for Wyoming in 1993 was \$15,415, 24th highest in the nation. However, with a higher percentage of its wage earners working in relatively higher wage paying production and extractive industries, per capita personal income for Sweetwater County in 1994 was \$20,666.

Economic Development Trends and Pressures

Employment over the past 10 years in Sweetwater County peaked in 1994 at 19,935 jobs. This was up 2,599 jobs from 1989, or a 15 percent increase. By the first six months of 1998, employment in the county had declined to 18,594. In 1998, leading employment sectors were mining (3,668 jobs), retail trade (3,414), local government (3,320), services (2,629), transportation, communication, and public utilities (1,447), manufacturing (1,445), and construction (1,041), with other sectors having fewer than 1,000 workers in each. Retail trade and services are economic sectors which have grown over the past decade and can be expected to continue to grow with tourism, relative stable economies, and growth in leisure time and disposable income. Wyoming economic development efforts often credit the State's natural wonders and National Parks, recreational opportunities, abundance of open space and wildlife, and the absence of personal or corporate State income taxes.

Changes in Demand for Outdoor Recreation

Outdoor recreation continues to grow in popularity with over 70 percent of people 16 and over participating in some form of outdoor recreation. A U.S. Forest Service study (1989) projects significant continuing growth in participation in activities such as day hiking, backpacking, camping, canoeing, kayaking, rafting, cross-country skiing, bicycling, wildlife observation, and photography through the next several decades.

It is estimated that about 70 percent of visitors to Seedskaadee NWR live within the region. With continuing higher than average per capita income, projections for statewide and regional population growth, and overall growth in participation in outdoor recreation, visitation to Seedskaadee NWR will likely increase over the decades ahead.

Refuge Resources, Cultural Resources, and Public Uses Water Rights

Wyoming water law dates back to territorial days and is based on the “doctrine of prior appropriation.” Under this doctrine, the first to put the water to beneficial use has the most senior right. When adequate water supplies are available for all users, the issue of senior water rights is minor. This has been the case for the use of water by the Refuge since it was established. As demands increase for the use of water from the Green River and the Colorado River and its tributaries, this will likely become an important issue for the Refuge in the future. Water rights held by the Refuge are summarized in Table 3.2.

| Permit Number | Cert. Number | Name | Flow, Storage, Use | Priority Date |
|---------------|--------------|--------------------------|------------------------------------|---------------|
| 12202 | 15164 | Hamp No. 1 | 1.54 cfs | 1/9/1914 |
| 12203 | 15165 | Hamp No. 2 | 1.67 cfs | 1/9/1914 |
| 12203 | 15166 | Hamp No. 2 | 4.04 cfs | 1/9/1914 |
| 13463 | 24399 | Rood Ditch | 1.00 cfs | 4/28/1913 |
| 15906 | 20188 | Herman Ditch | 0.17 of .99 cfs | 12/9/1920 |
| 15907 | 201889 | Otterson Ditch | 1.18 cfs | 12/9/1920 |
| 15907 | 20191 | Otterson Ditch | 0.19 cfs | 12/9/1920 |
| 15907 | 20190 | Otterson Ditch | 1.35 cfs | 12/9/1920 |
| 15907 | 20758 | Otterson Ditch | 2.27 cfs | 12/9/1920 |
| 15907 | 21649 | Otterson Ditch | 2.65 cfs | 12/9/1920 |
| 16985 | 22614 | Tallman Ditch | 1.30 cfs | 6/13/1925 |
| 22364 | | Fontenelle Reservoir | 115.00 cfs; FW use | 4/26/1955 |
| 22365 | | Reservoir Outlet, Canals | 0.00 cfs | 7/9/1962 |
| 22368 | | Fontenelle Reservoir | 0.00 cfs; FW use | 7/9/1962 |
| 3576E | 36028 | Superior Enl. | .13 cfs | 4/6/1916 |
| 4006E | 36029 | Superior Enl. | 1.04 cfs | 5/19/1919 |
| 5330E | 24400 | Rood Ditch Enl. | 0.14 cfs | 4/29/1942 |
| 5402E | 26566 | Hamp No. 2 Enlarge | 0.56 cfs | 6/26/1945 |
| 6629 RES | | Fontenelle Reservoir | 5,000 acre-feet storage for FW use | 1/22/1962 |
| U.W. 47679 | | Headquarters Well No 1 | 50 gpm; domestic use | 4/23/1979 |
| U.W. 69131 | | Headquarters Well No 2 | 30 gpm; fire protection use | 2/14/1984 |

The Refuge staff believes it holds sufficient water rights to implement its goals and objectives based on the following reasons:

1. Irrigation water rights were attached to the agricultural lands acquired for the Refuge and are utilized to restore, enhance, or create wetlands and other habitats.
2. Under Contract No. 14-06-400-6193 with Reclamation, first priority to 5,000 acre-feet of Fontenelle Reservoir storage water is reserved to the United States for use on the Seedskadee NWR.
3. The Refuge is allocated up to 28,000 acre-feet annually, at a rate of 115 cfs, deliverable under Reclamation’s Direct Flow Permit for wildlife refuge requirements.

Refuge River Jurisdiction

Navigability and jurisdiction on and under water bodies, including lakes, rivers, and streams, is a complex and confusing issue. Most states, including Wyoming, have chosen to rely on precedents set by court decisions rather than resolve those issues legislatively.

The only body of water in the State of Wyoming that is considered to be navigable by Federal agencies (Corps of Engineers [COE]) is the Flaming Gorge Reservoir to its high water mark. While the Wyoming Constitution declares all natural waters within the State the property of the State, the Supreme Court of Wyoming concluded in a 1961 decision (Platte River Boating Supreme Court Decision) that there are no navigable water bodies in the State. In that same decision, the Wyoming Supreme Court also declared the river bottoms to be the property of the adjacent landowners. In essence, according to the court's interpretation, a person may float on the publicly owned water, but could not anchor that boat nor wade on the river bottom.

Federal Courts have clarified these issues in regards to Federal agencies (i.e. National Parks, National Forests, National Wildlife Refuges) that own and manage lands that encompass portions of water bodies (lakes or rivers). The Federal Courts have consistently maintained that Federal agencies have jurisdiction over recreational uses on these water bodies when the water body is integral to the primary purposes for which the park, refuge, or forest were established.

For example, in the *U.S. v. Hells Canyon Guide Service* case, the District Court maintained that the Property Clause of the Constitution gave the government power "to regulate conduct on non-federal land {the Snake River that runs through the National Forest} when reasonably necessary to protect adjacent Federal property or navigable waters." In addition, this case stated "Congress' power over Federal lands includes the authority to regulate activities on non-federal waters in order to protect the archaeological, ecological, historical and recreational values on the lands" (*United States v. Hells Canyon Guide Service*; U.S. District Court of Oregon, Civil No. 79-743; 5-6; 1979).

In the court decision in *U.S. v. Brown*, the Circuit Court wrote, ". . . we view the congressional power over Federal lands to include the authority to regulate activities on non-federal public waters in order to protect wildlife and visitors on the lands" (*United States v. Brown*, 552 F.2d 822; 8th Cir. 1977).

Finally, in the *U.S. v. Armstrong* case, the Circuit Court upheld a conviction against Armstrong and Brown who were conducting a commercial business without a permit within a National Park. In this case, the Circuit Court relied on a U.S. Supreme Court precedent stating, "In *Kleppe v. New Mexico*, 426 U.S. 529, 546 (1976), the Supreme Court held that Congress may make those rules regarding non-federal lands as are necessary to accomplish its goals with respect to Federal lands" (*United States v. Armstrong*; No. 99-1190; 8th Cir. 1999).

The primary purposes of Seedskaadee National Wildlife Refuge were established in Section 8 of the Colorado River Storage Act of 1956. Pertinent sections of this act read:

In connection with the development of the Colorado River storage project . . . , the Secretary [of the Interior] is authorized and directed to investigate, plan, construct, operate, and maintain . . . (2) facilities to mitigate losses of, and improve conditions for, the propagation of fish and wildlife.

There is no question that the Green River played a critical role in the establishment of Seedskaadee Refuge and is a necessary component for the Refuge to meet its primary purposes. However, regardless of jurisdiction, the Refuge's first priority is to strive to work with appropriate departments within the State of Wyoming to meet Refuge management goals and objectives.

Reserved Rights and Privately-Owned Mineral Estate

Purchase of many tracts on the Refuge were subject to existing rights-of-way or granted in deeds at the time of purchase. Some of these existing rights-of-way include Sweetwater County Road near Big Island, a 200 foot highway right-of-way to the Wyoming Highway Department along State Highway 28, buried telephone and electric lines along Highway 28, and a high voltage power line through the south end of the Refuge.

Many tracts of land also contain outstanding reserved subsurface minerals. On these lands, oil and gas leasing is limited to those areas on which drainage is occurring from adjacent public land leases. Currently, there are active oil and gas leases on 2,390.4 ac of the Refuge although none are currently under development. According to the 1997 BLM Green River Resource Management Plan, there is an “oil shale withdrawal” extending over the entire Refuge, Farson, and Green River area to protect wildlife values of this area. However, the BLM lands surrounding the Refuge are completely leased for oil and gas (BLM Green River RMP, 1997). Minerals are privately owned on about 15,000 acres purchased from private parties and the State of Wyoming by Reclamation.

Because there are proven economic reserves of oil, gas, trona, and aggregates within and near the Refuge, the Refuge is experiencing, and will continue to experience, direct and indirect impacts from mineral exploration and developmental activities. Regulation of mineral activities can be grouped into one of three categories.

Locatables (Hardrock): Regulations for mining on refuges and the Mining Act of 1872, as amended, are contained within the Code of Federal Regulations at 43 CFR 3500 and 3800, and 50 CFR 27. On Seedskadee NWR, where valid existing mineral rights are outstanding, the exercise of such rights will be permitted by a special use permit issued by the project leader. The permit does not affect the vested right of the mining claimant to reasonable access to the claim for prospecting and mining. The presence of locatable (hardrock) minerals within the Refuge is unknown.

Leasables: This category includes those minerals that are disposable only by leases issued under the authority of the Mineral Leasing Act of 1920 as amended. By Federal regulations, the Secretary of Interior has determined not to issue leases on lands within the contiguous 48 states that are in the Refuge System except where it is determined by the Service and BLM that a lease should be issued to prevent the loss of oil or gas underlying the Refuge by drainage or that the lands are needed for unitization and/or spacing requirements (43 CFR 3103.5). Although leases are issued by the BLM, they are subject to conditions recommended by the Service for reasonable access and the protection of Refuge resources.

Salables: Salables are common variety materials, which may be sold, or given away to other governmental units and nonprofit organizations, at the discretion of the Service, and with stipulations to protect refuge resources (Mineral Materials Act of 1947, 43 CFR 3600, and 50 CFR 29). Salable minerals within the authorized Refuge boundary potentially include sand, gravel, crushed stone, and rock. There is one abandoned gravel pit along the Green River in the southern portion of the Refuge.

The Fish and Wildlife Service Manual (612 FW1) goes into detail on the Service's responsibility in exploration and production activities, processing permit applications, and protecting wildlife and refuge resources. Basically, the Service has three distinct roles involving mineral activities on refuge lands:

1. Management of surface use operations to minimize adverse environmental consequences and to ensure proper reclamation of disturbed lands.
2. Validation of mining claims (the BLM administers United States mining laws).
3. Reviewing right-of-way applications for ancillary activities such as pipelines and railroad spurs crossing refuge lands.

The Bureau of Land Management is responsible for granting a right-of-way for off-lease facilities, and intra-service coordination on right-of-way applications is the responsibility of the service's Division of Ecological Services. The Service policy on rights-of-way is not oriented toward analyzing cost-effectiveness or social impacts, but to minimize impacts on wildlife.

Rights were reserved to water and roundup livestock according to Warranty Deeds with the Rock Springs Grazing Association and Crosson Ranches Inc. Specific rights are outlined in each Warranty Deed which are located in Refuge files. The construction of 17 water access lanes has fulfilled most livestock watering requirements. Crosson Ranches has access to specific Refuge lands for the purposes of calving and rounding up cattle. Other rights involve access to various ditches and headgates for the maintenance of irrigation systems.

Adjacent Land Use: Nearly all adjacent lands are federally-owned and managed by either the BLM or Reclamation. Use of these lands primarily consists of grazing by livestock (cattle, sheep, horses), extraction of oil and gas, and outdoor recreation. Several private ranches exist near the Refuge. Rock Springs Grazing Association also owns large tracts of land, primarily adjacent to the southern half of the Refuge and south of the Refuge. They also hold cooperative grazing leases with the BLM along much of this area.

Mining is the other principal economic use of the adjacent lands. Southwestern Wyoming produces approximately 30 percent of the world's soda ash and also 90 percent of the United States soda ash. One trona mine is located immediately downstream of the south border. There is also a large natural gas processing plant near the north end of the Refuge (Shute Creek - Exxon plant).

Refuge Vegetation and Wildlife Habitats

Seedskaadee NWR is located on what is classified as a high desert plain. Native upland plant associations include sagebrush/grass, greasewood and shadscale. Bottomland plant associations include wet meadow riparian types with willows and cottonwoods dominating the overstory (Map 3).

Various agencies and consultants have worked with the Refuge staff in conducting past and current studies on vegetation and habitat at Seedskaadee NWR. Because the studies have been done for different purposes, they have not been consistent in their classifications of habitat types or vegetative communities. Information from these studies has been utilized in this section and in the preparation of vegetation maps. For vegetation community components and descriptions, the text primarily relies upon Seedskaadee National Wildlife Refuge Wildlife-Habitat Matrix and Species Accounts, prepared for the Refuge by Pioneer Environmental Services, December 22, 1997. A copy of the report is available for review at the Refuge.

While the broad habitat types may be consistent, there are variations in subgroupings. Therefore, in the discussions of the various groups and communities, the corresponding groups or classifications as mapped will be listed for cross referencing purposes.

Habitat on the Refuge can be separated into four broad types: riverine, wetlands (marsh and wet meadow), riparian (shrub and forested), and upland (sagebrush and mixed low stature shrublands).

The following text provides general information about each of these broad habitats that are displayed on Map 3. Table 3.3 provides acreage of each vegetation type (Berk 1998).

| Table 3.3 Vegetation Type and Acreage on Seedskadee NWR, July 1997 (Berk 1998) | | |
|---|---|---------------|
| Category | Description | Acres |
| Wetland | Open/ponded Water | 174 |
| | Cattail Dominant | 31 |
| | Bulrush Dominant | 54 |
| | Short Emergents | 32 |
| | Mixed Tall Emergents | 89 |
| | Perennial Pepperweed | 400 |
| | Existing Managed Wetlands | 335 |
| Wetland Subtotal | | 1,115 |
| Riparian | Grass/Herbaceous | 1,629 |
| | Buffaloberry Bush | 4 |
| | Willow | 322 |
| | Mixed Riparian Shrub | 1,134 |
| | Cottonwood Closed ¹ /grass understory | 75 |
| | Cottonwood Closed/shrub understory | 188 |
| | Cottonwood Moderate ² /grass understory | 342 |
| | Cottonwood Moderate/shrub understory | 332 |
| | Cottonwood Scattered ³ /grass understory | 111 |
| | Cottonwood Scattered/shrub understory | 212 |
| Riparian Subtotal | | 4,349 |
| Upland | Sagebrush Dominant | 15,874 |
| | Greasewood Dominant | 218 |
| | Low Stature Shrub | 3,120 |
| Upland Subtotal | | 19,212 |
| Riverine | Main River Channel | 1,254 |
| | Bare Ground/Sand Bars | 140 |
| Riverine Subtotal | | 1,394 |
| Total Acres Seedskadee NWR⁴ | | 26,070 |

¹ Closed = greater than 70 percent canopy cover

² Moderate = 30 to 70 percent canopy cover

³ Scattered = less than 30 percent canopy cover

⁴ Acreage does not include recent roundouts (current refuge acreage = 26,382)

Riverine

Riverine habitats encompass those sites occupied by the active river channel that are directly and dramatically influenced by the seasonal hydrology of the Green River. Riverine habitats are made up of two components denoting the presence or absence of flowing water. Permanent water sites (1,254 acres) encompass only the active river channel and feature flowing water. The remainder of the habitat (140 acres) is gravel bars, sandbars, mud flats, and other similar sites which occur within the active river channel, are not submerged, and which do not support permanent vegetation.

The river provides habitat for waterfowl, raptors, other birds such as gulls and shorebirds, and aquatic species including fish. Due to the influence of Fontenelle Dam, portions of the Green River remain ice-free, providing important wintering habitat for trumpeter swans, bald eagles, and waterfowl.

The vegetation map (Map 3) displays riverine habitat as riverine/palustrine open water. Riverine habitats include the main Green River channel and sandbars/ bare ground (Table 3.3).

Wetlands

Approximately 1,115 acres of wetland habitat exists on the Refuge including open water, marshes, and wet meadows (Map 3). Wetland development and management has been the primary focus at Seedskadee NWR since its creation. In the 1980s, approximately 300 acres of wetlands were created in the Hamp, Hawley, Lower Hawley, and Dunkle wetland management units (Map 4 Habitat Management Units). Water from the Green River is diverted through a series of ditches to fill seasonally and permanently flooded wetlands which provide habitat for waterfowl, shorebirds, and other marsh dependent wildlife. This flow-through system returns much of the diverted water back into the Green River.

Wetland management on the Refuge consists of controlling the timing and the extent of water delivery to the units, drawdown of some ponds to produce habitat for shorebird species, occasional dry-down of units to increase aquatic productivity, and prescribed burning to prevent excessive cattail encroachment into open water. A maximum of 50 percent encroachment is desired. Flooding begins in mid-March, after the thaw, and some of the ponds are kept full through the fall. This provides habitat for both spring and fall migrants and breeding waterfowl. Meadows are generally flooded for 2 to 3 weeks in the spring and fall to provide food for shorebirds, cranes, geese, and ducks. The ability to divert water into wetlands relies entirely on elevation of the Green River. During moderate to severe drought, it may be difficult to divert sufficient flows.

Some of the species that use this habitat for breeding include: trumpeter swan, Canada geese, numerous species of ducks, rail species, marsh wren, red-winged blackbird, yellow-headed blackbird, tiger salamander, boreal chorus frog, northern leopard frog, mink, and muskrat. Refuge wetland units are identified as important breeding areas for trumpeter swans in the draft Service "plan for enhancing the Rocky Mountain Population of trumpeter swans on units of the NWR system (2001)."

Seedskadee NWR wetlands may be grouped and described as follows:

- Open ponded water encompasses all ponds that are entirely free of permanent emergent vegetation. Open ponded water habitats may be flooded either year-round, seasonally, or according to some management schedule.
- Open ponded water habitats provide cover for aquatic wildlife and protection from terrestrial predators for amphibious wildlife. Such habitat also provides herbaceous vegetation, tubers, roots, seeds, fruits, invertebrates, and vertebrate foods. On Seedskadee, vegetative components probably include filamentous algae, coontails, mare's tail, and several species of pondweeds. Floating macrophytes are assumed to be insignificant. Where salinity is high, horned pondweed, widgeon grass, and fennel-leaf pondweed may predominate.
- Tall emergent habitats are either cattail-dominant or bulrush-dominant. These marshes are typically flooded to an average depth of up to 2 meters year-round, although depth will vary seasonally. Site vigor depends on periodic drawdowns that oxidize the organic substrate. Vegetation is typically taller than 1 meter above the water surface.
- Tall emergent cattail-dominant habitat provides herbaceous forage and tubers for a limited array of wildlife species, as well as, invertebrates and vertebrates. Tall emergent bulrush-dominant habitats provide herbaceous forage, tubers, and seeds, in addition to invertebrates and vertebrates. Both habitats provide dense cover for a variety of wildlife species.
- Short emergent habitats are typically flooded to an average depth of less than 0.25 meter for at least three months, although the timing and duration of flooding may vary from year-to-year. Short emergent habitats are characterized by soils that are saturated year-round. Vegetation is generally less than 0.5 meter tall.
- Probable associates in short emergent habitats include spikerush, Baltic rush, alkali bulrush, creeping foxtail, reed canarygrass, several sedges, and many others.
- Dense, continuous short emergent habitats provide vertical and horizontal cover for many species of wildlife. When flooded, these sites provide herbaceous material, tubers, seeds, and abundant invertebrate foods. When standing water is absent, these sites continue to yield herbaceous and seed resources; however, invertebrates diminish somewhat and terrestrial vertebrates may become more abundant.

The above wetland communities are displayed as Wetlands on Map 3. Vegetation types include open/ponded water, cattail dominant, bulrush dominant, mixed tall emergents, short emergents, and perennial pepperweed vegetation types (Table 3.3).

Seedskadee Managed Wetland Units

Hamp Wetland Unit

The Hamp Wetland Unit is 55 acres and contains a wetland complex of short emergent, tall emergent, and open water determined largely by topography (Map 5). The unit is fed by the Hamp No. 1 headgate, and water gravity flows into the wetland. At flows of 2,000 cfs or greater, adequate water exists to maintain most of the unit at full pool. Pool depths at full pool range from 0.3 to 1.25 meters. Vegetation is dominated by creeping foxtail and perennial pepperweed. Areas of softstem bulrush and spikerush are found along the margins. Open water areas are found adjacent to the dikes and in the ditches. They provide little submerged aquatic vegetation except in the ditches. The unit contains a number of dikes with drop-board water control structures. In reality, this unit is managed together as a whole by adjusting the flow into and out of the wetland unit. Management of individual pools separately is difficult because of the water delivery system.

Hawley, Lower Hawley, and Dunkle Wetland Units

The Hawley (24 acres), Lower Hawley (147 acres) and Dunkle (36 acres) wetland units each contain a complex of short emergent, tall emergent, and open water (Map 5). The vegetative composition of each of these units is determined largely by the wetland units topography. The units are fed by the Hamp No. 2 headgate, and water flows by gravity into the Hawley Unit first, followed by Lower Hawley and Dunkle Units. At flows of 1,200 cfs or greater, adequate water exists to maintain most of the Hawley unit at full pool. At lower flows, water must be rotated between individual pools to maintain adequate head pressure. At flows less than 1,200 cfs, adequate water may not exist to maintain the Lower Hawley and Dunkle units at full pool. Vegetation in each wetland unit is comprised of a diverse mix of short emergents (spikerush and Baltic rush), tall emergent (cattail and softstem bulrush) and submerged aquatics. Open water areas are found throughout the Hawley unit and provide large amounts of submerged aquatic vegetation. Open water areas in the Lower Hawley and Dunkle Units exists adjacent to dikes and provides limited submerged aquatic vegetation. All wetlands contain a number of dikes with drop-board water control structures. Management of sub-unit pools is difficult because of the water delivery system. The Hawley Unit provides the best opportunity for managing sub-unit pools.

Pal Wetland Unit

The Pal Wetland Unit is 73 acres and contains a diverse mix of short emergent and tall emergent vegetation (Map 5). Little open water habitat is provided. The unit is fed at the Superior headgate and water gravity flows through the Superior Ditch system. There are no dikes created within the unit. Water flows over low depressions (3 small pools and 1 old river oxbow) within the unit creating a wet meadow habitat. Vegetation is comprised of a mix of short emergent (spikerush and Baltic rush) and tall emergent (cattail and softstem bulrush) vegetation. Water levels drop in the unit as river levels drop.

Riparian

Approximately 4,349 acres of riparian habitat (forest and shrub) exist on the Refuge (Map 3). The dominant plant species in this habitat are narrow-leaf cottonwood with an understory of shrubs and grasses. Areas of coyote willow also exist in the riparian corridor. Principal shrub species include: several willow species, Wood's rose, silver buffaloberry, silverberry, skunkbush, golden current, and gooseberry. The riparian habitat type is found predominately along the Green River. The Big Sandy River riparian corridor has no overstory tree habitat.

Several wildlife species that depend on this habitat for breeding include: great blue heron, bald eagle, red-tailed hawk, Swainson's hawk, merlin, kestrel, common merganser, eastern kingbird, willow flycatcher, house wren, yellow warbler, Bullock's oriole, mountain bluebird, northern flicker, moose, beaver, river otter, masked shrew, water shrew, vagrant shrew, and the little brown myotis.

Riparian forests provide critical migrational and breeding habitat for approximately 150 bird species. Forest breeding birds that winter in Central and South America are known as neotropical migrants. Many neotropical migrants are not capable of migrating non-stop through the arid semidesert shrubland that predominates much of Utah, Colorado, and Wyoming. Over 50 neotropical migrant species rely on the north-south riparian forest corridors of the Colorado and Green rivers for feeding, resting or breeding.

Extensive stands of mature narrow-leaf cottonwood clearly distinguish the riparian forest from the surrounding landscape. Field research has confirmed that cottonwood forests are aging and mature trees are in poor health. A comparison of cottonwood forests above and below Fontenelle Reservoir showed forests below the dam had fewer seedlings and saplings, lower tree densities, and reduced tree vigor (Auble and Scott, 1998). Coring of mature cottonwoods in 1996 at two sites below Fontenelle Dam found that the vast majority of trees were well over 100 years in age and only a few were less than 50 years of age (USFWS, 1996 Refuge Narrative). Not only are the mature, aging trees exhibiting stress, but there is not sufficient regeneration to establish a new age class of cottonwoods. The age class diversity within cottonwood forests is not being sustained.

In a 1997 report on Green River refuges, Murray Laubhan of the USGS wrote, "Since construction of dams on the river, the natural extremes in seasonal high and low flows that historically maintained productivity have been lost. Although flows still differ among years, the extremes have been moderated to maintain more stable flows. Stabilization of river flows may have improved the ability to manage cold water fisheries, but there are also many detrimental effects to vegetation and associated wildlife. Obviously, the construction of dams has altered several functional aspects of river hydrology, including: flow regimes, sediment deposition patterns, and rates and types of channel movement. The most obvious impact of these changes has been decreased recruitment and lower vigor of existing riparian vegetation that, in combination, have changed the spatial and structural complexity of the riparian habitat." Additionally, Laubhan reported that stabilization of the river hydrology has reduced the dynamics of off-channel wetlands altering the hydro-periods of palustrine wetlands in the floodplain (Laubhan 1997).

Auble and Scott (1998) presented several plausible explanations for the differences observed between cottonwood forests located above and below Fontenelle Dam. Sediment trapping in the reservoir eliminates deposition of new sediment in the downstream river channel and produces a “sediment hungry” downstream river which may have resulted in downcutting of the river channel. This would place the river surface at a lower than historic elevation and contribute to dewatering of mature trees established prior to dam construction. Field studies verify that maximum tree densities occur at a higher elevation relative to the river surface, below the dam, than above the dam (Auble and Scott, 1998).

Dam and reservoir operation have controlled and modified the natural flows of the Green River. The timing and volume of annual peak flows have changed and unusually high flow flood events have been significantly reduced. For successful natural cottonwood regeneration, high flows would establish a moist seedbed for the cottonwood seeds. High waters would then recede slowly from mid-June through July, the peak cottonwood germination window (see Appendix H). Since 1966, controlled flows peak and decline too rapidly. Under controlled management, peak flows are also lower than historical major runoff events. Current peak flows wet a fraction of the area saturated historically, do not raise water levels high enough to provide sufficient moisture to existing trees, and, absent sediment, do not result in the shifting of stream channels. Channels tend to stabilize. With similar volume peak flow events year-to-year, and no change in channels, subsequent peak flows and river ice tend to shear off those seedlings which have established (Auble and Scott, 1998).

This decreased cottonwood reproduction is further challenged by grazing pressure from native ungulates and rodents. The loss of reproduction will lead to the eventual replacement of multi-storied forested habitat by a much simpler vegetative structure and lower plant species diversity. This loss of plant structure and diversity will be echoed in a similar loss of wildlife diversity.

The invasion of several nonnative plants is a serious threat to Refuge wet meadows and adjoining riparian areas. Perennial pepperweed, Canada thistle, salt cedar, Russian knapweed, and musk thistle are the most troublesome species. Of these, pepperweed is the most widespread and difficult to control. Currently, the only practical method for controlling pepperweed is with the use of herbicides. Biological control through the release of beneficial insects is under development; however, its approval is not expected for another 10 years. Mechanical control through mowing or grazing can reduce the spread of seed; however, it does little to stress the plant which stores most of its energy underground. Likewise, fire does very little to control the plant. Fire often benefits the plant by reducing competition from the surrounding grasses and forbs. The other weed species are currently found only in isolated patches. They are aggressively controlled through a variety of methods including mechanical, and chemical.

Riparian habitat at Seedskaadee NWR includes the following components:

- Riparian grass/forb habitats are either regularly flooded in the spring (mid-May through mid-June) or sub-irrigated. Plant species include Rocky Mountain iris, wheatgrass, alkali sacaton, inland saltgrass, bluegrass, wildrye, horsetail, perennial pepperweed, aster, and groundsel.
- Riparian shrub communities are characterized by annual flooding cycles (high water mid-May through mid-June) and mineral soils that are saturated for at least part of the year. Riparian shrub sites may include scattered trees so long as mature canopy trees comprise no more than 15 percent total areal coverage. While regenerating cottonwood and willow trees resemble shrub communities in structure, sites dominated by these species in the seedling/sapling stage are classified as riparian forest to reflect their distinct temporal dynamics.
- Riparian shrub habitats are described by their species composition and shrub distribution. Willow-dominant habitat occurs where coyote willow dominates the shrub flora. The mixed shrub habitat occurs where other species, such as wild rose, gooseberries, basin big sagebrush, mountain silver sagebrush, redosier dogwood, skunkbrush, silver buffaloberry, and river birch, predominate. In addition, Riparian Shrub habitats may include scattered narrow-leaf cottonwood or peach-leaf willow trees.
- Riparian forest habitats are floodplain sites characterized by woody vegetation (greater than 15 percent areal coverage) with the potential to grow greater than 6 meters tall. Like the riparian shrub class, these communities are characterized by historical annual flooding cycles and mineral soils that are saturated for at least part of the year. This habitat type is often dominated by either coyote willow or narrow-leaf cottonwood, which are ecologically similar. Riparian forest sites may include one or more mid-story layers and well-developed shrub or grass/forb layers.
- Riparian forest habitats with a 15 to 30 percent canopy coverage in mature trees are described as scattered trees. Riparian forest habitats with greater than 30 percent canopy coverage in mature trees are described as Forest Overstory (closed). These canopied forest habitats may then be described as grass/forb under or shrub under, according to the composition of their understory.
- Riparian vegetative communities are displayed as Riparian on Map 3. Vegetation types include grass/herbaceous, willow, mixed riparian shrub, cottonwood closed/grass, cottonwood closed/shrub, cottonwood moderate/grass, cottonwood moderate/shrub, cottonwood scattered/shrub, buffaloberry bush, and silverberry bush vegetation types (Table 3.3).

Upland

Approximately 19,212 acres of semi-desert upland habitats exist on the Refuge (Map 3). These habitat types are generally characterized by varying vegetation communities interspersed with large areas of bare ground, desert pavement, and rocks. The largest block of upland habitat on the Refuge is the Dry Creek Unit. Since 1983, the Dry Creek Unit has been fenced and free of grazing by domestic livestock. These lands are likely returning to an approximation of their condition prior to introduction of livestock.

Special status species utilizing these habitat types include the mountain plover and the burrowing owl. The burrowing owl was a former candidate for listing as endangered or threatened species. Burrowing owls are uncommon and are often associated with areas that have burrows created by white-tailed prairie dogs or some other fossorial species. Mountain plovers are currently proposed for listing as a threatened species and utilize areas that are characterized by short vegetation interspersed with bare ground.

Other wildlife species that rely on this habitat for breeding include: sage grouse, ferruginous hawk, sage thrasher, sage sparrow, loggerhead shrike, short-eared owl, Brewer's sparrow, great basin pocket mouse, and sagebrush vole.

Upland mixed-grass habitats are found in well-drained upland sites and are rarely flooded. Common grass associates include bottlebrush squirreltail, Indian ricegrass, needlegrasses, sandberg bluegrass, Junegrass, and wheatgrasses. Common forb associates include locoweeds, phloxes, lupines, globemallows, plains prickly pear cactus, and numerous composite species.

The invasion of several nonnative plant species is a serious threat to Refuge and surrounding upland habitats. Cheatgrass, halogeton, and Russian thistle are among the most troublesome. Cheatgrass, an annual, rapidly invades roadsides and disturbed areas because of its winter and early spring growth. When mature, it becomes a fire hazard. Fire favors the growth of cheatgrass, which out-competes native perennial shrubs and grasses after a burn.

Saltgrass habitats are found on mildly saline playas that are flooded for short periods in the spring (mid-April through mid-May). Saltgrass sites are characterized by a preponderance of saltgrass, with alkali sacaton, and whitetop as possible associates.

Upland Shrub habitats include those sites that are dominated by shrubs and have a subsurface water table. Upland Shrub habitats may support standing surface water for some portion of the year.

Four Upland Shrub habitats are described below. The Basin Big Sage community is dominated by basin big sagebrush, which typically grows in comparably moist, well-drained, undisturbed sites with relatively low salinities. These sites are typically confined to draws and arroyos. Woody associates include shadscale, spiny hopsage, rabbitbrush, and plains pricklypear. Common grass and forb associates include those described for Upland Grass/forb communities above. Additional vegetative associates may include desert paintbrush, milkvetch, penstemons, evening primrose, wild onions, and snakeweed. Basin Big Sage communities are characterized by shrubs greater than 1 meter in height covering up to 80 percent of the ground surface. Basin Big Sage often comprises 70 percent of the cover and 90 percent of the plant biomass within this habitat type. Nonnative annual weeds, including halogeton, Russian knapweed, tansy mustard, clasping pepperweed, filaree storksbill, and cheatgrass brome, may be found on disturbed sites.

The Wyoming Big Sage community is dominated by the Wyoming Big Sage, which typically grows in dry, well drained, undisturbed sites with relatively low salinities. Wyoming Big Sage communities may support many of the woody, grass, and herbaceous associates indicated in the Basin Big Sage community. Wyoming Big Sage communities are characterized by shrubs 0.5 to 1.0 meter tall with a lower areal coverage, rarely exceeding 75 percent. Inter-shrub spaces typically support grasses and forbs, although bare soil is also common. Additional vegetative associates include spiny horsebrush, littleleaf horsebrush, four-wing saltbush, spreading fleabane, and phlox. The Wyoming Big Sage community represents the dominant vegetative type in the uplands.

Short Shrub communities are characterized by a variety of widely spaced woody shrubs less than 0.5 meter (often less than 0.2 meter) tall. Areal shrub coverage is typically less than 50 percent and inter-shrub spaces are typically bare soil. This community typically occurs on dry upland sites with moderate to highly alkaline soils. Common shrubs include Wyoming big sage, black sagebrush, and shadscale. Species composition varies on a comparably small spatial scale. Sages, shadscale, and other similar shrubs dominate patches according to local soil conditions, thermal environment, hydrology, and disturbance. Grass and forbs are not abundant but may include needlegrasses and pussytoes.

The Greasewood community is dominated by greasewood, which dominates seasonally flooded lowlands where the water table is within 1 meter of the soil surface and where soils are moderately saline. The Greasewood community is characterized by widely spaced shrubs 0.5 to 1.0 meter tall, with a generally low areal coverage rarely exceeding 75 percent. This classification system assumes flooding occurs for a short period in April. Like the Short Shrub community, grass and forbs are uncommon and feature many of the same species. Additional associates also include saltgrass, Baltic rush, alkali sacaton, and possibly pickleweed on the most alkaline sites.

The upland communities are mapped as Upland on Map 3. Vegetation types include sagebrush dominant, greasewood dominant, and low stature shrub (Table 3.3).

Other Habitat Features

A number of western wildlife species are associated with distinct landscape features. This classification system recognizes two geomorphic features: Bare Rock/Soil and Cliffs/Outcrops. Cliffs and Outcrops may be further subdivided as Bedrock or Unconsolidated to reflect their substrate stability. Some wildlife species associated with these features include various bat species, golden eagle, peregrine falcon, prairie falcon, bank swallow, and Northern rough-winged swallow. Four anthropogenic features merit attention: Fences, Roads, Powerlines and Buildings (including bridges).

Threatened, Endangered, Candidate or Wyoming Plant Species of Special Concern

Table 3.4 identifies federally threatened, endangered or candidate and Wyoming listed plant species of special concern which may occur on the Refuge because suitable habitat currently exists.

| Table 3.4 Plant Species which may occur on Seedskafee NWR which are Threatened, Endangered, Candidate or Special Concern in Wyoming | | | |
|---|---|---|-------------------|
| Common Name | Latin Name | Heritage Rank Federal and/or State Status | Located on Refuge |
| Ute ladies'-tresses orchid | <i>Spiranthes diluvialis</i> | USFWS Threatened G2/S1 | No record |
| Rollins' cat-eye | <i>Cryptantha rollinsii</i> | G4/S1 | No record |
| Wilcox's woollystar | <i>Eriastrum wilcoxii</i> | G5/S1S2 | No record |
| Juniper prickly-pear | <i>Opuntia polyacantha</i> var. <i>juniperina</i> | G5T3?Q/S1 | No record |
| Nelson's milkvetch | <i>Astragalus nelsonianus</i> | G2/S2 | No record |
| Dwarf milkweed | <i>Asclepias uncialis</i> | G3?/SH | No record |

Several plant surveys by qualified botanists have been conducted to record the flora of Seedskafee NWR. The Ute ladies'-tresses has been of specific interest. The distribution of this species is believed to be limited to wet meadow habitats and, to date, has not been found on the Refuge.

Wildlife Resources

Seedskadee's habitat diversity is reflected in its broad diversity of wildlife. The Refuge's wetland and riparian habitats are unique to the surrounding predominantly dry upland habitat. This oasis-like setting is a valuable habitat for numerous resident and migratory species.

As part of the CCP planning process, a report was prepared, "Seedskadee National Wildlife Refuge Wildlife - Habitat Matrix and Species Accounts" (Pioneer Environmental Services, 1997). The Pioneer (1997) report lists each of the species known or suspected to use the Refuge, and estimates what time of year specific habitat(s) are utilized by each species. The matrix is useful in understanding the wildlife value of each habitat type found on Seedskadee National Wildlife Refuge.

Except for Threatened, Endangered and Candidate Species and Species of Special Concern, only those species that are residents or frequent visitors to Seedskadee are discussed in the following text. Many other species, birds in particular, may infrequently inhabit or migrate through the Refuge. Species lists for birds, mammals, fish, amphibians, and reptiles are found in Appendix F. Additional information is available from the Seedskadee National Wildlife Refuge Wildlife - Habitat Matrix and Species Accounts located in the Project File at Seedskadee National Wildlife Refuge.

Avian

Waterfowl - ducks, geese, and swans: A great number of migratory water birds rely on the Refuge's wetland, riverine, and marsh habitats for foraging and resting during spring and fall migration. The habitats utilized depend upon the species, their life stage, and the time of year. The most common species of ducks breeding on the Refuge include mallard, gadwall, and cinnamon teal.

Most of the ducks common to the Refuge use all four broad habitat types; riverine, wetland/marsh, riparian, and upland. These ducks include the green-winged teal, mallard, northern pintail, blue-winged teal, cinnamon teal, northern shoveler, gadwall, and American wigeon.

The lesser scaup, canvasback, redhead, ruddy duck and bufflehead rely upon riverine habitats and open ponded water.

The Barrow's goldeneye, common goldeneye, and common merganser utilize riverine and wetland habitats along with the riparian forest and its tree cavities.

The Canada goose is an abundant year-round resident of Seedskadee NWR utilizing riverine, wetland/marsh, and grass/forb habitats.

The trumpeter swan uses open ponded water, marsh, and riverine habitats. Trumpeters use the Refuge for migration, breeding and as wintering habitat. During winter, the open river water that exists between Fontenelle Dam and Highway 28 provides good foraging and loafing habitat when all other wetland areas are frozen. As many as 36 trumpeter swans (2000) have been observed wintering on the Refuge in addition to numerous tundra swans. Trumpeter swans were reintroduced to the Green River drainage through the trumpeter swan range expansion program. A total of 70 cygnets and adults have been released on Seedskadee NWR from various capture sites (Table 3.5). The first successful nesting attempt occurred in 1997 and fledged five cygnets from Seedskadee NWR. One cygnet was fledged in 1998 and four were fledged in 1999 and 2000, respectively. Two pairs successfully nested on the Refuge for the first time in 2001 producing a total of five cygnets.

The Service has developed a draft plan for “Enhancing the Rocky Mountain Population of Trumpeter Swans on units of the National Wildlife Refuge System” (2001). Seedskadee NWR is included in the Plan and is recognized as an area providing suitable migration, breeding and wintering habitat. The plan, when finalized, will help to prioritize significant areas and projects relative to their importance for maintaining and improving the Rocky Mountain Trumpeter Swan Population.

| Table 3.5 Re-introductions and nesting history of trumpeter swans on Seedskadee NWR (Data from Refuge swan files and Trumpeter Swan Society) | | | | |
|---|---------------------------|----------------|--------------------------|--------------------------|
| Year | # Re-introductions | # Nests | # Cygnets Hatched | # Cygnets Fledged |
| 1992 summer RRL ¹ | 5 adults 5 cygnets | 0 | 0 | 0 |
| 1992-93 winter HSP | 19 adults 19 cygnets | 0 | 0 | 0 |
| 1993-94 winter HSP | 5 adults 11 cygnets | 0 | 0 | 0 |
| 1996 WYWS | 4 adults | | | |
| 1997 WYWS | 2 juveniles | 1 | 5 | 5 |
| 1998 | 0 | 1 | 4 | 1 |
| 1999 | 0 | 1 | 4 | 4 |
| 2000 | 0 | 1 | 4 | 4 ² |
| 2001 | 0 | 2 | 5 ³ | 5 |
| Totals | 70 | 6 | 22 | 19 |

¹ Areas swans were introduced from:

RRL= Red Rock Lakes National Wildlife Refuge;

HSP= Harrim State Park;

WYWS= Wyoming Wetland Society Trumpeter Swan Fund.

² One cygnet lost in winter due to a fishing lure stuck in its bill

³ One nest produced 4 cygnets and the other nest hatched 1 cygnet

Wading birds are water birds that usually do not swim or dive for their prey, but wade in shallow edges of lakes, ponds, creeks and other waters for food not available on shore. The great blue heron, white-faced ibis, and sandhill crane are wading birds common to Seedskadee NWR. The heron and ibis use the broad range of Refuge habitats, foraging in wetlands and shallow riverine areas and nesting over water in cottonwood trees or tall shrubs. Sandhill cranes utilize both wetland/marshy areas and grass/forb habitats for both foraging and nesting.

Shorebirds are most often found foraging for food along water margins. Shorebirds use the Refuge during migration and also for nesting. Shorebirds frequent open water areas, riverine, and wetland habitats on the Refuge. Common shorebird species utilizing Seedskadee NWR include: killdeer, spotted sandpiper, greater and lesser yellowlegs, willet, long-billed dowitcher, Wilson's phalarope, and common snipe.

Divers or swimmers are water birds that swim or dive for their prey. The common merganser, pied-billed grebe, and American coot use open water areas, tall emergent marshes, and nest on the Refuge. The double-crested cormorant and American white pelican subsist on a diet of fish and frequent riverine and open-water habitats. Exposed river rocks, cottonwood trees, and graveled shorelines provide roosting habitat.

Raptors consist of several families of hawks and owls. Raptors common to Seedskadee NWR include the northern harrier, Swainson's hawk, red-tailed hawk, rough-legged hawk, golden eagle, American kestrel, and the great horned owl. The bald eagle is a common year-round resident. Raptors utilize a variety of wetland, riparian, and upland habitats to forage and nest. The old growth cottonwood trees are heavily utilized by red-tailed hawks, bald eagles, American kestrel, and great horned owls. The abundant small mammal and fish populations supplied by the Refuge provide an excellent forage base for all raptors.

Upland bird species rely primarily on upland habitats. Several of the more common upland bird species include sage grouse, horned lark, and mourning dove. The sage grouse and horned lark are year-round resident species. The sage grouse prefers Wyoming Big Sagebrush communities. The mourning dove is a summer resident that nests in riparian or upland areas and forages primarily in moist riparian or upland grasslands.

Neotropical migrants are birds that breed in North America, but winter in Central and South America or the West Indies. The following species are those that are more commonly found on the Refuge during migration, but many nest on the Refuge as well. With only a few exceptions, these birds rely heavily upon riparian habitats, riparian shrub and/or forest, for cover, foraging, and roosting during their stay on the Refuge. Swallows on the Refuge use a combination of habitats including wetland/marsh, open water, riverine, riparian shrub, forest, and grass/forb communities. The tree swallow and violet-green swallow nest in trees and tree cavities. Northern rough-winged swallow, cliff swallow, and barn swallow, rely on cliffs, river banks or rock outcrops for nesting. The riparian shrub and forest habitats are the primary habitats utilized by the rufous hummingbird, cordilleran flycatcher, western kingbird, eastern kingbird, western wood-pewee, hermit thrush, warbling vireo, yellow warbler, yellow-rumped warbler, Wilson's warbler, northern oriole, house wren, Lincoln sparrow, common yellowthroat, and western tanager. A few of these species also use the grass/forb, upland shrub, or emergent marsh for foraging. The common nighthawk and brown-headed cowbird use a combination of almost all the habitats found at Seedskadee NWR. The marsh wren's habitat is tall emergent marsh; the vesper sparrow uses the grass/forb and upland shrub communities; and the savannah sparrow utilizes short emergent marsh and grass/forb communities. Primary nesting habitat for the belted kingfisher, rock wren, and Say's phoebe consists of cliffs and outcrops. The kingfisher forages in nearby open water, while the rock wren and phoebe tend to forage in upland shrub and grass communities.

Woodpeckers are small and medium sized insectivorous birds with stiff tails and specially adapted skulls and tongues. The northern flicker is the most common woodpecker. This species inhabits the riparian forest's large-diameter trees and standing dead wood. It also uses upland shrub and grass/forb habitats. Other less common woodpeckers include downy, and hairy woodpeckers and the red-naped sapsucker.

Resident and migrant songbirds breed in North America and migrate throughout a limited North American range. This group includes the mountain bluebird, American robin, dark-eyed junco, white-crowned sparrow, pine siskin, and American goldfinch that use both riparian and upland habitats. The western meadowlark, sage thrasher, Brewer's sparrow, and sage sparrow predominantly use upland habitats. Species like the ruby-crowned kinglet and the black-capped chickadee use primarily the riparian forest/shrub habitat. Three blackbirds (the red-winged, yellow-headed, and Brewer's) utilize dense wetland marsh for nesting and foraging. The Brewer's blackbird will also utilize riparian shrub/forest and upland shrub for foraging and migration habitat. The song sparrow often nests near permanent open-water, in dense riparian shrub, dense regenerating forest, or dense upland shrubs. Forage habitat for the song sparrow is in adjacent marsh and riparian meadows.

Predator Management and Nest Success

Seedskadee NWR has controlled mammalian predators in most wetland units to enhance nesting success for ground-nesting birds in the past. Predators targeted for trapping include red fox, skunk, and raccoon. Coyotes are not trapped as research indicates they are not as effective of nest predators as other predator species, and they tend to suppress or displace fox populations. Ground-nesting birds which benefit include trumpeter swans, waterfowl, shorebirds, sage grouse, meadowlarks, sparrows, colonial nesting birds, northern harriers, etc.

Nest success, with and without predator trapping, is a measure of success of the predator control program for waterfowl production and the production of other ground-nesting birds (Table 3.6). Apparent success is calculated as the number of successful nests observed divided by all nests observed. Mayfield nest success (found in row 1) takes into account the number of days the nest is exposed to predation and, therefore, is a more accurate measure of the actual nest success. The Mayfield index is almost always substantially less than apparent success.

| Table 3.6 Nest Success Compared with Trap Effort on Seedskadee NWR (1987-1998) | | | | | | |
|---|-------------------------|-------------|-------------|-------------|-------------|-------------|
| Nest Success | 1987¹ | 1988 | 1989 | 1990 | 1993 | 1998 |
| Mayfield success | 5% | 45% | 70% | 51% | 34% | 25% |
| Apparent success | 14% | 63% | 84% | 71% | 58% | 50% |
| Total nest observed | 60 | 92 | 113 | 129 | 95 | 83 |
| Trap nights | 0 | 5,679 | 5,919 | 5,292 | 4,710 | 3,100 |
| Total predators | 0 | 97 | 65 | 63 | 59 | 36 |
| Number of trap nights/predator captured | 0 | 59 | 91 | 84 | 88 | 86 |

¹ No trapping conducted prior to 1987 - data for 1987 represents nest success prior to implementing a predator management program.

Mammals

Big game species common to the area are pronghorn, mule deer, and moose. Although less than 1 percent of Wyoming is classified as riparian, almost 80 percent of its wildlife require riparian areas for critical portions of their life cycle. The Refuge (with adjacent BLM lands) supports a herd of approximately 20 to 40 moose and 150 to 400 mule deer. Mule deer range throughout the area, but concentrate in greater numbers within the Refuge riparian zone. Moose forage extensively on willows and shrubs associated with the Refuge's riparian habitat and also utilize the Refuge for breeding and calving. Pronghorn range year-round throughout most of the areas below 7,000 feet. The Refuge lies within the range of the Sublette Antelope herd (approximately 49,000 animals), which is one of the largest migratory ungulate herds in the lower 48 states.

Many small mammals are present within the Refuge and utilize all habitat types depending on their life requisites. More common species include dusky shrew, little brown myotis, cottontail rabbit, white-tailed jackrabbit, least chipmunk, Wyoming ground squirrel, white-tailed prairie dog, Northern pocket gopher, deer mice, beaver, meadow vole, muskrat, porcupine, coyote, red fox, raccoon, badger, and striped skunk. Other small animals that may be found on the Refuge, but are less common, include the long and short (ermine) tailed weasels, otter, pygmy rabbit, marmot, mink, and bobcat (Appendix F).

Fish

Two main types of aquatic communities are present on Seedskaadee NWR: 1) those which occur in the Green River and its perennial tributaries, principally the Big Sandy River, and 2) those which occur in ponds along the lower terraces. The following fish are commonly found in the Green River and its tributaries: rainbow trout, Snake River cutthroat trout, Bonneville cutthroat trout, kokanee salmon, brown trout, mountain whitefish, mottled sculpin, white sucker, flannel-mouthed sucker, Utah chub, Bonneville redbelly dace, and speckled dace. Other less common species are listed in Appendix F.

Prior to construction of Fontenelle Dam, the stretch of Green River included within the Refuge was characterized as a poor quality fishery with high turbidity and sediment filled streambeds. As a result of Fontenelle Dam, the Green River is now a clear, gravel bottomed River and provides excellent habitat for trout. The fishery resource on Seedskaadee NWR is managed jointly by the Refuge and the Wyoming Game and Fish Department (Map 6).

The chief limiting Refuge habitat factors for trout are the lack of deep pools, lack of bank cover, and the potential for rapidly fluctuating flows from Fontenelle Reservoir. These habitat factors are important to ensure over winter survival and successful spawning. Winter mortality is high. Small size fish suffer the highest mortality, especially stocked fish. For this reason, the Wyoming Game and Fish Department has reduced their expenditure and effort in stocking. Rainbow trout were stocked in May 1996 at a rate of 430 subcatchables per mile totaling 15,000 fish (average length of 6 inches). Cutthroat trout were stocked at a rate of 290 advanced fingerlings per mile for a total of 10,000 fish (average length 3 inches). In mid-June 1996, 6,000 advance fry cutthroat were stocked upstream and downstream from the McCullen Bluff sill. Recent research on the Wind River indicates that "frazil ice" forming below the dam is causing physical harm to trout and injuring the gills of fish. Deeper holes help fish to avoid this fine, free floating ice. The Wyoming Game and Fish Department continues to conduct spring electroshocking on the Refuge to determine population levels.

Brown trout were stocked in the Green River on Seedskaadee NWR until 1993. After 1993, brown trout stocking was discontinued after it was determined from electroshocking that natural reproduction was sustaining the fishery.

Wyoming Game and Fish records indicate that Kokanee salmon were first stocked in Flaming Gorge Reservoir in 1989 as a new forage species for lake trout. A small population likely existed in the Green River system before 1989 because of downstream drift from lakes in the Pinedale, Wyoming, area. The first Kokanee were stocked in the Green River in 1991. They now produce a reliable run through Seedskaadee NWR that terminates at Fontenelle Dam. Many of the Kokanee running the Green River were established from releases out of the hatching facility on Flume Creek. Since natural, successful spawning does not appear to be substantial the WYG&F spawns the Kokanee, hatches the eggs, and then restocks the Green River. Two different strains were stocked, and as a result, two different spawning runs were produced in September and late October/November.

Reptiles and Amphibians

Known species diversity of reptiles and amphibians is low. Amphibians include the tiger salamander, Great Basin spadefoot toad, northern leopard frog, and the boreal chorus frog. The tiger salamander and the spadefoot toad utilize a combination of habitats including marsh, wetland, and riverine areas as well as upland shrub communities near open water. The frogs are found along vegetated margins of riverine permanent water, open ponded water, and tall emergent marshes. Other wetland and riparian areas may be used when close to water or flooded.

Reptiles found at Seedskaadee NWR include the many-lined skink, northern sagebrush lizard, eastern short-horned lizard, and the wandering garter snake (Appendix F). The many-lined skink can be found in upland grasses with moist subsoils, riparian grass/forb, riparian shrub, riparian forest, basin big sagebrush, and Wyoming big sagebrush communities. The lizards are likely to be found in upland shrub and grass habitats and particularly in rock outcrops. The eastern yellowbelly racer and the gopher snake prefer upland grass/forb habitats, upland shrub, riparian meadows, and open riparian forests with rocky outcrops which are important for overwintering. The garter snake's habitat is similar, but also includes tall and short emergent marshes or upland habitats which are near to open water.

Invertebrates

Data has not been gathered on invertebrates. Incidental observations reveal that mosquito populations, though somewhat cyclical with drought cycles, can be extremely high on the Refuge. Aquatic and terrestrial invertebrates are an essential component in the food chain for Seedskaadee wildlife.

Threatened, Endangered and Candidate Species, and Other Wildlife Species of Special Concern:

Table 3.7 lists special status wildlife and fish species that are known to use habitat types which currently or formerly occurred at Seedskaadee NWR. A special status species would be one that is listed as an Endangered Species, Threatened Species, Candidate Species, and Species of Special Concern (The Nature Conservancy, Wyoming Game and Fish Department, Wyoming Partner's In Flight).

| Table 3.7 Special Status Wildlife and Fish Species Potentially Occurring on Seedskaadee NWR | | | | | |
|--|--|----------------------------------|----------------------------------|---|---------------------------------------|
| Common Name | Seasonal Occurrence¹ | Scientific Name | Heritage Rank² | Federal and State Status² | Date Last Observed³ |
| BIRDS | | | | | |
| Clark's grebe | M | <i>Aechmophorus clarkii</i> | G5/S2B,SZN | WYGF SSC4 PIF-L1 | WOL1998 |
| Western grebe | M, SR | <i>Aechmophorus occidentalis</i> | | WYGF SSC4 PIF-L1 | WOL2001 |
| American bittern | M, PB | <i>Botaurus lentiginosus</i> | G4/S2B,SZN | WYGF SSC3 | WOL1990 |
| Black-crowned night-heron | M | <i>Nycticorax nycticorax</i> | | WYGF SSC3 | WOL2000 |
| Snowy egret | M | <i>Leucophoyx thula</i> | | WYGF SSC3 | WOL2000 |
| White-faced ibis | SR, M, PB | <i>Plegadis chihi</i> | G5/S1B,SZN | WYGF SSC3 | WOL2001 |
| Whooping crane | M | <i>Grus americana</i> | G1/S1N | Classified EXTINCT | WOL1991 |
| Trumpeter swan | B, YR | <i>Cygnus buccinator</i> | G4/S1B,S2N | WYGF SSC2 PIF-L1 | WOL2001 |
| Mountain plover | M, PB | <i>Charadrius montanus</i> | G2/S2B,SZN | USFWS Proposed Threatened WYGF SSC4 PIF-L1 | WOL1995 |
| Long-billed curlew | M, PB | <i>Numenius americanus</i> | G5/S3B,SZN | WYGF SSC3 PIF-L1 | WOL1998 |
| Wilson's phalarope | B, M | <i>Phalaropus tricolor</i> | G5/S3B,S3N | PIF-L1 | WOL2001 |
| Caspian tern | M, SR | <i>Sterna caspia</i> | G5/S1B,SZN | WYGF SSC3 | WOL2000 |
| Forster's tern | M | <i>Sterna forsteri</i> | G5/S1B,SZN | WYGF SSC3 PIF-L1 | WOL1986 |
| Black tern | M, PB | <i>Chlidonias niger</i> | G4/S1B,SZN | WYGF SSC3 PIF-L1 | WOL1993 |
| Bald eagle | B, YR | <i>Haliaeetus leucocephalus</i> | G4/S2B,S3N | USFWS Threatened (proposed delisting) WYGF SSC4 PIF-L1 | WOL2001 |
| Northern goshawk | M | <i>Accipiter gentilis</i> | G5/S23B,S4N | WYGF SSC4 PIF-L1 | WOL1991 |
| Swainson's hawk | B, M | <i>Buteo swainsoni</i> | | PIF-L1 | WOL2000 |
| Ferruginous hawk | B, M | <i>Buteo regalis</i> | | WYGF SSC3 PIF-L1 | WOL2001 |
| Merlin | M, PB | <i>Falco columbarius</i> | G5/S2B,SZN | SSC3 PUF-L1 | WOL1994 |
| Peregrine falcon | M, PB | <i>Falco peregrinus anatum</i> | G4T3/S1B,S2N | USFWS Delisted/ WYGF SSC3 PIF-L1 | WOL2000 |
| Sage grouse | B, YR | <i>Centrocercus urophasianus</i> | | PIF-L1 | WOL2000 |
| Short-eared owl | B, YR | <i>Asio flammeus</i> | G5/S2S3 | PIF-L1 | WOL2001 |
| Burrowing owl | PB, YR | <i>Athene cunicularia</i> | G4/S3B,SZN | WYGF SSC4 | WOL1994 |
| Lewis' woodpecker | M | <i>Asyndesmus lewis</i> | G5/S2B,SZN | WYGF SSC3 PIF-L1 | WOL1986 |

Table 3.7 Special Status Wildlife and Fish Species Potentially Occurring on Seedsdakee NWR cont'd.

| Common Name | Seasonal Occurrence¹ | Scientific Name | Heritage Rank² | Federal and State Status² | Date Last Observed³ |
|-------------------------------|--|--------------------------------|----------------------------------|---|---------------------------------------|
| BIRDS CONT'D. | | | | | |
| Yellow-bellied cuckoo | M, PB | <i>Coccyzus americanus</i> | G5/S2B,SZN | WYGF SSC2 | WOL1994 |
| Brewer's sparrow | B, M | <i>Spizella breweri</i> | G5/S3B,SZN | PIF-L1 | WOL2001 |
| Sage sparrow | B, M | <i>Amphispiza belli</i> | G5/S3B,SZN | PIF-L1 | WOL2001 |
| FISH | | | | | |
| Colorado pikeminnow | No record | <i>Ptychocheilus lucius</i> | G1/SX | USFWS Endangered | No record |
| Humpback chub | No record | <i>Gila cpha</i> | G1/SX | USFWS Endangered | No record |
| Bonytail chub | No record | <i>Gila elegans</i> | G1/SX | USFWS Endangered | No record |
| Bluehead sucker | YR | <i>Catostomus discobolus</i> | G4/S2S | | No record |
| Flannelmouth sucker | YR | <i>Catostomus latipinnis</i> | G3G4/S33 | | No record |
| Razorback sucker | No record | <i>Xyrauchen texanus</i> | G1/SX | USFWS Endangered | No record |
| MAMMALS | | | | | |
| Long-eared myotis spotted bat | SR, M | <i>Myotis evotis</i> | G5/S1B,S1?N | WYGF SSC2 | BMN1994 |
| Townsend's big-eared bat | No records | <i>Corynorhinus townsendii</i> | G4/S1B,S2N | WYGF SSC2 | No record |
| Pallid bat | SR, M | <i>Antrozous pallidus</i> | G5/S1B,SZ?N | WYGF SSC2 | BMN1994 |
| Pygmy rabbit | B, YR | <i>Brachylagus idahoensis</i> | G4/S2 | WYGF SSC3 | WOL1991 |
| Swift fox | No records | <i>Vulpes velox</i> | G3/S2S3 | WYGF SSC3 | No record |
| Black-footed ferret | No records | <i>Mustela nigripes</i> | G1/S1 | USFWS Endangered | 1976-78 |
| River otter | YR, PB | <i>Lontra canadensis</i> | G5/S3 | | WOL2001 |

Two federally-listed bird species have been observed on the Refuge. The bald eagle is a year-round resident and nests annually (Table 3.8). Bald eagles use riparian forest habitat on the Refuge year-round. Mature cottonwoods provide nest and perch sites for the bald eagles, where they hunt for fish, waterfowl, and carrion along the Green River. The fish and ducks in the river provide an important food source for the bald eagle. Approximately 25 eagles spend the winter on the Refuge each year.

| Table 3.8 Bald Eagle Production on Seedskadee NWR (data from Refuge bald eagle observation file) | | | | |
|---|-----------------------------------|---------------------------|---------------------------|---------------------------|
| Year | # Nests Active¹ | # Successful Nests | # of Young Hatched | # of Young Fledged |
| 1992 | 1 | 1 | 2 | 2 |
| 1993 | 0 | 0 | 0 | 0 |
| 1994 | 1 | 0 | 0 | 0 |
| 1995 | 3 | 0 | 0 | 0 |
| 1996 | 2 | 0 | 0 | 0 |
| 1997 | 2 | 2 | 4 | 3 |
| 1998 | 2 | 2 | 4 | 4 |
| 1999 | 4 | 2 | 6 ² | 2 |
| 2000 | 3 | 3 | 6 | 6 |
| 2001 | 3 | 3 | 7 | 7 |

¹ An active nest = birds initiated nest building, but may not have progressed further.

² One of the successful nests produced 3 young, but the nest and chicks were destroyed when the nest fell out of the tree.

The whooping crane has been observed on the Refuge infrequently during migration. Whooping cranes have infrequently been observed on the Hawley wetland unit (1991). The birds are suspect migrants. This population was recently determined to be extinct by the Service. Thus this Plan will no longer address this species as a federally listed species.

The four federally-endangered fish species have not been recorded as occurring within the Refuge. Prior to Fontenelle Dam these fish may have occurred as far north as Green River, Wyoming. These native fish require turbulent rivers with great extremes of flow, temperature, and turbidity. Such conditions no longer exist below Fontenelle Dam.

The federally-endangered black-footed ferret has been observed on the Refuge historically. The current population of white-tailed prairie dogs that occurs on the Refuge is one of the ferret's preferred prey items but current prairie dog populations may not be big enough to sustain a ferret population. The Refuge staff continues to monitor for the presence of this species.

The white-faced ibis, black tern, and the American bittern are Species of Special Concern that have been observed utilizing Refuge wetland/marsh habitat. The white-faced ibis is now a common migrant seen in the spring and fall. The American bittern and black tern are infrequently observed in migration.

The northern goshawk is a former candidate species for consideration of listing as federally endangered or threatened. Northern goshawks are rare migrants on the Refuge. Numerous sightings on the Wind River and Wyoming mountain ranges indicate that the Green River may occasionally be used as a migration corridor between summer and winter range.

The Service (July 2001) has determined that the yellow-billed cuckoo in the western United States, roughly west of the Rocky Mountains, meets the criteria to qualify as a "distinct population segment" (DPS), and, as such, may be proposed for listing. As a result of this finding, the Service will add the western DPS of the yellow-billed cuckoo to the list of species that are candidates for listing under the Endangered Species Act. The cuckoo migrates through and breeds on the Refuge in small numbers. It breeds in willow and cottonwood forests along rivers and streams. Populations are in decline primarily as a result of destruction of their streamside habitat.

The merlin falcon and peregrin falcon are Species of Special Concern. Some of the last recorded breeding territories for merlins on the Green River were located on the Refuge. Merlin nesting has not been documented on the Refuge since the late 1980s. A 1999 survey detected no sign of merlins during the breeding season. For four consecutive years (1996 to 2000), one peregrine sighting was recorded in the Tallman, Hay Farm, and Hawley management units, respectively. Maintenance of migration habitat is important for this species.

The mountain plover, a proposed threatened species, is known to use Refuge lands or lands adjacent to the Refuge. The Refuge staff monitors the Dry Creek Unit annually to look for breeding or migrating birds.

State listed species known to use Refuge lands or lands adjacent to the Refuge include: pygmy rabbit, trumpeter swan, American white pelican, ferruginous hawk, burrowing owl, and long-billed curlew. Trumpeter swans now utilize the Refuge for breeding, migration, and as wintering habitat (Table 3.5).

Other state listed species that have a potential to occur on the Refuge include: long-eared myotis, Townsend's big-eared bat, pallid bat, snowy egret, Clark's grebe, western grebe, Caspian tern, Forester's tern, black-crowned night-heron, and Lewis' woodpecker.

Cultural Resources Inventory

The western Wyoming Basin and the vicinity of today's Seedskadee NWR has a sequence of uninterrupted human use, at least since the Folsom times (10400 to 10800 BP), and perhaps dating even further back. At least one surface find of Clovis (10600 to 11900 BP) is documented by Frison (1978) (Miller and Kornfeld, 1996). The people who passed through or used the resources of these lands over thousands of years left evidence of their occupation. Within the past 150 years, fur trade and pioneer migrations west brought European peoples through the region resulting in the eventual establishment of trading centers, private landownership, and communities. As with prehistoric occupation, these historic uses left behind evidence of their presence at Seedskadee, including trail remnants, old outposts, and ranch structures (Map 7). Seedskadee NWR's dune formations are rich in artifacts from prehistoric use, and the Refuge has numerous historic sites.

These artifacts provide opportunities to add to the body of knowledge about prehistoric and historic peoples and to also learn more about how these lands and resources were utilized by both prehistoric and historic occupation.

Prehistoric

The Wyoming Basin was occupied by small groups of hunter-gatherers at the band level of organization. They practiced seasonal movements which optimized the procurement of resources including food, water, shelter, and raw materials such as toolstone. Movement coincided with seasonal availability for critical resources. Aboriginal populations became more familiar with certain plant species through time and gradually incorporated them as part of their subsistence strategy.

Three broad cultural periods are recognized in the western Wyoming Basin, generally corresponding to those established for the Northwestern Plains by Frison (1978, 1991): Paleoindian, Archaic, and Late Prehistoric. The Paleoindian Period (12000 to 8000 BP) sites are dominated by bison bone beds and the subsistence is interpreted as being dependent on big game (such as camel and mammoth), specifically on extinct species. The Archaic Period (8000 to 2000 BP) is characterized by a Pan-American broad-based subsistence strategy. The Archaic Period is subdivided into Early, Middle and Late subperiods based on differences in projectile point styles and associated with minor differences in subsistence. The Late Prehistoric Period (2000 to 250 BP) is defined by the introduction or innovation of the bow and arrow as well as the production and use of ceramics (Miller and Kornfeld, 1996).

During the Paleoindian Period, lush grasslands and savanna-like conditions existed with notably higher precipitation supporting large herbivores such as the mammoth, horse, and extinct forms of bison. This period is distinctive for its meticulous workmanship of projectile points. The point styles serve as chronological indicators within the period (Thompson and Pastor, 1995).

The Archaic Period is characterized by reduced precipitation and warmer than average temperatures. Megafauna (horse, camel, mammoth, and bison) became extinct or smaller. Hunters had to target smaller animals. The large stemmed lanceolate projectiles were replaced with smaller side and corner notched dart points. A greater use of vegetable foods occurred during this period. Summer occupation in the mountains, winter occupation in the foothills, and spring and fall movements utilized all available zones. Early Archaic subsistence strategies centered around pronghorn, rabbits, and other small animals. Late Archaic subsistence strategies included more bison, but still focused on pronghorn, rabbits, and other small animals. Ground stone is common in both periods (Thompson and Pastor 1995).

The Protohistoric Period began with the first European trade goods reaching the area (300 years BP) and ended with the development of the Rocky Mountain fur trade 150 years ago. Protohistoric sites often contain trade goods such as glass trade beads and metal artifacts. The most important impact on Native American cultures during this period was the introduction of the horse in the early 1700s. Hunting bison became more efficient and cultural material was easier to transport (Thompson and Pastor 1995).

Evidence of housepits or other types of living structures are present in the archaeological record since paleoindian times. Structures were identified at the Agate Basin sites in eastern Wyoming from the Folsom period (ca. 10,600 BP) and the use of housepits has been documented to the Early Archaic. Stone circle (tipi ring) sites date from the Middle Plains Archaic through the Historic Period.

Historic

It was the Shoshone Indians that gave the Green River its first name “sisk-a-dee-agie” or “River of the Prairie Chicken.” Fur traders later corrupted the Indian name to “Seedskadee.” Shoshone Indians hunted “prairie chickens” (sage grouse), as well as deer, pronghorn, and other wildlife along the banks of the Green River. The River corridor contains many significant archaeological sites. Early explorers and mountain men trapped beavers extensively in the Seedskadee area.

Thousands of pioneers crossed the Green River on what is now Seedskadee NWR. The Oregon and Mormon Trails, which cross the Refuge, have been designated as National Historic Trails by Congress. Ruts from these trails are still visible on the Refuge today. The Pony Express Trail also crosses the Refuge. Jim Bridger and others operated ferries on the Green River in the 1840s and 1850s. Settlement of the area by stockman began with the arrival of the railroad in 1868. The remains of numerous homesteads are located along the River (Map 7).

Known cultural resources are fragile and highly susceptible to vandalism. Old homesteads are particularly susceptible to fire. The lack of adequate funding, existing and anticipated, precludes stabilizing these structures and sites. In compliance with current Federal legislation, it is necessary to document them as thoroughly as possible before they deteriorate further from natural and other causes.

Lombard Ferry

Lombard Ferry, named after William Lombard, who operated ferries at the site in 1889, was probably the main crossing of the Green River used by Oregon Trail emigrants and thus represented a landmark in many travel diaries as well as a difficult crossing site. During low water periods, wagons could ford the River on a shallow sand bar only 10 feet wide. Divergence from the shallow sand bar led to many a wet wagon and several watery graves. After the initial Mormon trek to the Salt Lake Valley in 1847, the Latter Day Saints quickly realized the importance of establishing a ferry operation for following Mormon trains, and the ensuing ferry capitalized upon the Oregon Trail emigrants by charging three to four dollars per wagon. Several other ferry operations followed in later years, and as late as 1943, the site was marked by the ruin of several stone buildings.

Today, the Lombard Ferry crossing, located 42 miles west of Parting-of-the-Ways is marked with five interpretive panels, a graveled parking area, and a paved pedestrian path (Map 7 and 8). Access to the site is south of Highway 28. Interpretive panels describe the significance of the site. Lombard Ferry has been identified as a historic site for the Mormon Pioneer National Historic Trail.

Management plans and implementing actions have been prepared by the National Park Service (NPS) for both the Oregon and Mormon Pioneer National Historic Trails. The Fish and Wildlife Service Regional Historian has reviewed these plans and assured NPS that trail routes across the Refuge will be preserved and the Lombard Ferry Site would be preserved and interpreted.

Paleontological Resources

The Bridger and Green River formations are exposed geologic formations that are found on the Refuge. These formations have yielded paleontological resources at other locations. Table 3.9 summarizes the resources in the area.

| Table 3.9 Summary of Surface Geologic Deposits and Paleontological Resources, Seedskaadee NWR Area (summarized from material provided by Gustav F. Winterfeld, Ph.D., who provided assistance with the paleontological resource review) | | | | | |
|---|--|---|---|------------------------|---------------------|
| Geological Deposits | Geologic Age | Type of Deposit Environment of Deposition | Fossil Resources | Paleo Potential | Area Present |
| alluvial sediments (including alluvium and colluvium) | latest Holocene (500-1,000,000 mya) ¹ | Unconsolidated silts, sands of valleys and plains, Terrestrial-fluvial. | none | low | widespread |
| Bridger Formation | middle Eocene-- Bridgerian (37-58 mya) | Tuffaceous sandstone and bentonitic mudstone, limestone. Terrestrial-fluvial, floodplain, accumulated after drying up of Lake Gosiute. | vertebrates, invertebrates, plants, trace fossils | high | widespread |
| Green River Formation Laney Shale Member | middle Eocene-- Bridgerian (37-58 mya) | Chiefly oil shale, lesser algal limestone, sandstone, claystone and tuff. Lacustrine, accumulated during renewed expansion of Lake Gosiute. | vertebrates, invertebrates trace fossils | high | T 23 N R 111 W |

¹mya = million years ago

Bridger Formation

Exposures of the Bridger Formation comprise most of the surface of the Refuge area along the Green River. The Bridger Formation interfingers with the Laney Member of the Green River Formation described below and is divided into an upper and lower unit by a tongue of that member. Deposits above the tongue comprise the Main Body of the Bridger Formation and those below comprise the Whiskey Butte Bed (Sullivan, 1980).

Fossil vertebrates have been collected from the Bridger Formation for more than 120 years (Leidy, 1869, 1871; Matthew, 1909; West, 1976; Gunnell and Bartels, 1994) and collections of these specimens are housed at nearly every major paleontology museum in the world.

Recent work in the Bridger Formation has been conducted in the Moxa Arch area and documented the presence of 43 genera of fossil mammals, 18 genera of reptiles, and at least 2 genera of fish (Bartels, 1991; Gunnell and Bartels, 1994).

The most common fossil animals found in the Bridger Formation include *Lepisosteus* (gar pike), *Amia* (bowfin), *Echmatemys* (emydid -turtle), *Hybemys* (emydid -turtle), *Trionycid* (soft-shelled -turtle) and the crocodilian taxa *Diplocynodon* and *Crocodylus*.

Green River Formation

The Green River Formation is represented in the Seedskadee NWR area by the Laney Shale Member of middle Eocene age. The Laney Member forms the top of the Green River Formation and records in its sediments the greatest expansion of ancient Lake Gosiute followed by its final restriction and desiccation. Lake Gosiute once occupied more than 75 percent of the Greater Green River Basin, or approximately 15,000 square miles (Roehler, 1992, 1993). In Seedskadee NWR, the Laney overlies the Wasatch Formation of early Eocene age and consists of tan and brown silty algal limestone and ostracodal marlstone.

Significant fossils have been found in the Green River Formation for over 150 years (Grande, 1984). The first fish fossil (herring) was discovered in 1856 by Dr. John Evans, near Green River, Wyoming. The herring fossil was named *Knightia eoceaena*, and is now Wyoming's State fossil. Since 1856 numerous fossil fishes, other vertebrates, insects, and plants have been discovered in this formation.

The Laney Member of the formation produces fossils from four major localities that occur over wide parts of the Green River Basin (Grande, 1984). Plant and insect fossils are very common. The mosquito, *Culex* sp., comprises more than 98 percent of the known fauna. Other invertebrates include ostracodes, mollusks, and gastropods. Common plant fossils include the remains of *Plantanus* sp. (Sycamore) and *Equisetum* (scouring rush) (MacGinitie, 1969). The remains of algal mounds or stromatolites occur elsewhere in the member.

The most common vertebrates found in the locality are fish in the herring genera *Knightia* and *Gosiutichthys*. Birds, salamanders, turtles, and crocodilians are rare. At least one complete articulated turtle and two crocodilian skeletons are known from this locality. The remains of small perching birds, primobucconids, occur primarily as feather impressions.

Public Use Facilities and Program Inventory

The current Refuge road system consists of 77 miles of designated roads within the Refuge boundary. Twenty miles are classified as administrative roads and 57 miles are classified as open public roads. There are many two-tracks, trails, and roads created prior to the Refuge's establishment which are not official Refuge roads. Closed roads will eventually be restored by seeding with native vegetation.

One nine mile auto tour route is located on the Refuge. This tour route is passable by passenger vehicles in the summer months, and often open in the winter. The 2.5 mile entrance road is an improved all-weather gravel road from State Highway 372 to the Refuge Headquarters.

All other designated roads are only seasonally passable and are not improved or maintained. Four-wheel drive and high-clearance vehicles are recommended. Seasonal closures are imposed. For the protection of habitat, vehicles are allowed only on established open roads and must be parked in designated locations (areas created for parking or signed as designated parking areas) or within 10 feet of the road.

General Public Use

The Refuge has 21 road access points (Map 8). The numerous access points make it difficult to accurately estimate the number of visitors. An estimated 11,000 visits were made in 1996, up slightly from 1994 and 1995. Visits jumped to 15,000 in 1997. The increase was likely a reflection of visits associated with the 1997 Mormon Pioneer Trail Sesquicentennial celebration. Table 3.10 summarizes estimated visitor use from 1990 to 2000.

Table 3.10 Estimated Annual Visitors to Seedskaadee NWR

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997* | 1998 | 1999 | 2000 |
|---------------------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| Total estimated Visitors | 3,757 | 4,264 | 5,120 | 6,009 | 8,327 | 10,355 | 12,017 | 15,000 | 13,000 | 15,500 | 16,500 |
| Environmental Education** | 107 | 214 | 762 | 1,045 | 642 | 605 | 592 | 700 | 762 | 850 | 400 |
| Anglers | 1,300 | 1,625 | 1,800 | 1,580 | 3,000 | 4,000 | 4,000 | 4,500 | 5,000 | 6,500 | 6,000 |
| Hunters | 450 | 700 | 850 | 1,525 | 1,185 | 1,250 | 1,925 | 2,500 | 5,000 | 6,500 | 5,000 |
| Wildlife Observation | 2,000 | 1,725 | 2,000 | 1,859 | 3,500 | 4,500 | 5,500 | 5,000 | 4,000 | 5,500 | 6,000 |

Note: Estimates are taken from Seedskaadee NWR Annual Narrative Reports;
*Includes Mormon Trail Sesquicentennial; **Includes on-site environmental education only.

An estimated 50 to 70 percent of the Refuge's visitors are from southwestern Wyoming. The remaining out-of-state visitors are comprised of three primary groups: those who are visiting wildlife refuges in the west ; those who are passing by the Refuge on their way to Yellowstone or Grand Teton National Parks; and anglers/hunters from Utah and Colorado.

A recent survey of visitors to Sweetwater County found that one of the most popular recreation activities was viewing wildlife (88.1 percent). Eighty-five percent of those surveyed had Sweetwater County as one of their destinations (Taylor, 1996).

The Refuge Headquarters is open Monday-Friday (7:30 am to 4:30 pm). Information and universally accessible rest rooms are available at the Refuge headquarters seven days a week during daylight hours. The Refuge has a general brochure/leaflet which contains a Refuge map, describes facilities, and states general Refuge regulations. Brochures are available at the Refuge Headquarters, 14 primary Refuge road access points (Map 8), the Farson Information Center, Wyoming Game and Fish in Green River, BLM in Rock Springs, and at the Chambers of Commerce(s) in Rock Springs and Green River.

Compatible Wildlife-Dependent Recreation

Seedskaadee NWR offers visitors a wide variety of self-guided and dispersed recreation opportunities. The Refuge Improvement Act (1997) states that public use of a refuge may be allowed only where the use is “compatible” with the Refuge System mission and the purpose of the individual refuge (see Legal and Policy Guidance section). The Act also sets forth a current standard by which the Secretary of the Interior shall determine whether such uses are compatible. The term “compatible use” means a proposed or existing “wildlife-dependent recreational use” or any other use of a refuge, that in the sound professional judgement of the Service, will not materially interfere with or detract from, the fulfillment of the Refuge System’s mission or the purpose of the refuge. Hunting, fishing, wildlife observation and photography, and environmental education and interpretation are the six priority general public uses of the National Wildlife Refuge System which have been found to be appropriate uses and shall receive priority consideration in refuge planning and management (Refuge Improvement Act 1997).

Before a new use is allowed on a refuge, the Service must determine that the use is compatible and not inconsistent with public safety. To determine if a new use is compatible, a refuge must estimate the time frame, location, and purpose of each use. Furthermore, the refuge staff must identify the direct and indirect impacts of each use on refuge resources and evaluate the use relative to the Refuge’s purpose.

On lands added after 1996, the Service must identify, prior to acquisition, withdrawal, transfer, reclassification, or donation, which existing wildlife-dependent compatible recreational uses the Service will permit.

Wildlife Observation and Photography

Visitor estimates indicate that wildlife observation is one of the most popular public uses on the Refuge (Table 3.10). Most wildlife observation activity occurs along the wildlife auto tour route and river corridor. The auto tour is on the west side of the River and passes by the Hawley wetland unit, Refuge headquarters, and Hamp wetland unit. Much of the optimum wildlife watching opportunities occur in the River bottom, which is easily viewed from the auto tour route and many other open designated roads. Foot travel is permitted throughout the Refuge and affords exceptional opportunities for individuals wanting to hike and explore off-road areas (Map 8).

Hunting

Hunting seasons usually occur between September 1 and mid- February. Hunting is permitted for select game species in accordance with State regulations. The most common species hunted are mule deer, pronghorn antelope, sage grouse, cottontail rabbit, ducks, and Canada geese. Other species which are open to hunting under State regulations include red fox, raccoon, white-tailed jackrabbit, coots, mourning doves, sora/Virginia rails, and snipe. A special hunt for moose occurs every 2 to 5 years to reduce populations and avoid habitat damage due to over browsing.

Certain areas are closed to hunting to protect Refuge facilities and to provide resting and feeding habitat for migratory birds (Map 6). Areas closed to hunting are clearly posted with signs. A voluntary avoidance program was instigated in 1997 to reduce hunter disturbance of wintering trumpeter swans. Hunters, as well as the non-hunting visiting public, are asked to stay at least 400 yards from swans. The voluntary avoidance restriction is currently posted in the Refuge Hunting/Fishing brochure. An annual news release is produced in the fall notifying the public of this voluntary request. Compliance with this voluntary avoidance program is currently less than desired. Winter is a critical time for swans which rely exclusively on food resources located in the open water (non-frozen) sections of the Green River to meet their energy demands. The River also provides a critical resting (loafing) area for wintering waterfowl and raptors. Less disturbance helps swans, waterfowl, and raptors to reduce their overall energy demands.

Fishing

Fishing primarily focuses on four introduced cold water trout species (rainbow, brown, Snake River cutthroat, and Bonneville cutthroat). Lake trout are occasionally caught during the winter/spring and kokanee salmon are occasionally caught in the fall. Approximately half of the Refuge (north boundary of Refuge to the Green River and Big Sandy confluence) is a special regulations fishing area (Map 6). Only one fish over 20 inches may be taken and fishing is restricted to artificial lures and flies. The Green River within the Refuge is designated as a Red Ribbon trout stream, which means it supports a trout standing crop of between 500 and 900 pounds per mile. Fishing is the second most popular public use at Seedskadee. Fishing on the Refuge is subject to State regulations. The Wyoming Game and Fish Department manages the fishery with assistance from the Refuge staff.

Non-Motorized Boating

More than 99 percent of all Refuge boating use is non-motorized. The lack of motorized boats provides solitude and excellent angling and wildlife viewing opportunities. Four improved boat ramps have been developed and are spaced to provide easy one day float trips.

Commercial Guiding

Commercial fishing guides started to guide clients on the Refuge before 1990. To comply with Refuge regulations, this activity was regulated via an annual permit system which was initiated in 1996. Eleven permits were issued in 1996. Commercial guides are charged fees to utilize the Refuge and are also required to meet strict Refuge regulations regarding the number of boats and anglers occurring in various River sections.

In 1997, the Service, BLM, Reclamation, and Forest Service agreed to issue a single commercial permit for the Green River stretch starting at Fontenelle Dam and ending at the beginning of Flaming Gorge Reservoir (Fire Hole). This joint permit for commercial guiding was discontinued after 1997 and is currently under review to determine its feasibility. A new Refuge draft commercial guide plan was developed and implemented in 2000. The new plan will eventually reduce (via attrition) the total number of permitted commercial outfitters to a maximum of four. Currently six commercial outfitters are permitted on the Refuge.

Environmental Education/Outreach

Environmental education is usually conducted while touring the Refuge with school, scout, and civic groups. Demand for these tours continues to increase. In 2001, over 680 people participated in tours that were provided to 16 different groups.

Since 1993, the Refuge, in cooperation with Trout Unlimited, Highland Desert Flies, and the Wyoming Game and Fish Department, has sponsored "Take A Kid Fishing Day." A local pond is stocked at the Rock Springs Fairgrounds with catchable trout, and refreshments are served. This event has attracted up to 300 people from local communities. The event provides an opportunity to inform young people and their parents about wildlife and the Refuge.

Seedskadee NWR partners with the Wyoming Game and Fish and the Bureau of Land Management Green River Resource Area in providing seasonal wildlife updates for media outreach programs. In addition, Seedskadee NWR conducts special programs for International Migratory Bird Day and National Wildlife Refuge Week.

Interpretation

Four interpretive areas occur on Seedskaadee NWR: Lombard Ferry, Wetlands Overlook, Headquarters Kiosk, and Headquarters visitor area (Map 8). Current interpretive signs are limited to these areas. The Refuge Headquarters contains indoor space dedicated to interpretive exhibits. Interior exhibits include a wall-mounted map, a touch table, a children's board, three dimensional models of primitive cultures, and several bird and mammal mounts.

Currently, four Refuge brochures are published (General Information and Travel Map, Hunting and Fishing, Historical, and Wildlife Observation). The general Information brochure describes basic regulations and provides suggestions for enjoying the Refuge. The brochure "Seedskaadee National Wildlife Refuge and Vicinity: A Historical Perspective" describes 14 of the historic sites existing on the Refuge, including numerous homesteads, trading posts, and ferry crossings.

Refuge staff conduct public outreach efforts by hosting display booths at the Green River Fly Swap, Casper Hunting and Fishing Expo, and Red Desert Sport Show.

Non Wildlife-Dependent Recreation

The Refuge staff is concerned with the non wildlife-dependent recreation activities occurring at the Refuge. These activities are a concern to management because they are unauthorized, conflict with Service policy, and create significant wildlife and habitat disturbance. These non wildlife-dependent recreational activities include, but are not limited to; camping, swimming and power boating, off-road vehicle use, etc.

Camping

It is Service policy that, "Camping will not be permitted when any other practical alternative is available and only when required to implement a planned and approved wildlife-wildlands oriented recreational activity (8 RM 9.5)." Camping is not necessary to enjoy the wildlife and fish resources on the Refuge. Practical alternatives are offered at the Bureau of Land Management operated campgrounds located just upstream from the Refuge (Slate Creek, Tailrace, and Weeping Rock). The Bureau of Land Management allows short-term (14 day) dispersed camping on lands which surround the Refuge.

No authorized general public overnight camping opportunities are provided on the Refuge. Currently, camping occurs on a limited permit basis for scout troops performing civic projects for Seedskaadee NWR.

Swimming and Power Boating

Swimming and power boating on the Green River are not encouraged at Seedskaadee. Opportunities exist for such recreational activities above and below the Refuge at Fontenelle and Flaming Gorge Reservoir, and downstream of the Refuge on the Green River.

Off-Road Vehicles

Off-road vehicle use is prohibited in any area which is not an established and designated roadway for public travel within the Refuge. Designated Refuge roads are shown in the Refuge General brochure. Non-designated two-track "roads" crisscross areas and result in habitat degradation. Eventually, all non-designated roads will be closed and restored by seeding with native vegetation. The number of roads are limited on the Refuge to protect wildlife habitat, reduce disturbance to wildlife, protect the beautiful views, and enhance the overall visitor experience.

Administrative Support

Current Facilities

Refuge buildings include:

- Headquarters building consisting of a small visitor information center, four offices and a conference room
- Maintenance shop
- Two equipment storage buildings
- Three older 3-bedroom homes (refuge staff residences)
- One 3-bedroom bunkhouse for multiple-occupancy of seasonal staff and volunteers
- One cold storage building located at the Hay Farm

The maintenance shop and storage facilities are relatively new and will meet the Refuge needs for the immediate future. Inadequate housing, however, could limit the capacity for the increasing Refuge's volunteer workforce. Demand currently exceeds supply in the summer months. Office space is at a premium and may need to be expanded if staffing increases.

The Refuge also has the following recreational facilities to orient visitors and provide for public use: 4 primitive boat launches; 24 walk-over and walk-through structures along the Refuge's perimeter fence; nine-mile auto tour road; one wetland interpretive overlook; the Lombard Ferry Historic Site (interpretive); 14 information sites; and an orientation kiosk at Refuge headquarters. Universally accessible rest rooms are available at the Refuge headquarters (Maps 8a & 8b)

Current Staffing

Seedskafee NWR staffing has always been limited, but has fluctuated significantly in the last 6 years. In 1993, the Refuge had a permanent staff of five full-time positions, including a refuge manager, a refuge operations specialist, two maintenance workers, and a biological technician/clerk. In 1994, the permanent staff was reduced by 1 full-time equivalency (FTE), and in 1995 the permanent staff was further reduced to 3 FTE's. Since 1995, various FTE's have been restored. Current (2000) staffing includes six permanent positions (Table 3.11).

| FTE | Current Position |
|------------|--|
| 1 | Refuge Manager/Project Leader, GS-12 |
| 1 | Assistant Refuge Manager (ROS), GS-11 |
| 1 | Administrative Support Assistant, GS-6 |
| 1 | Biologist, GS-9/11 |
| 1 | Engineering Equipment Operator, WG-9 |
| 1 | Biological Technician, GS-6 |
| 6 | Total Current FTE |

The Seedskafee staff also manages Cokeville Meadows NWR, currently about 8,000 acres, located two hours west near Cokeville, Wyoming. A CCP will be prepared for Cokeville Meadows NWR under separate cover.

Special Management Areas

Special Legislated Designations

No wilderness areas currently exist or are proposed for Seedskadee NWR. The Service has not pursued any formal review of Seedskadee lands for designation as wilderness. Portions of the Refuge may qualify for designation. Future Service policy may require the formal review of all lands within the Refuge System. A draft of the Service “Wilderness Stewardship Policy” is currently in review. Within the Rock Springs District of the Bureau of Land Management, a total of four wilderness areas and eight wilderness study areas have been proposed. The closest of these is 50 miles from the Refuge boundary.

The Refuge contains an abundance of historical/cultural resource sites and has four National Historic Trails which traverse through it (Map 7). Several historic sites and trail segments have been included in the National Register of Historic Places. The general Refuge setting provides landscape views which look much like they did in the early 19th century. Maintaining the current landscapes of the Refuge and surrounding area are important to maintaining the natural and historic nature of the area.

The American Bird Conservancy (ABC) has designated Seedskadee NWR, and the surrounding BLM lands, as a Globally Important Bird Area (IBA). To qualify for this designation an area must have significant ongoing efforts to conserve wild birds and their habitats. ABC’s IBA program, supported in part by The Nature Conservancy and the Disney Wildlife Conservation Fund, aims to identify and protect a network of key sites to further bird conservation efforts.

IV. Management Direction

Refuge Management Direction: Goals, Objectives, and Strategies

The mission and purposes of the National Wildlife Refuge System, and the purposes(s) for which a refuge was established are the primary references for setting refuge goals and objectives. The ecosystem priorities provide a secondary reference for setting refuge goals and objectives. Seedskadee National Wildlife Refuge management has established two wildlife, five habitat, and five public use, recreation, and resource protection goals.

Refuge goals are qualitative statements that define what outputs and outcomes a refuge strives for to satisfy the System's mission as well as the refuge's purpose(s). Refuge objectives are defined by the Service manual: "as milestones which lead to the fulfillment of unit and system purposes. Each objective should be a description of desired and, in most cases, measurable conditions(s) and/or outcomes(s). Objectives should be viewed as targets around which long-range management strategies are developed and with which success can be monitored" (602 FW 2, D(1) (a)). Strategies are techniques employed to achieve objectives."

The following is a list of the Refuge's goals. These are each described in detail with objectives and strategies in the following sections.

Wildlife

- A1. Threatened and Endangered Species Goal:** *To restore, enhance, or protect threatened and endangered flora and fauna that currently occur or have historically occurred in the area of Seedskaadee NWR.*
- A2. Wildlife Goal:** *Preserve, restore, and enhance the ecological diversity and abundance of migratory and resident wildlife with emphasis on native species.*

Habitat

- B1. Riparian Goal:** *Protect and restore riparian habitats along the Green River to provide for the annual life needs of migratory birds and native wildlife utilizing the Green River Basin.*
- B2. Wetland Goal:** *Wetlands will be managed to meet the breeding and migratory requirements of waterfowl, shorebirds, wading birds, and other wetland-dependent species.*
- B3. Uplands Goal:** *Preserve, restore, and enhance the ecological diversity of indigenous flora associated with the Great Basin upland desert shrub and grassland habitats to support native wildlife found in the Green River Basin.*
- B4. Riverine Goal:** *The Refuge staff, in collaboration with Wyoming Game and Fish Department and Reclamation, will manage water quality and quantity in the Green River to maintain and/or restore the riparian and cottonwood forests and provide habitat for waterfowl, trumpeter swans, fish, and other native species dependent on river and forested habitat.*
- B5. Invasive Species Goal:** *Restore and maintain indigenous flora diversity by controlling the invasion of exotic plant species on the Refuge.*

Public Use, Recreation, and Resource Protection

- C1. Wildlife-Dependent Recreation Goal:** *Nurture an understanding of and appreciation for wildlife and other natural resources of the Green River Basin by providing opportunities for compatible wildlife-dependent recreation while maintaining the primitive, uncrowded nature of the area.*
- C2. Environmental Education and Interpretation Goal:** *Educate and inform the public about the Refuge, the U.S. Fish & Wildlife Service, The National Wildlife Refuge System, and the Upper Colorado Ecosystem by providing quality environmental education and interpretation opportunities.*
- C3. Resource Protection Goal:** *Protect Refuge resources from adverse natural and/or man-made impacts.*
- C4. Cultural Resource Goal:** *Protect and interpret significant historic and prehistoric cultural sites and objects associated with Refuge lands.*
- C5. Partnership Goal:** *Foster partnerships to promote wildlife conservation and habitat management in the Green River Basin and to help Seedskaadee NWR accomplish its vision and goals.*

Wildlife

A1. Threatened and Endangered Species Goal: *To restore, enhance, or protect threatened and endangered flora and fauna that currently occur or have historically occurred in the area of Seedskadee NWR.*

Bald eagles are increasingly using the Refuge for nesting and 20 to 30 wintering bald eagles use the ice-free areas along the River to hunt. The Refuge will minimize construction and other disturbing activities during critical nesting and wintering periods. These activities will also benefit wintering waterfowl and trumpeter swans. Mountain plovers have been observed in the Dry Creek Unit and circumstantial evidence of nesting has been recorded. Several whooping crane observations have been confirmed on the Refuge. Even though the population of this species is now considered extinct by the Service, the Refuge will continue to monitor for this bird and evaluate opportunities to provide migration or breeding habitat.

No records exist of the Federally-threatened Ute ladies'-tresses orchid occurring on the Refuge. Intensive surveys in southeast Wyoming have produced a number of new populations. Although, on the fringe of its range, it is possible that small, isolated populations exist on the Refuge. The Service will continue monitoring for this species and protect any found populations.

A1.1 Bald Eagle Objectives: The Refuge will provide large mature cottonwood trees (35 to 40 feet, 100 to 150 years old) along the banks of the Green River to serve as nesting, roosting, and hunting perching sites for bald eagles. A total of 1,200 acres of cottonwood habitat will be protected and/or restored. Maintain a minimum of 10 percent of the riparian forest in mature or old-growth timber.

Strategies:

1. Re-establish cottonwoods at suitable locations by enhancing the natural regeneration, planting seedlings or conducting pole plantings. Suitable sites and methods will be determined by current on-going research.
2. Protect cottonwood trees from damage by beaver, mule deer, moose, cattle, and wildfires.
3. Protect nesting and roosting sites from human disturbances using temporary and/or permanent closures when necessary.
4. Annually monitor bald eagle population trends and reproductive success.
5. Work with Reclamation to manage river flows to maintain open water during the winter months to provide foraging habitat and reduce winter mortality of fish.



A1.2 Mountain Plover Objectives: The Refuge staff will investigate managing part of the 3,120-acre Dry Creek Unit as sagebrush grassland habitat to provide for the migratory, and possibly nesting, requirements of mountain plovers. The acreage managed for this species will be based on further investigation of its local abundance and distribution and the assessment of current habitat conditions in the Dry Creek Unit. Surveys for plovers will be conducted annually and an assessment of the dry creek habitat should be completed within 5 years after the CCP is finalized. If appropriate, manage for shrub density of 12.3 m², grass height average of 8.4 cm, average forb height of 4.3 cm, average shrub height of 3.7 cm, percent cover grass (13%), forb (10%), shrub (10.4%), bare ground (71%), and litter (2%) (Parish 1988, Parish et. al 1993).

Strategies:

1. Nesting habitat will be protected from trampling by domestic livestock and off-road vehicle use by fencing Refuge boundaries and enforcing Refuge regulations.
2. Review historical records and annually survey existing habitats for nesting mountain plovers.
3. Conduct vegetative transects in the Dry Creek management unit to evaluate current habitat conditions relative to the breeding and migratory needs of the mountain plover.
4. Based on habitat and population assessments, implement appropriate management strategies to maintain, improve, or create desired habitat characteristics.

A1.3 Ute ladies'-tresses Orchid Objectives: Protect any populations of the federally threatened Ute ladies'-tresses orchid found on the Refuge.

Strategies:

1. Survey any suitable habitat prior to any ground disturbance activities. The plant grows in areas of open vegetation in exposures that heat up with the late summer sun. Most occurrences are along riparian edges, gravel bars, old oxbows, and in moist to wet meadows along perennial stream and springs. Survey suitable habitat during the flowering period (late July - early September). Map any populations found. This species has not been documented in southwest Wyoming.

A2. Wildlife Goal: *Preserve, restore, and enhance the ecological diversity and abundance of migratory and resident wildlife with emphasis on native species.*

SeedsKadee Refuge is home to a diverse group of bird and mammal species. At least one pair of trumpeter swans has nested on the Refuge since 1997 and between 20 to 35 trumpeter swans currently utilize the Refuge as wintering habitat. The State and Service has identified the Refuge as an important component in the restoration of the Rocky Mountain trumpeter swan population. The Service will continue management efforts to maintain and enhance habitat for trumpeter swans.

Moose, mule deer, and antelope herds utilize portions of the Refuge year-round. Hunting of all three species, especially moose and mule deer, is used as a management tool to control browsing effects on Refuge vegetation. Hunting is also considered a compatible wildlife-dependent use, thereby fulfilling a priority public use of the Refuge System. The Service will continue close coordination with WYG&F to maintain a balance between watchable wildlife opportunities, hunting opportunities, and healthy habitat conditions.

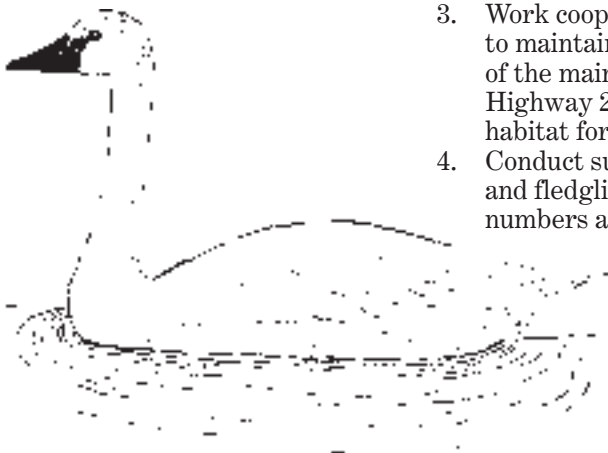
Sage grouse use the Refuge for wintering and brood-rearing habitat. Nationally, this species has been petitioned for the endangered species list. Information is lacking about the number of grouse using the Refuge and general importance of Refuge habitats to local populations. Additional information is needed to evaluate the role of Refuge lands to management of local populations.

In addition to implementing habitat management actions (discussed in the habitat goals section) that improve and maintain the diverse native plant communities, the Service will consider and implement management regimes that meet various native bird requirements. Biological monitoring of birds and other wildlife will allow management to better document population trends and effects of management actions.

A2.1 Trumpeter Swan Objectives: Maintain habitat to accommodate one to three pairs of nesting swans. Breeding pairs require two 100 acre areas and often only one pair nests per pond. Provide wetland ponds with room for take-off (100m); accessible forage (0.3 - 1.2 m depth); diverse submergent and emergent vegetation; muskrat islands or nest platforms; and low human disturbance. Provide winter habitat for 20 to 40 trumpeter swans.

Strategies:

1. Manage the Hawley and Hamp wetland impoundments to provide a mix of tall emergents, submergents, and deep open water habitats (50:50 water to vegetation ratio).
2. Develop a wintering closed area on the Refuge to minimize disturbance to wintering swans and other waterfowl species.
3. Work cooperatively with Reclamation and Wyoming Game and Fish to maintain winter river flows of at least 500 cfs to ensure a majority of the main Green River channel between Fontenelle Dam and Highway 28 remains open (ice-free) to provide foraging and resting habitat for trumpeter swans.
4. Conduct summer monitoring of nesting pairs to determine nesting and fledgling success. Conduct winter monitoring to document numbers and distribution on the Refuge.



Trumpeter Swan © Cindie Brunner

A2.2 Moose and Mule Deer Objectives: Establish vegetation browse transects in the riparian habitat. Manage herds so that browse transects indicate less than 50 percent browse by moose and deer on cottonwood and willow species. Maintain no more than 30 to 40 moose for the River riparian corridor between the town of Green River and Fontenelle Dam and 80 to 100 mule deer within the Refuge boundary until vegetation monitoring suggests otherwise.

Strategies:

1. Establish browse transects to assess current and future habitat conditions.
2. Assist WYG&F with aerial wildlife surveys by providing observers and funds for flights.
3. Coordinate closely with WYG&F to establish hunt seasons and harvest levels.

A2.3 Sage Grouse Objectives: Evaluate the importance of Refuge habitats to the local sage grouse populations within the next 5 to 8 years. Maintain or improve nesting, brood, and wintering sage grouse habitat. For nesting habitat, provide mean sagebrush heights of 29 to 36 cm, mean sagebrush canopy cover of 24 to 26 percent, mean grass heights of 15 to 21 cm, and mean grass/forb cover of 5 to 11 percent. For brood habitat, provide mesic shrub sites with an abundance of grasses and forbs. For winter habitat, provide mean sagebrush canopy cover of 15 to 43 percent above snow and mean sagebrush heights of 20 to 56 cm above snow (Connelly et al. 2000).

Strategies:

1. Support research opportunities to evaluate local sage grouse use of the Refuge (populations and use of Refuge habitats).
2. Assess the current condition of habitats which support sage grouse by conducting vegetation surveys in sagebrush and riparian habitats. Support research opportunities to complete habitat evaluations.
3. Coordinate closely with WYG&F on sage grouse management initiatives.
4. Initiate Refuge surveys to determine the current amount, location, and timing of sage grouse use.
5. Monitor harvest of sage grouse via field surveys, sign in logs, and wing barrels.



Mule Deer © Cindie Brunner

A2.4 Migratory Bird Objectives: Determine breeding and migration use of the Refuge for a diversity of migratory and resident bird species within 10 years of completing the CCP. Conduct baseline surveys in each habitat type to determine species richness/diversity and relative abundance. Based on surveys, establish average densities of key indicator species for each habitat type to provide an index to overall species richness/diversity, document population trends of selected species over time, and evaluate the effectiveness of habitat management strategies.

Strategies:

1. Hire a seasonal position for 3 to 5 years to implement monitoring procedures that provide an index to overall species richness/diversity and document population trends of selected species over time.
2. Predation by skunk, raccoon, fox, and mink has been shown to adversely impact water bird nesting success in the Refuge. Thus, the Refuge may continue to engage in specific predator control programs within wetland management units, especially areas with nesting predation by skunk, fox, and mink.
3. Partner with Wyoming Audubon and WYG&F to develop a bird monitoring protocol and develop management plans to benefit bird conservation efforts.

A2.5 Other Indigenous Wildlife Species Objectives: Ensure the diversity and abundance of indigenous mammals, reptiles, amphibians, fish and invertebrates remain intact.

Strategies:

1. Conduct baseline surveys in each habitat type to determine species richness/diversity and relative abundance within 8 to 10 years of completing the CCP. Compare information to historical data to evaluate changes in species diversity or abundance.
2. Partner with local, State, Federal, private and nongovernment organizations to enhance and restore big game migration routes between their summer ranges and ancestral winter ranges. Specifically support movement studies to assess the feasibility of restoring free-ranging wildlife herds to their native ranges.

Habitat

B1. Riparian Goal: *Protect and restore riparian habitats along the Green River to provide for the annual life needs of migratory birds and native wildlife utilizing the Green River Basin.*

Data from several studies indicate that riparian forests on the Refuge are aging; are in poor health compared with upstream forests; have relatively few age classes and, therefore, are becoming simpler in structure; and have insufficient regeneration to establish new age classes. Under these conditions, the existing riparian forested habitat, which is crucial for migrating songbirds, is highly vulnerable and without management intervention, likely to disappear from the Refuge. The Service will develop a plan to outline plausible actions to mitigate this situation. Management actions will emphasize maintaining plant structural and species diversity.

Natural regeneration from seedfall, either by creating artificial off-channel sites or altering flows to create more sites within the historic river channel, is the preferred solution for long-term replacement of cottonwood stands and other woody riparian vegetation. Concerted effort will be put into this potential solution before choosing a widespread planting program. The program will begin with two to three experimental sites in the Dunkle Management Unit which have been selected for their relative ease and reliability of controlled artificial flooding and proximity to cottonwood seed sources. Monitoring of the success of natural regeneration within the historic flood channel is also an important component to gauge the success of this alternative. The Service may implement a protection and planting program which could quickly provide a mid-story vegetative layer for use by forest birds while natural regeneration is proceeding at a slower pace. This step may be more important as an interim solution if natural regeneration is ultimately successful. If natural regeneration is unsuccessful, a broader scale planting program may be critical.

B1.1 Restoration Plan Objectives: Within 4 years of completing the CCP, prepare a Riparian Restoration Plan which determines the potential for restoration of riparian habitat, identifies restoration sites and methods, and estimates costs. Maintain and improve the existing 4,300 acre cottonwood/willow riparian community.

Strategies:

1. Support current riparian restoration research conducted by U.S. Geological Survey and the University of Washington on Seedskadee NWR to determine potential methods for restoration of habitat degraded by upstream dam operations.
2. Protect existing cottonwood stands by: a) fencing areas or wrapping woven wire around individual trees, to reduce damage by beaver, moose, and mule deer; b) suppressing wildfires; c) adjusting moose, mule deer, and beaver harvests and; d) conducting mowing/prescribed burns to reduce wildfire occurrence.

B1.2 Forest Protection Objectives: Maintain or improve the vigor of the existing 2,700 acres of woody riparian vegetation which contain a variety of forest canopy types (scattered, open and closed) through floodplain recharge. Provide dense willow understory habitat in parcels greater than five acres in size to provide breeding habitat for neotropical migrant birds. Maintain an average live crown vigor of 75 percent in existing narrow leaf cottonwood stands. Aggressively protect 1,200 acres of mature cottonwood forested areas from drought, wildfire, and wildlife damage.

Strategies:

1. Protect existing woody vegetation and new regeneration from extensive browsing and trampling by native ungulates and livestock. The Refuge staff will use exclosures, chemical deterrents, and management of livestock and wildlife populations in the riparian areas of the Refuge to ensure protection.
2. Work with Reclamation to recharge the floodplain during August in most years, and periodically throughout the growing season in dry years.
3. Install water monitoring wells in riparian areas to monitor underground water tables and evaluate the effects of varying water flows.
4. Wrap or paint mature cottonwood trees to protect from beaver damage. Harvest beaver, when necessary, according to Beaver Trapping Plan.
5. Provide increased wildfire protection by increasing vehicle patrols during periods of high fire danger. Suppress all fires that are detected.
6. Monitor riparian forested communities to determine success of management activities and accomplishment of objectives. Methods may include resampling of green-line transects (1996 Riparian Revegetation Feasibility Study) every 3 to 5 years or the establishment of additional permanent transects/plots using methods described by Scott and Aule during the 1997-1998 Riparian Restoration Studies on the Refuge.

B1.3 Riparian Regeneration/Planting Objectives: If required, create a regeneration class of narrow-leaf cottonwood, willows and berry-producing shrubs on 100 acres of early successional riparian habitat through a program of natural recruitment. Achieve narrow-leaf cottonwood regeneration with median seedling densities of 2,500 to 5,000 seedlings per acre and 10 to 20 saplings per acre. Potential sites include the McCullen, Tallman, Pal, Dunkle, Hamp, Otterson, Johnson, and Big Island management units. Initiate a tree and shrub planting program if necessary, at a minimum of 5 suitable locations within the Refuge.

Strategies:

1. Work with Reclamation to manage a flow regime, particularly in years of favorable seed production, suitable for establishment of narrow-leaf cottonwood and willow species during the critical post-seedfall period (July - September). Daily drop in river channel water levels are not to exceed 4 cm/day during the critical period.
2. Determine the feasibility of using abandoned river channels to regenerate cottonwoods.
3. Work with Reclamation, USGS, and other interest groups to determine the flow regime needed to maintain and benefit the regeneration of cottonwoods and willow trees.
4. Prepare a soil survey in areas with suitable regeneration sites.
5. Initiate and monitor a shrub and tree (pole) planting program utilizing live plant materials on suitable riparian sites. Protect plantings, or areas with natural regeneration, from browsing using exclosures.
6. Monitor success of plantings and regeneration efforts.
7. Work with Reclamation to continue mitigation funding for restoration of riparian willow and cottonwood forests until such a time as the decline of this habitat is reversed and the health of the system improves.

B2. Wetland Goal: *Wetlands will be managed to meet the breeding and migratory requirements of waterfowl, shorebirds, wading birds, and other wetland-dependent species.*

Spring and fall migrational habitats are a very limited resource along the Green River. They consist of secure areas where birds seeking out wetland habitats may feed and rest on their migration through Seedskafee NWR. Foraging sites are made available in several ways. Shallow flooding of short emergent vegetation in the spring makes a variety of last years seed crops available to ducks and geese. This shallow water also warms much quicker than the river or surrounding deeper wetlands and stimulates invertebrate activity, thereby making them available to waterfowl and shorebirds. Fall migrational habitat is even more limited along the Green River than spring migrational habitat, as most of the naturally-occurring river-fed wetlands have dried up during the summer. Drawing down short emergent wetlands will concentrate aquatic invertebrates and make them available to many species of shorebirds and waterfowl.

Maintaining open, deep water areas with submerged aquatic vegetation provides secure loafing and foraging habitat for species like ring-necked ducks, redheads, and trumpeter swans. This type of habitat can be achieved in portions of the Hawley, Hamp, and Sagebrush wetland units. Other migrating and breeding birds prefer shallow flooded emergent wetlands with little open water. Opportunities to provide this habitat type exist in portions of the Pal, Sagebrush, Hamp, Hawley, and Dunkle wetland units.

Breeding habitat consists of areas where courtship and breeding may occur; suitable nest sites are available, and adequate resources are provided to sustain birds to fledgling. The Service will strive to manage all wetland units to meet the diverse needs of wetland-dependent birds.

Channel downcutting in the Green River has occurred. As a result, many of the historic oxbow river channels are no longer connected to the river and have lost much or most of their wetland values and functions. Prior to Fontenelle Dam these river oxbows would likely flood more often and for longer periods. Dam operations have moderated timing, duration, and volume of peak flows. The Dam has also reduced the amount of sedimentation flowing downstream which in turn reduces the ability of the river to create sandbars and islands. The river channel receives reduced sediments and over the long-term becomes sediment depleted. There is little accretion of the river channel, just erosion, and, therefore, the channel continues to incise. Partial restoration of these old channels can be accomplished by constructing a rock weir in the river and reflooding such channels. Several weir projects have already been completed. Depending upon the micro-relief of the area, these restored channels may provide spring migration, breeding, or fall migration habitats or all of these habitats. Rock weirs do not need to be actively managed other than to maintain the function of the weir to divert water into the channel.

B2.1 Hamp and Hawley Wetland Units Objectives: The Hamp, Upper Hawley, and Lower Hawley wetland units will be managed to provide a mix of deep and shallow water habitats depending on unit topography. Management will attempt to maintain a water and cover ratio of approximately 50:50.

Strategies:

1. The Hamp (#1 and #2) head-water gates will be opened in early spring (usually around April 1), and waters will be allowed to seep from Hamp to Lower Hawley unit over a period of three weeks. Approximately 50 percent or more of the units will be flooded to a depth of 2 to 10 inches. The remaining 50 percent (primarily tall emergent aquatic and open submergent) of the units will be flooded to a depth of 2 to 4 feet. Beginning in early August, short emergent vegetation pools will be slowly drawn down to provide fall migration food. Deep water units will remain flooded.
2. Where research shows it to be beneficial, the Refuge may continue to engage in target specific predator control to minimize the effect of nest predation on waterfowl and other ground-nesting birds from mid-March to mid-July according to an approved Predator Control Plan.
3. Monitor waterfowl use bimonthly during spring and fall migrations and nesting success every 3 years. Monitor trumpeter swan use year-round in all wetland units.
4. Drawdowns, burning, mowing, and discing will be used to control encroachment of emergents (cattails) in wetland units. Strive to obtain a cover-water ratio of 50:50: that is to maintain equal portions of open water and emergent vegetation.
5. Waters levels will be manipulated to promote moist soil plants and invertebrate production. Drawdowns and re-flooding will be used to mimic wetland cycles that will produce food (plants and invertebrates) and cover.
6. Maintain existing water rights.
7. Provide areas with minimal disturbance during nesting periods for trumpeter swans and waterfowl. Use temporary/ permanent closures when necessary.
8. Lower the height of three islands constructed in the Hamp Unit to eradicate pepperweed and encourage growth of emergent vegetation. Replace water control structures within unit.
9. Replace or enhance current dike structures in portions of the Hawley unit and replace several worn out water control structures.
10. Evaluate vegetative response to depth, timing, duration, and frequency of flooding.
11. Set up water quality monitoring program within wetland units and Green River to detect changes in basic water chemistry parameters.

B2.2 Sagebrush Pools and Dunkle Wetland Objectives: Manage the Sagebrush and Dunkle units to optimize fall and spring migration habitat for migrating wetland-dependent species by managing for shallow open water (10 to 15 cm) during spring and/or fall migration.

Strategies:

1. In early spring (mid-April to mid-June), Sagebrush Pool and Dunkle wetland units will be drawn down slowly (2 to 3 cm per week) to concentrate and increase the availability of invertebrates for ducks and early migrating shorebirds. In fall (between August and September), Sagebrush Pool and Dunkle wetland units will be slowly (2-3 cm/week) flooded to a water depth of 18 cm. This will provide foraging habitat for fall migrating birds. Water levels will be increased in these units to approximately 45 cm before heavy freeze, and water will be held in these units through the winter to enable invertebrates to lay eggs and survive over the winter.
2. Units that have undesirable vegetation will be drawn down, shallowly disced in the summer, and shallowly flooded in the fall. Vegetation density in the wetlands will be maintained at less than 50 percent cover.
3. Drawdowns, discing, burning, and mowing will be used to promote moist soil plants and invertebrate production.
4. Monitor wildlife use and evaluate vegetative response to depth, timing, duration, and frequency of flooding.
5. Maintain existing water rights.
6. Eliminate the islands currently existing in these units. The islands are too high, infested with perennial pepperweed, and the wetland units are too small to support predator-free islands.
7. Set up water quality monitoring program within wetland units and Green River to detect changes in basic water chemistry parameters.
8. Where research shows it to be beneficial, the Refuge may continue to engage in target specific predator control to minimize the effect of nest predation on waterfowl and other ground-nesting birds from mid-March to mid-July according to an approved Predator Control Plan.

B2.3 Pal Wetland Objectives: Manage the Pal wetland unit as a primarily a shallow (<10 cm) wet meadow and willow shrub habitat for a diversity of wetland-dependent birds. Wet meadow areas will be no less than 5 acres in size.

Strategies:

1. Drawdowns, discing, burning, and mowing will be used to promote moist soil plants and invertebrate production.
2. Cooperate with Reclamation to enhance wetland management potential in the Pal Wetland Management Unit by re-designing the water delivery system and increasing water control capabilities.
3. Maintain existing water rights.
4. Monitor wildlife use and evaluate vegetative response to depth, timing, duration, and frequency of flooding.
5. Set up water quality monitoring program within wetland units and Green River to detect changes in basic water chemistry parameters.
6. Where research shows it to be beneficial, the Refuge may continue to engage in target specific predator control to minimize the effect of nest predation on waterfowl and other ground-nesting birds from mid-March to mid-July according to an approved Predator Control Plan.

B2.4 Oxbow Channel Wetlands Objectives: In cooperation with Reclamation, restore one or more river oxbows to provide riverine wetland habitat which was lost with the construction of Fontenelle Dam. These restored wetlands will provide for spring and fall migration and breeding habitat for waterfowl, shorebirds, and other water birds. Maintain existing oxbow restoration projects.

Strategies:

1. Minimize disturbance to soil surface and utilize existing topography at every opportunity when constructing water delivery systems and dikes.
2. Evaluate the feasibility of constructing a rock weir in the Green River to divert water into a stranded oxbow near Big Island. If feasible, construct a weir to restore the oxbow. Explore other potential oxbow restoration projects in conjunction with the WYG&F and other interested public's.

B3. Uplands Goal: *Preserve, restore, and enhance the ecological diversity of indigenous flora associated with the Great Basin upland desert shrub and grassland habitats to support native wildlife found in the Green River Basin.*

The Sagebrush/Salt Desert Shrub habitats provide vital foraging and breeding habitat for sage grouse, pronghorn antelope, neotropical migratory birds, and other indigenous species dependent on these habitats. Sagebrush habitats are not monotypic but, in fact, consist of a mosaic of shrub types of which sagebrush is the most dominant. Most of the Refuge uplands are dominated by this habitat. A unique variety of Wyoming big sagebrush exists in the valley from the upper Green River around Pinedale south to approximately Kemmerer. This variety is extremely palatable to wildlife which may account for the area's ability to support sage grouse, a declining species, and large herds of wintering pronghorn. Maintenance of this sagebrush/salt desert shrub community is a priority for the Service.

The Hay Farm unit was once planted to a mix of "tame grass" species to be used as irrigated hay for elk feed. When the irrigation was abandoned the area reverted to a mix of grasses and tall annual weedy forbs. Without irrigation it would be very difficult to convert this habitat to a native grass-shrub mix and it provides the only upland tallgrass cover on the Refuge. Following several wildfires on the Refuge, areas previously dominated by solid stands of greasewood were succeeded by vigorous stands of Great Basin wildrye. Tallgrass uplands and wildrye, in particular, are not very abundant on the Refuge and management will seek to maintain or moderately expand these unique vegetation types.

B3.1 Sagebrush/Salt Desert Shrub Habitat Objectives: Sagebrush-dominated (15,000 acres) and Salt Desert Shrub (3,000 acres) habitats will be managed for no-net loss and to minimize fragmentation of these habitats. Manage existing sagebrush/ salt desert shrub stands for a balance between shrub and perennial grass cover; and for open to moderate shrub cover (5 to 35 percent) and multiple height classes. Grass and forb canopy cover should be a minimum of 15 percent.

Strategies:

1. Survey upland shrub habitats and evaluate which shrub stands need restoration.
2. Extensively, overly dense, and crowded sagebrush stands that have lost much the native herbaceous understory and plant diversity may be selectively thinned or burned to re-establish a balance between shrub cover and perennial grass and forb cover.
3. Upland habitat will be protected from trampling and grazing by domestic livestock and off-road vehicles by maintaining boundary fences and enforcing off-road vehicle regulations.
4. Monitor treatment sites for habitat and wildlife response. Establish long-term monitoring transects/plots in all major upland habitat types to detect changes in cover and major species composition.
5. Suppress fires which threaten stands of tall sagebrush in draws. These areas provide crucial winter thermal cover for numerous species.
6. Develop research partnerships to evaluate the effects of grazing on wildlife and vegetation.

B3.2 Upland Tallgrass/Great Basin Wild Rye Objectives: Manage grasslands to maintain shrub cover at less than 10 percent for the improvement and maintenance of habitat for ducks, geese, sage grouse, moose, mule deer, pronghorn, and neotropical migratory birds.

Strategies:

1. Protect grasslands from grazing and trampling by domestic livestock and off-road vehicles by maintaining boundary fences and enforcing off-road vehicle regulations.
2. Survey range and site conditions and inventory vegetation composition.
3. Prescribed burns and mechanical methods, such as discing and mowing, may be used individually or together to achieve grassland objectives.
4. Monitor wildlife and habitat response to treatments. Establish long-term monitoring transects/plots to detect changes in cover and major species composition.
5. Reseed old fields to native grasses and forbs when the composition of native grasses and forbs is less than 50 percent.
6. Initiate several small scale (3 to 10 acres) prescribed burns in decadent stands of greasewood to increase the cover of Great Basin wild rye (up to 50 acres).

B4. Riverine Goal: *The Refuge staff, in collaboration with Wyoming Game and Fish Department and Reclamation, will manage water quality and quantity in the Green River to maintain and/or restore the riparian and cottonwood forests and provide habitat for waterfowl, trumpeter swans, fish, and other native species dependent on river and forested habitat.*

Ice-free areas along the Green River are important wintering areas for the Rocky Mountain population of trumpeter swans, waterfowl, and raptors. The trophy trout fishery is also dependent on winter flow management to maintain open water reaches and maintain minimum dissolved oxygen levels. Maintaining open water areas on the Green River during winter is dependent upon climate and flow releases from Fontenelle Dam. The Service will work with Reclamation and WYG&F to provide winter flows to meet these diverse species needs. Providing minimum flows will ensure breeding, foraging, wintering, and migration habitat for native fishes, waterfowl, swans, bald eagles, and other native species.

River management is also instrumental in maintaining the health of the riparian corridor (cottonwoods and willows). Research is currently underway to evaluate the health of the riparian corridor. Recommendations from this research may involve changes in summer river flows to help maintain and rejuvenate the aging cottonwood/willow forests. In coordination with Reclamation and the WYG&F, the Service will seek to establish summer flows which will facilitate the maintenance and restoration of the riparian corridor.

B4.1 Riverine Habitat and Fish Objectives: Work with Reclamation and WYG&F to maintain minimum winter river flows of 500 cfs to ensure the existence of areas in the River that are free of frazil ice and provide open water for wintering wildlife. Strive for winter flows of 700 to 800 cfs. Assure dissolved oxygen (D.O.) level of at least 6.3 mg/l. Strive to ensure that fluctuations do not exceed 100 cfs in a 24-hour period.

Strategies:

1. Establish aquatic vegetation transects to evaluate changes in aquatic vegetation in relation to River management.
2. Cooperate with WYG&F to monitor population trends in roundtail chubs, flannel-mouth suckers, trout, and trumpeter swans.
3. Evaluate the effects of instream river projects on targeted species.
4. Use temporary or permanent closures on the Refuge when necessary to provide areas with minimal disturbance to wildlife.
5. Monitor winter use by wildlife and visitors, including human and wildlife interactions.
6. Work with Reclamation to minimize sudden fluctuations in river flows.
7. Coordinate with USGS to establish standard water quality monitoring sites at 2 to 3 sites within the Refuge to evaluate changes in water quality.
8. Establish invertebrate monitoring sites to evaluate changes in invertebrate abundance relative to changes in River management.
9. Set up water quality monitoring program within wetland units and Green River to detect changes in basic water chemistry parameters.

B4.2 Riparian Corridor Restoration Objectives: Maintain River flows of a minimum of 500 cfs during summer. Strive for spring flows over 2,000 cfs (April to June), flows of 800 to 1,200 cfs from July to October, and winter (November to March) flows of 700 to 800 cfs. Provide a one to two week pulse of 2,000 cfs in late July or August to recharge the floodplain.

Strategies:

1. Work with Reclamation and the WYG&F to evaluate and potentially modify summer river flows with respect to maintenance and restoration of the riparian corridor.

B5. Invasive Species Goal: *Restore and maintain indigenous flora diversity by controlling the invasion of exotic plant species on the Refuge.*

The most aggressive control will take place on scattered, new invasive populations. The Refuge staff will regularly update and implement a weed containment plan utilizing Integrated Pest Management practices to reduce the extent of target weed species in riparian/wetland habitats and to prevent their spread to new locations. Much of the wet meadow/short emergent habitats along the middle third of the riparian area (longitudinally along the length of the river) are heavily infested with perennial pepperweed. The short-term strategy is to use mechanical methods (mowing) and herbicides to reduce populations. Efforts have focused from the north refuge boundary working southward. Re-seeding of heavily infested areas may be required. Tamarisk can be readily found in low densities upstream off Refuge lands. Control on the Refuge and cooperative upstream control are both considered essential. This species may be at the limits of its range in this area. The exact potential for invasion and spread here is unknown.

B5.1 Control Exotic Plant Populations Objectives: Eradicate or reduce by 90 percent over the next 10 years the frequency of the following noxious plants: perennial pepperweed, Russian knapweed, Canada thistle, musk thistle, salt cedar, and hoary cress.

Strategies:

1. Use fire, herbicides, mechanical methods, and biological control to eradicate or reduce undesirable exotics.
2. In areas where exotic weed control has been conducted, reseed the treated sites to native grasses, forbs, and shrubs.
3. Evaluate effects of noxious plant control, and develop appropriate strategies.
4. Continue to support research into exotic plant control on the Refuge.
5. Network with local noxious plant experts to maintain current information on techniques and practices used to control exotic plants.
6. Develop “watch list” of noxious weed species which occur or have the possibility of occurring on the Refuge for use by the staff and volunteers.
7. Annually monitor suitable habitat and known infestations of tamarisk and treat immediately. Coordinate with Reclamation and BLM in the development and implementation of a control program for salt cedar infestations occurring on lands upstream of the Refuge.

Public Use, Recreation, and Resource Protection

C1. Wildlife-Dependent Recreation Goal: *Nurture an understanding of and appreciation for wildlife and other natural resources of the Green River Basin by providing opportunities for compatible wildlife-dependent recreation while maintaining the primitive, uncrowded nature of the area.*

C1.1 Wildlife Observation and Photography Objectives: Provide visitors with quality wildlife observation and photography opportunities. Provide opportunities and minimal facilities for visitors of all abilities to enjoy wildlife-dependent recreation without compromising the quality of the visitor experience or the purpose of the Refuge.

Strategies:

1. Maintain the nine mile west side auto tour route at least twice per year to ensure year-round access for visitors.
2. Maintain and enhance current road pullouts along the auto tour routes. Provide directional signs to indicate parking areas.
3. To improve access to the river and reduce visitor impacts to the river corridor, maintain and enhance the four existing boat ramps on the west side of the River at Dodge Bottom, Hay Farm, Highway 28, and 6 Mile Hill. Install or add additional cable crete to boat ramps to improve launching of boats. Delineate parking areas at boat ramps.
4. Work with the WYG&F to establish a no-wake zone or establish a motor horsepower limitation on the Green River through the Refuge.
5. Maintain availability of Refuge lands for miscellaneous occasional compatible public uses (i.e., horseback riding, picnicking, cross-country skiing, snow shoeing, and bicycling) without further expenditure of Refuge resources.
6. Update and convert the existing species list brochure according to the latest Service graphics format.

C1.2 Hunting and Fishing Objectives: Provide a variety of quality River fishing opportunities and hunting opportunities on portions of the Refuge.

Strategies:

1. Continue participation in “Take a Kid Fishing Day” and establish at least one additional annual activity for local youth.
2. Meet annually with the WYG&F to determine hunting and fishing opportunities/seasons on Refuge lands.
3. Develop a fishing and hunting leaflet to explain special Refuge regulations and enhance the visitor experience.
4. Modify the existing areas “closed to hunting” and “closed to migratory bird hunting” to improve wildlife observation/photography opportunities, simplify boundaries for hunters, maintain a quality hunt program, and provide better resting/feeding opportunities for migrating birds and wintering wildlife. The closed area will likely center on the Hawley, Hamp, and Pal wetland management units and include wetland and riverine habitat. Establishment of the new closed area will be in coordination with the WYG&F and with participation of the general public. Barring the establishment of a closed area on Riverine habitat, the Refuge would explore closure of the waterfowl season on December 1 to reduce disturbance to wintering wildlife.
5. Conduct law enforcement patrols to ensure visitors comply with refuge regulations and provide a quality experience for law abiding visitors.
6. Monitor and manage permitted guided use of the Refuge, in accordance with the Recreation Fee Pilot Program. Finalize the draft “Commercial Guide Plan” for the Refuge. Reduce the number of commercial outfitting permits to four or less in accordance with the Commercial Guide Plan. Sections of the River may be closed to commercial guiding in the future to avoid over-crowding.
7. Explore opportunities to offer special hunting and fishing opportunities for persons with disabilities or disadvantaged youth.
8. Install an accessible pit toilet and associated parking area, at Dodge Bottoms boat ramp.
9. Roadside parking areas will be delineated for anglers in high use areas.

C2. Environmental Education and Interpretation Goal: *Educate and inform the public about the Refuge, the U.S. Fish & Wildlife Service, The National Wildlife Refuge System, and the Upper Colorado Ecosystem by providing quality environmental education and interpretation opportunities.*

C2.1 Environmental Education and Interpretation Objectives:

Seedskaadee NWR will provide a high-quality environmental education and interpretive program for visitors of all abilities to enhance their appreciation and understanding of wildlife and people's role in the environment.

Strategies:

1. Develop one river interpretive canoe trail and provide interpretive brochures to inform and educate boaters about the natural and cultural resources found within the Refuge and the importance of riparian areas in the arid west.
2. Develop and maintain interpretive panels at a minimum of five pullouts along the auto tour route (Map 8). Interpretive panels will highlight topics such as: river hydrology, habitat management, fishery and wildlife resources.
3. Develop and maintain one nature interpretive trail near the headquarters and one cultural resource trail at the Lombard Ferry site. Trails will include interpretive panels. Trails will be made accessible to visitors of all abilities (Map 8).
4. Conduct a minimum of two on-site teacher training workshops that demonstrate activities educators may use to inform students about the Green River and its related natural resources.
5. With the assistance of local educators, develop one environmental education curriculum package for the proposed nature trail.
6. Construct an environmental education/interpretation facility (6,000 square feet) at Seedskaadee NWR and explore partnering opportunities for operating the facility. The facility would include an activity room, interpretive display area, kitchen, rest rooms, and office (Map 8).
7. Assist schools by conducting limited Refuge environmental education tours as requested.
8. Continue participation in local and State community events like the Green River Fly Swap, Red Desert Sport Show, and Casper Wildlife Expo.
9. Update existing kiosk signs within the next 15 years. Map 8
10. Develop and maintain interpretive panels at 5 significant cultural/historical sites.
11. Partner with Wyoming Audubon to assist with environmental education and interpretation programs and explore the opportunity to locate and Audubon Center at the Refuge.

C3. Resource Protection Goal: *Protect Refuge resources from adverse natural and/or man-made impacts.*

C3.1 Public Use Objectives: Determine public use levels year-round and monitor impacts to habitat and wildlife via surveys.

Strategies:

1. Continue collection of river registration information at boat ramps. Data will be used to assess if there is a correlation between river uses and habitat impacts and/or wildlife disturbance.
2. Install automatic traffic counters at selected Refuge entrances. Provide visitor sign-in logs at Refuge headquarters and at the Lombard Ferry interpretive site.
3. Monitor River use activities and recreation numbers via remote video to evaluate what type of uses are occurring and locations of uses. Data collected by these means will be used in conjunction with other resource data to analyze impacts to Refuge resources.
4. Develop a Public Use and Sign Plan for the Refuge.
5. Visitor use limits and seasonal closures may be instituted if visitor use levels increase to a level which disturbs wildlife, causes resource impacts, or exceeds visitor tolerances.

C3.2 Designated Roads Objectives: Establish designated roads for visitor use which are compatible with the purposes of the Refuge and provides for compatible wildlife recreation opportunities.

Strategies:

1. Reduce fragmentation, damage to habitat types, and disturbance to wildlife by closing select roads which enter sensitive areas. 49.2 miles of designated roads will remain open for public travel if it is determined this does not significantly disturb and/or harm habitat and/or wildlife. Seasonally close 5.4 miles of designated roads on the east side of the River to vehicle use from November 15 through March 15 to reduce disturbance to wintering wildlife utilizing riverine habitat (Map 9).
2. Install numbered road markers at road intersections. These road markers will be depicted on Refuge brochure maps and assist visitors to locate their position on the refuge. Install gates on Refuge administrative roads. Establishment of road markers and gates should alleviate any confusion regarding which roads are open or closed and thus reduce the potential for off-road travel.
3. Close all non-designated roads using a combination of signs, gates, and restoration techniques (ripping and seeding roads).

C3.3 Refuge Information and Regulations Objectives: Provide up to date information to visitors about Refuge regulations to ensure compliance and ensure visitor safety.

Strategies:

1. Conduct education and information campaign using news releases and public meetings to gather public comments on proposed changes to refuge management and to inform the public of regulation changes.
2. Update the general Refuge information brochure every 2 years.
3. Improve directional and regulatory signing on the Refuge to ensure visitors comply with regulations.
4. Ensure information stations located throughout the Refuge are filled regularly with Refuge Brochures (Map 8).
5. Provide at least one full time or three collateral law enforcement officers to ensure protection of Refuge resources and public safety.

C3.4 Livestock Management/Fencing Objectives: Manage livestock access to water in accordance with legal requirements, to minimize impacts to wildlife and habitat, and reduce conflicts with visitors. Maintain fencing around Refuge lands in coordination with WYG&F to minimize impacts of fencing to wildlife.

Strategies:

1. Manage livestock access/watering lanes to minimize conflicts between livestock and Refuge public use. Designate parking areas near livestock watering lanes and create signs informing the public about the purpose of livestock access lanes (Map 5).
2. Segments of Refuge lands, which are not currently fenced, will be evaluated and, where feasible, they will be fenced. Segments of current fence which are not “antelope-friendly” will be modified to comply with antelope fencing recommendations.
3. Subject to valid existing rights, access to water for livestock would be provided in designated watering lanes only (Map 5).
4. Providing spring watering opportunities for Rock Springs Grazing Association (RSGA) members will be coordinated as specified by the conditions set forth in the warranty deed which accompanied the sale of lands from RSGA to the Refuge.

C3.5 Land Acquisition/ Development Objectives: Protect and acquire lands which support the purposes of the Refuge or mission of the National Wildlife Refuge System.

Strategies:

1. Cluster facility development at the current site of the Refuge headquarters and other buildings and leave the remainder of the Refuge in a primitive and semi-primitive condition (Map 8).
2. The remaining five acres of privately held land within the Refuge boundary would be purchased if there were a willing seller. Other lands would be considered for acquisition on a willing seller basis if information indicated that additional acres were necessary for management of selected species (i.e., threatened and endangered species), to simplify boundary management, or for mitigation purposes. Such areas may include upstream riverine riparian areas, especially between Fontenelle Reservoir and Big Piney or lands surrounding the Big Sandy River. Any additional land acquisition or disposal would go through a public involvement process and be on a willing seller basis only.
3. Conduct a formal review of Refuge lands to determine if portions of the Refuge are eligible for designation as “wilderness.”

C3.6 Mineral and Oil Exploration Objectives: Minimize impacts/threats to the Refuge associated with the development of future rights-of-ways (ROWs) and from mining and gas exploration.

Strategies:

1. Mineral exploration and development would be allowed only for privately-owned minerals and under surface use stipulations designed to maximize protection of wildlife, stabilization of soils, and restoration of disturbed vegetation; as well as to minimize adverse effects to the Refuge visitor's experience.
2. No surface occupancy would be allowed for access to privately-owned minerals if they may be otherwise reasonably accessed.
3. Rights-of-way would be reviewed and approved on a case-by-case basis. A right-of-way through the Refuge would be denied if feasible alternative routes were available. If no alternative route were available, ROWs would be approved or denied based upon their impacts to wildlife and habitat. Compatibility Determinations must accompany any ROW determination.

C4. Cultural Resource Goal: *Protect and interpret significant historic and prehistoric cultural sites and objects associated with Refuge lands.*

C4.1 Cultural Resource Protection Objectives: Continue inventorying of Refuge lands for cultural resources and provide quality interpretation and protection of significant sites.

Strategies:

1. Consult with the State Historic Preservation Office prior to all proposed actions.
2. Avoid disturbance to areas of known cultural sites and potential sensitive areas when practical and mitigate any adverse effects to sites (Map 7).
3. Obtain data and produce a cultural resource overlay for the spatial resource information database (GIS).
4. Incorporate interpretation of the Lombard Ferry replica into the existing Lombard Crossing interpretive site (Map 7 and 8).
5. Update the Refuge historical brochure as new information becomes available.
6. Maintain the character of the historic viewshed of the Oregon/Mormon National Historic Trails by minimizing visual impacts during Refuge development.
7. Identify sites for additional protection and interpretation.

C5. Partnership Goal: *Foster partnerships to promote wildlife conservation and habitat management in the Green River Basin and to help Seedskaadee NWR accomplish its vision and goals.*

C5.1 Partnerships , Volunteers, and Leadership Objectives: Create opportunities for new partnerships among Federal, State, and local agencies, organizations, schools, corporations, communities, and volunteers in order to promote and sustain the development and management of the Refuge.

Strategies:

1. Encourage the development of a local “Friends” group to support Refuge goals and assist in future fund raising and cooperative ventures. Potential groups to approach include the Good Sam’s Club, Audubon groups, Trout unlimited, and local school and universities.
2. Encourage the development of a cooperative study between USFWS, BLM, and Reclamation to determine the eligibility and suitability of designating the Green River as a wild and scenic River.
3. Designate a volunteer coordinator to recruit, train, and supervise volunteers.
4. Utilize a variety of sources (web sites, email, university contacts, wildlife and fishery professional societies) to recruit volunteers with diverse backgrounds.
5. Provide room and board if necessary, for volunteers working at the Refuge. Provide at least one bunkhouse with three bedrooms and three trailer pads with RV hookups.
6. Annually evaluate the volunteer program and implement changes when needed.
7. Provide technical assistance on wetland and riparian habitat management and restoration to landowners and land managers.
8. Stay actively involved in other neighboring Federal, State, and private planning processes to protect Refuge resources and foster cooperative management of those resources in the Green River Basin.
9. Continue participation with Trout Unlimited and WYGF to assist with local river improvement projects.
10. Continue or expand opportunities with the Rock Springs, Green River, and Farson Chambers of Commerce to participate in local events, develop websites, and improve dissemination of literature about the Refuge.
11. Continue inter agency coordination with BLM, Counties (Sweetwater and Lincoln), USFS, WY State Forest Service, Green River and Rock Springs Fire Departments, and National Park Service to assist with wildfire suppression activities.
12. Continue coordination with the American Bird Conservancy (ABC) to publicize the Refuge’s designation as a Globally Important Bird Area. Expand birding opportunities and work with ABC to provide additional funding for bird related habitat improvement or education projects.
13. Participate in the Intermountain West Joint Venture of the North American Waterfowl Management Plan and Wyoming Partners in Flight Program.
14. Partner with Wyoming Audubon to provide opportunities for Audubon volunteers to assist with bird monitoring programs. Explore the opportunity for locating an Audubon Council at the Refuge.

V. Implementation and Monitoring

Funding and Personnel

Staffing Needed to Implement This Plan: Table 5.1 shows current staff and proposed additional staffing needed to fully implement this plan. If all positions were filled, the Refuge would be able to carry out all aspects of this plan to a reasonable standard. If some positions are not filled, completion of some projects may be delayed or not completed. Staffing and funding are expected to come over the 15-year life of this Plan. Seedskadee NWR is currently responsible for management of Cokeville Meadows NWR (7,677 acres) which remains an unfunded Refuge.

| Table 5.1 Staffing Plan | |
|--|--|
| Current Personnel | Personnel Needed |
| Refuge Manager (Project Leader) GS-12 | Refuge Manager (Project Leader) GS-12 |
| Assistant Refuge Manager (ROS) GS-11 | Assistant Refuge Manager (ROS) GS-11 |
| Administrative Support Assistant GS-06 | Administrative Assistant GS-07 |
| Ecologist GS-06 | Ecologist GS-11 |
| Biological Technician (Wildlife) GS-06 | Biological Technician (Wildlife) GS-07 |
| Engineering Equipment Operator WG-09 | Engineering Equipment Operator WG-10 |
| New Position | Public Use Specialist GS-09/11 |
| New Position | Maintenance Mechanic WG-09 |
| New Position | Biological Technician GS-5 (Seasonal) |

Funding Needed to Implement This Plan: Currently, a large backlog of maintenance needs exists on the Refuge. The needs are recorded in a national Maintenance Management System (MMS). In 2000, under current management plans, the backlog for Seedskadee NWR was \$2,271,000. These needs would need to be met under this plan. A summary of these needs is listed below.

| | |
|------------------------------------|--------------------|
| Vehicles and Equipment | \$1,428,000 |
| Water Control Structures and Dikes | \$ 335,000 |
| Domestic Water System | \$ 375,000 |
| Bridges and Roads | \$ 25,000 |
| Buildings | \$ 90,000 |
| Radio System | \$ 18,000 |
| TOTAL | \$2,271,000 |

The System also uses another database, the Refuge Operating Needs System (RONS). Table 5.2 reflects the Service's (Refuge's) proposed projects, in priority order, as detailed in the Refuge Operational Needs System (RONS). Many of these "projects" involve increases to the Refuge's permanent staffing and funding to carry out the increased responsibilities outlined in this CCP. They also represent needs stemming from an increase in acquired acreage and the maintenance of additional facilities. Each year RONS projects are submitted and compete with similar projects within the Region and with other Service Regions for Refuge funding increases. Completed RONS data sheets for the proposed projects can be found in Appendix C of this document.

| Table 5.2 RONS Project Summary for Seedskadee NWR (2000) | | |
|---|---|---------------------------|
| Project Description (in priority order) | Base Increase (B) # of Year Funds (1-4) Hire Personnel (P) | Projected Cost |
| Enhance public education and outreach activities | B/P | \$139,000 |
| Control and eradicate noxious weeds | B/P | \$78,000 |
| Maintain public use and refuge facilities | B/P | \$125,000 |
| Improve water level management to enhance wetland impoundments | 1 | \$49,000 |
| Improve trumpeter swan management and augmentation program | 1-2 | \$38,000 |
| Improve directional and interpretive signing to enhance visitor experiences and protect habitat | 1 | \$36,000 |
| Enhance refuge brochures and public information | 1 | \$29,000 |
| Enhance volunteer and temporary hire housing facility | 1 | \$65,000 |
| Implement riparian restoration efforts | B | \$54,000 |
| Provide education outreach displays and protect historic trails | 1 | \$40,000 |
| TOTAL | | \$653,000 |

Table 5.3 outlines projects which the Service and Reclamation agree to carry out jointly as part of Reclamation's mitigation obligations for the Seedskaadee Project. Funding is generally available for this mitigation work and it is anticipated that these projects will be completed on or about the schedule proposed below. None of these "projects" represent increases to the Refuge's base funding.

| Table 5.3 Reclamation Cooperative Mitigation Projects | |
|---|---------------------------|
| Project Description | Work Schedule (FY) |
| Habitat Development Projects | |
| Enhance Pal Unit wetlands | 2001-2003 |
| Restore oxbow/other wetlands | 2002-2005 |
| Enhance dikes and water control in Hawley Unit | 2002-2003 |
| Control pepperweed/restore infested areas | 1999-2010 |
| Restore riparian areas | 1999-2010* |
| Rip, seed and restore non-designated roads | 2000-2010 |
| Reclaim gravel barrow pit | 2006 |
| Enhance volunteer housing by adding air conditioning, propane heat, mudroom, and screen porch | 2002 |
| Public Use Projects | |
| Construct boat ramps and parking | 1999-2002 |
| Improve access and auto tour route, upgrade road system to all-weather | completed |
| Design and install interpretive signs along auto tour route | 2003-2004 |
| Construct a Lombard Interpretive Trail | completed |
| Construct interpretive trail near headquarters | 2002-2005 |
| Revise and reprint refuge brochures | 1999-2003 |
| Construct environmental education facility | 2001-2003 |
| Construct accessible rest room and associated parking lot facility at Upper Dodge Bottoms boat ramp | 2005 |
| Finish fencing of "roundout" parcels transferred from Reclamation in 1997/98 | 2003 |
| Install gates at administrative roads throughout the Refuge to reduce off-road travel | 2002 |
| Cultural resource inventory; document historic sites | complete |

* (Reclamation funding through 2003 - work likely to extend well beyond 2003)

CCP Implementation and Step-down Management Plans

The 1987 Refuge Master Plan, 1989 Station Plan, and 1995 Refuge Development Plan will be replaced by this Comprehensive Conservation Plan (Table 5.4). The CCP describes Refuge management and priorities for the next 15 years and details Refuge development (infrastructure, habitat, and public use) projects, both by the Service and by Reclamation under their mitigation obligation. This CCP is intended as a broad umbrella plan that provides general concepts, specific wildlife and habitat objectives, and federally listed species, public use, and partnership objectives. Depending on the Refuge needs, these may be very detailed or quite broad. The purpose of step-down management plans is to provide greater detail to managers to implement specific actions authorized by the CCP. Step-down management planning is the formulation of detailed plans that describe management activities necessary to implement strategies identified in this CCP. Step-down management plans describe the specific management actions to be followed, “stepping down” from the general goals, objectives, and strategies.

| Plan | Date Last Revised | Action | Revise |
|---|--------------------------|---------------------|---------------|
| Refuge Master Plan (Development Plan 1987) | 7/87 | Replaced by the CCP | 2001 |
| Station Plan (with goals and objectives) | 8/89 | Replaced by the CCP | 2001 |
| Refuge Development Plan | 12/95 | Replaced by the CCP | 2001 |

Table 5.5 displays a list of step-down plans and a schedule for their revision. Following completion of the CCP, most plans will need to be reviewed and revised, as necessary, to comply with the CCP and new policies following the passage of the Refuge Improvement Act of 1997. Additionally, several new plans, including the Public Use Plan and the Habitat Management Plan, will be developed. The preparation of new step-down plans or substantial changes to existing step-down plans typically will require further compliance with the National Environmental Policy Act (NEPA), other policies, and opportunity for public review.

The Habitat Management Plan is a new plan that will address management of all habitat types on the Refuge. It will include a discussion of habitat management objectives and various treatments (tools) to be used in habitat management and incorporate several existing step-down plans which deal with habitat management. The Public Use Plan will address the appropriate types and level of public use to be allowed on the Refuge, program management, such as hunting, and the development of facilities to accommodate public use.

| Step-down Plan | Date Last Revised | Objective | Revise |
|---|--------------------------|---|---------------|
| Beaver Trapping Plan | 3/81 | Review and incorporate into Habitat Management Plan | 2004 |
| Cultural Resource Plan | new | Complete | 2006 |
| Fire Management Plan | 5/83 | Review and revise | 2002 |
| Fishing Plan with Commercial Guide Sub-plan | 3/81 | Review and revise | 2003 |
| Grassland Management Plan | 5/82 | Review and incorporate into Habitat Management Plan | 2005 |
| Habitat Management Plan | new | Complete | 2006 |
| Hunting Plan | 8/86 1990 amended | Review and revise | 2003 |
| Integrated Pest Management Plan | 1/98 | Review and incorporate into Habitat Management Plan | 2003 |
| Predator/Furbearer Management Plan | 4/91 | Review and revise | 2003 |
| Public Use/Sign Plan | new | Complete | 2004 |
| Safety Plan | 7/98 | Review | 2002 |
| Water Management Plan | 1/98 | Review and incorporate into Habitat Management Plan | 2006 |
| Wildlife Inventory Plan | 8/91 | Review and revise | 2004 |
| Commercial Guide Plan | new | Draft complete 2000 | 2003 |

Partnership Opportunities

Only with public support will the Service succeed in its mission. That support comes through outreach: fostering education, understanding, and communicating the importance of the Service commitment to protecting habitat upon which wildlife depends. Outreach includes a broad array of activities and services focused on building relationships and communication. The Service is committed to getting its message to both traditional and nontraditional groups.

Seedskaadee NWR will continue to actively seek out and foster partnerships with organizations and individuals with whom a common goal is shared. Many individuals, groups, and organizations have contributed in significant ways to the Refuge. Local Scout Troops have assisted with many fencing and other maintenance projects. Ducks Unlimited has assisted with construction, placement, and maintenance of nesting structures. Trout Unlimited has helped the Refuge sponsor "Take a Kid Fishing" day and assisted with planning for numerous instream fish habitat structures on lands upstream off-Refuge. Individual volunteers have conducted habitat and biological surveys, constructed brochure boxes, graded roads, repaired fence, entered data into computers, completed environmental education programs, conducted general maintenance, completed numerous wood working projects, etc.

The WYG&F has been a partner with the Refuge by coordinating management of game species and fisheries on the Refuge, distributing information to the public about the Refuge, and providing cost share and technical assistance on habitat projects. The Bureau of Reclamation has provided extensive financial and technical assistance for completion of Refuge projects. Many individuals with an interest in the Refuge have provided thoughts and ideas for habitat projects, have assisted with cleanup of trash, and provided the Refuge information to enhance law enforcement efforts.

Seedskaadee NWR has partnered with the Bureau of Reclamation, the Bureau of Land Management, the Forest Service, the Natural Resource Conservation Service, the Wyoming Game and Fish Department, and private individuals to produce The Green River and Bear River Focus Area Plans of the Intermountain West Joint Venture. This plan supports projects that benefit wetland and riparian habitats. The Partners for Fish and Wildlife (PFW) Program is another example. Through this program, Seedskaadee NWR provides technical assistance to private landowners interested in improving habitat on their property.

The American Bird Conservancy (ABC) recently partnered with Seedskaadee NWR to designate the Refuge as a "Nationally" Important Bird Area (IBA) with the potential of becoming a "Global" IBA. The Refuge's designation as a IBA will assist ABC in developing a network of key sites in the U.S. and globally to further national and global bird conservation efforts. The Refuge will benefit through national attention as a valuable bird area, increased visitor support, and potentially increased funding. Seedskaadee has already been listed as an IBA in Wyoming. The National Audubon State Office in Wyoming has recently established partnerships with the Refuge to complete projects aimed at protecting and enhancing habitats for birds.

The Big Sandy Working Group is a group of land managers and private individuals interested in improving riparian and upland habitat along the Big Sandy River. The Big Sandy watershed, upstream of the Refuge, has a direct impact on the success of Refuge projects to restore habitat. The Refuge has also partnered with the Bureau of Land Management, U.S. Forest Service, and Bureau of Reclamation to cooperatively manage recreation resources along the lower section of the Green River in Wyoming. These partnerships benefit wildlife and fisheries and their habitats in the Green River Basin.

Many new partnership opportunities await Seedskaadee NWR. The Partners in Flight program strives to “improve our understanding of neotropical migrants, identify species most at risk, and develop and carry out cooperative plans to protect their habitat.” This partnership is a natural area of emphasis for Seedskaadee with its important riparian habitats. While the Refuge participates in this program to some extent, a more active role in the future is anticipated.

Additionally, the Refuge staff needs to spend more time on outreach. The staff has, and will continue to communicate and work with local ranchers, congressional staffs, State and local governments, local businesses in Green River, Rock Springs and Farson, area schools, and universities and colleges (particularly in Wyoming). More outreach in the local communities is needed to understand the concerns of local citizens and to help them understand the mission, goals and objectives of Seedskaadee NWR. An environmental education center, constructed by the Service and Reclamation could provide a place for area schools to conduct year-round environmental education as well as a center for forums with the local communities on issues affecting wildlife and the environment in southwestern Wyoming. It would be advantageous for the Refuge to explore the development of a “Friends” group or other community support organization to assist the Refuge in carrying out its goals and objectives. The Environmental Education center could provide the catalyst for such a group.

Monitoring and Evaluation

This CCP is designed to be effective for a 15-year period. The plan will be reviewed annually and revised as required to ensure that established goals and objectives are still applicable and that the CCP is implemented as scheduled. The monitoring program will focus on issues involving public use activities, habitat management programs, wildlife inventory, monitoring and management activities, and the progress and success of Refuge development as part of Reclamation's mitigation efforts. Monitoring and evaluation will utilize the adaptive management process which includes goal and objective setting, applying management tools and strategies, and monitoring and feedback to validate objectives. Adaptive management provides a framework within which biological measures can be evaluated by comparing the results of management, to results expected from objectives.

Where information gaps exist, a concerted effort will be made to obtain information. With new information, goals and objectives may need modification. Public involvement will be encouraged during the evaluation process.

Monitoring of public use programs will involve the continued collection of visitor use statistics. Monitoring will be done to evaluate the effects of public use on Refuge habitat, wildlife, and refuge visitor experience. In particular, river use will be closely monitored to assess success and satisfaction with river use levels and commercial use of the river by permitted outfitters.

Collection of baseline data on all wildlife populations will continue. This data will be used to update existing species lists, wildlife habitat requirements, and seasonal use patterns. Neotropical migratory birds, raptors, and species of management concern will be the focus of monitoring efforts. Wildlife monitoring will be used to evaluate the effects of public use and habitat management programs on wildlife populations. Additionally, a series of vegetative transects/plots in all major habitat will be established as a long-term habitat monitoring network. This information will be used to assess the effects of abiotic factors (weather), habitat manipulation (such as burning and invasive species control), and wildlife population management strategies (hunting, trapping, etc.) on long-term habitat trends on the Refuge.

This CCP outlines the development actions needed to complete Reclamation mitigation efforts on Seedskadee National Wildlife Refuge under the Seedskadee Project (Section 8, CRSP) and, as such, supersedes the 1958 "Coordination Act Report" for Seedskadee NWR. A list of projects, with expected start and completion dates, responsibilities, and estimated budgets, will be reviewed and revised annually by the Service and Reclamation. Most activities, particularly in the area of infrastructure and public use development, are detailed in this CCP. Some actions necessary for habitat mitigation (i.e., riparian restoration) are still in the developmental stages and therefore specific mitigation actions are not included here but will be part of later specific action plans (i.e., riparian restoration plan). The Service will provide an annual progress report to Reclamation. The success of mitigation efforts in meeting goals and objectives, outlined in this CCP, will also be addressed.

Plan Amendment and Revision

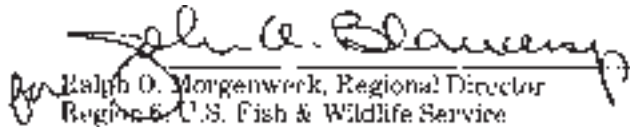
The Seedskadee National Wildlife Refuge CCP is a dynamic plan. While it will serve as a guide for overall Refuge direction, it will be adjusted to consider new and better information, ensuring that Refuge activities best serve the established purpose of this Refuge and the mission of the National Wildlife Refuge System. The CCP will be reviewed every 5 years, and monitored continuously to ensure the developed management actions support the goals and objectives of Seedskadee NWR.

This CCP will be informally reviewed by Refuge staff while preparing annual work plans and updating the Refuge Information Management System (RMIS) database. It may also be reviewed during routine inspections or programmatic evaluations. Results of the reviews may indicate a need to modify the CCP. The monitoring of objectives is an integral part of the plan, and management activities may be modified if desired results are not achieved. If minor changes are required, the level of public involvement and associated NEPA documentation will be determined by the project leader. This CCP will be formally revised at least every 15 years.


Environmental Action Statement

U.S. Fish & 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 (NEPA) and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of implementing the Seedskadee National Wildlife Refuge Comprehensive Conservation Plan (CCP) is found not to have significant environmental effects as determined by the attached Finding of No Significant Impact and the Environmental Assessment as found in the Draft CCP.


Ralph O. Mungenwerk, Regional Director
Region 6, U.S. Fish & Wildlife Service

9/24/02
Date


Richard A. Coleman, Ph.D.
Regional Chief, National Wildlife Refuge System
Refuges and Wildlife

9/24/02
Date


Steve Berendzen, Refuge Program Supervisor
National Wildlife Refuge System
Refuges and Wildlife

9/24/02
Date


Carol Damberg, Project Leader
Seedskadee National Wildlife Refuge

9/10/2002
Date

Finding of No Significant Impact (FONSI)

Finding of No Significant Impact

Fulfill the Seedskadee National Wildlife Refuge Comprehensive Conservation Plan

Based upon the analysis of the Environmental Assessment prepared in conjunction with the draft Comprehensive Conservation Plan (CCP) and the application of the Reasonable and Prudent Alternative (RPA) prepared by the U.S. Fish and Wildlife Service's Ecological Services office in Wyoming, I find that the proposed action of implementing the Seedskadee National Wildlife Refuge CCP will not have a significant impact on the human environment. Originally, four alternatives (including the "No Action" alternative) were considered in the first internal draft CCP/EA document for this Refuge and eventually were reduced to three alternatives.

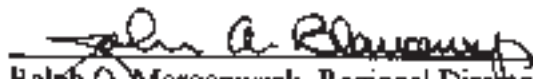
The decision to adopt the preferred alternative (Balanced Wildlife and Public Use) was made because it is more responsive to the purposes for which Seedskadee NWR was established and is preferable to the No Action alternative in light of physical, biological, economic and social factors. This alternative will benefit foraging raptors, migrating and nesting waterfowl, marsh birds, and neotropical migrants. Riparian vegetation will be restored and protected with improvements in water quality, and vehicle travel routes modified to improve wildlife habitats and diversify visitor experiences. Cultural and historical resources will be interpreted and protected.

The decision to apply a Reasonable and Prudent Alternative to the implementation of the CCP for Seedskadee NWR was made because the Intra-Service consultation, in accordance with Section 7 of the Endangered Species Act, detected actions likely to jeopardize the continued existence of federally listed fish species in the Colorado River basin. In order to avoid a jeopardy situation as a consequence of implementing the CCP, the Service will continue to participate in and abide by the recommendations prepared by the Colorado River Recovery Implementation Program as its Reasonable and Prudent Alternative.

Therefore, given all the conservation measures associated with this CCP, I find that the proposed action will not have a significant impact on the human environment in accordance with Section 102 of the National Environmental Policy Act and the Service's Administrative Manual 30 AM 3.9B(2)(d). I conclude that an Environmental Impact Statement is not necessary.

My rationale for this finding is as follows:

1. The proposed action, with the Reasonable and Prudent Alternative, is not likely to affect any federally listed endangered species;
2. The proposed action will protect cultural resources;
3. The proposed action will not adversely affect wetlands; and,
4. The proposed action will not significantly impact the socio-economic values to the community.


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

9/24/02
Date

Appendix A. Glossary

Acre-foot: The amount of water required to cover an acre of land to the depth of 1 foot.

Active nest: Birds initiated nest building but may not have progressed further.

Adaptive resource management: Management viewed as an adaptive process involving an array of potential management actions, set of models representing effects of actions, measures of uncertainty, and objective junctions to evaluate actions.

Alkaline: The opposite of acid; having a high pH value.

Alluvial: Relating to river and stream deposits.

Arroyo: A step-sided, flat-bottomed gully cut through cohesive sediment deposits in arid regions.

BLM: Bureau of Land Management

Blinds: Structures made of artificial or natural materials that provide visual camouflage for hunters or wildlife viewers and photographers.

BMN: Refuge bat mist netting records

BP: Before present

Browse: Tender parts of shrubs, woodvines, and trees that are eaten as food by animals. Browsing is distinct from grazing because it refers to eating woody material, whereas grazing is usually restricted to non-woody plants such as grasses.

Candidate species: Animal or plant species that are being considered for Federal designation as either threatened or endangered.

Carrying capacity: The level of visitor use that can be sustained without degrading visitor experience as well as minimizing wildlife disturbance.

CCP: Comprehensive Conservation Plan (See Comprehensive Conservation Plan)

CFS: An abbreviation for water flow measured in cubic feet per second. A measure of streamflow volume. One cubic foot is 7.98 gallons. A flow of 1 cfs produces 448.8 gallons per minute.

Compatible use: A proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, in the sound professional judgement of the refuge manager, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the major purposes of the affected national wildlife refuge.

Conservation: Management of natural resources to provide maximum benefit over a sustained period of time. Conservation includes preservation and forms of wise use, including reducing waste, balanced multiple use, and recycling.

Comprehensive conservation plan (CCP): The CCP is a document that describes the desired future condition of the refuge and provides long-range guidance and management direction for the refuge manager to accomplish the purpose of the refuge, contribute to the mission of the System, and to meet other relevant mandates.

COE: Corps of Engineers

Core: A specimen of rock, soil, or sediment that has been extracted by drilling.

CRSP: Colorado River Storage Project Act of 1956.

Cultural resource: Evidence of human occupation or activity that is important in the history, architecture, archaeology or culture of a community or region.

Dense: A term used to describe the density of vegetation in a given area and indicates the physical difficulty an animal would experience while traveling through the habitat.

Desert pavement: A thin layer of coarse particles left on the surface of unconsolidated sediment after finer particles have been carried away by wind.

Downcutting: Reduction in sediment and streambed materials causing an erosive deepening of the active river channel.

Drawdown: Lowering water levels within a reservoir.

Emergent: Vegetation that is rooted below the water's surface but grows above the surface of the water.

Extirpation: The loss or removal of a species from one or more specific areas but not all areas.

Endangered species (E): Any species whose populations have been reduced to the point that it is at risk of becoming extinct over much or all of its range in the near future.

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 animals of a particular region or a particular area.

Fee-title: Acquiring total, unrestricted ownership of a parcel of land.

Flora: All the plants in a particular region or a particular area.

Forage: Food for animals, especially that obtained by grazing or browsing. Also, to look for food.

FTE: Full-time employee

Game species: Hunttable wildlife

Geographic Information System (GIS): Through the use of computer technology, GIS allows the input, storage, analysis, and display of a variety of physically locatable data, i.e., data which is known to exist at some specific place or area on the ground.

gpm: Gallons per minute

Habitat: The place where an animal or plant normally lives or grows, usually characterized either by physical features or by dominant plants.

Herbaceous: Resembling an herb, a green, leafy plant that does not produce persistent woody tissue. Herbaceous plants form the lowest layer of vegetation in most plant communities.

HSP: Harriman State Park

High succession: Relatively complex, stable communities composed of populations of many different species of plants, animals, birds, insects, and microorganisms. Usually highly stable in that populations of member species tend to replace themselves over time and are resilient to distress.

Horsepower: Traditional unit for measuring the ability of an engine to do work in the foot-pound-second system, now usually replaced by the watt.

Interpret: Signs and structures that provide information on the natural environment and cultural resources for the convenience, education, and enjoyment of the visiting public.

Invertebrate: An animal without a backbone or internal body skeleton.

IPM: Integrated pest management

Kilowatt: One thousand watts. One kilowatt is approximately 1.34 horsepower.

Kiosk: A structure used to provide public information.

Loam: A general term for a soil mixture containing sand, silt, and clay in nearly equal parts.

Macrophyte: A large plant, as opposed to small and microscopic plants such as algae.

Maintenance Management System (MMS): The MMS is a national database which contains the unified maintenance needs of each refuge.

Marsh: Lowland that is occasionally covered by water. A marsh differs from a swamp in that it is dominated by rushes, reeds, cattails, and sedges with few, if any woody plants. It differs from a bog in having soil rather than peat as its base.

Migratory corridor: Route by which migratory birds move from one place to another.

Mitigation: Avoiding or minimizing impacts by limiting the degree or magnitude of the action and its implementation. Also, rectifying the impact by repairing, rehabilitating or restoring the affected environment and reducing or eliminating the impact through preservation and maintenance operations during the life of the action.

Monoculture: A method of farming in which one type of crop is grown on a large area over a number of years, or a plantation devoted to one species of trees. Monoculture results in the reduction in the diversity of associated animal species, including beneficial insect predators; it increases pest and disease.

Morphology: Study of the structure and form of an organism.

Multiple-use: Principle of managing public land such as a national forest so that it is used simultaneously for a variety of purposes such as timbering, mining, recreation, grazing, wildlife preservation, and soil and water conservation.

Neotropical migrants: Birds that migrate north in the summer and winter in South or Central America.

NEPA: National Environmental Policy Act

Nongame species: Non-huntable wildlife

Noxious weeds: A plant species that is undesirable or causes conflicts with native species.

NWI: National Wetlands Inventory

NWPCP: National Wetlands Priority Conservation Plan

NWRS: National Wildlife Refuge System

Open ponded water: Wetland classification that indicates all ponds and lakes that are entirely free of permanent vegetation.

Overstory: Uppermost layer of vegetation in a forest, formed by the leaves and the branches of the highest trees. The overstory contributes to the entire canopy.

Patchy: A term that describes the dispersion of vegetation within a given area and the relative level of difficulty that an animal traveling through the area would experience. See dense.

PIF: Partners in Flight

Prescribed burning: Controlled application of fire to wildland fuels, either their natural or modified state, under such conditions as to allow the fire to be confined to a predetermined area while producing the intensity of heat and rate of spread required to achieve planned management objectives.

Priority public use: See wildlife-dependent recreational use.

Provinces: Natural regions that share similar climate, soils, topography, and vegetation.

Raptors: A bird of prey, such as an eagle or hawk.

reclamation: A general term for the filling, grading, and reseeded or replanting of land that has been disturbed.

Reclamation: United States Bureau of Reclamation

Refuge Administration Act: National Wildlife Refuge System Administration Act

Refuge Operating Needs System (RONS): The RONS is a national database which contains the unified operational needs of each refuge.

Relief: A general reference to the degree of variation in elevation between parts of a landscape.

- Resident migrants/songbirds: Birds that migrate generally between elevations, but remain within the same general area such as the Tropic of Cancer.
- Riparian: A term pertaining to features or land use along the banks of a stream or river.
- RMIS: A collection of databases containing information on the resources, needs, activities, and accomplishments of the National Wildlife Refuge System.
- RONS: See Refuge Operating Needs System
- ROW: Right-of-way
- RRL: Red Rock Lakes National Wildlife Refuge
- Sandy loam: Any loam that contains at least 70 percent sand and less than 15 percent clay particles.
- SCORP: State Comprehensive Outdoor Recreation Plan
- Service: U.S. Fish & Wildlife Service
- SOP: Standard operating procedure
- Sound professional judgement: A finding, determination, or decision that is consistent with the principles of sound fish and wildlife management and administration, available science and resources, and adherence to the requirements of the National Wildlife Refuge Improvement Act and other applicable laws.
- sp.: Species
- spp.: Subspecies
- Species of Special Concern: Plants and animals are considered “species of special concern” if they are vulnerable to extirpation at the global or state level due to: 1) inherent rarity (restricted geographic range, small population size, low population density, or specialized habitat requirements), and 2) significant loss of habitat, or sensitivity to human-caused mortality or habitat disturbances.
- Step-down management plans: Step-down management plans deal with specific management subjects such as habitat, public use, and safety. Step-down management describe the management strategies and implementation schedules.
- Story: A layer of vegetation within an area.
- Structural diversity: Variations in the physical characteristics of an environment that create a variety of habitats within a community, increasing the diversity of species that can live there.
- Substrate: Surface or medium that serves as a base for something. Substrate refers to the nutrient medium for an organism, or to a physical structure on which it grows.
- Sustained yield: A level of harvest of a renewable resource per year (or any other time period) that can be continued without jeopardizing the ability of the ecosystem to be fully renewed, and thus to continue to provide an undiminished level of harvest each year long into the future.
- Terrestrial: Of or relating to the land rather than water; the opposite of aquatic. Terrestrial organisms live or grow on land.
- Threatened species: A species that is not currently in danger of extinction but is likely to be in the foreseeable future. The status is determined by the Secretary of the Interior.
- Trona: soda ash
- Turbidity: A lack of clarity in a fluid, usually caused by turbulent flow picking up large quantities of particulate.
- Two-track road: Unsurfaced road
- Understory: The lowest layer of trees in a forest; the layer between the overstory tree layer and the shrub layer.
- Uneconomic remnants: These are lands outside the Refuge boundary purchased from private parties as parts of larger parcels within the boundary.
- Ungulate: Describing hoofed animals that usually graze, such as horses, deer, or cows.
- Upland: Area where water usually does not collect or flow on an extended basis. The opposite of wetlands.
- Upland game: Animal species, especially game animals such as bighorn sheep, living in mountainous areas.
- Vertebrate: Distinguished by possession of cartilaginous or bony, axial endoskeleton that forms a brain case and a vertebral column supporting the nerve cord.
- Viewshed: A landscape unit seen from a key viewing area.
- Weed: Any plant growing where it is not wanted, usually a wild plant that grows without much cultivation or care and may be invasive in cultivated areas.
- Wetlands: Areas of land that are covered with water for at least part of the year, have characteristically hydric soils, and have one of a number of distinctive vegetation types: swamps marshes, salt marshes (and other coastal wetlands), and bogs. Wetlands have important functions including purifying the water that recharges the aquifers, providing food and habitat for many different species, and providing temporary stopover sites for migrating waterfowl and other waterbirds.
- WFS: Refuge Waterfowl Surveys
- Wildlife-dependent recreational use: A use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation. These uses are the six priority general public uses of the Refuge System as established in the Refuge Administration Act.
- WOL: Refuge Wildlife Observation Log
- WYG&F: Wyoming Game and Fish Department
- WYWS: Wyoming Wetland Society Trumpeter Swan Fund

GLOSSARY - SPECIAL STATUS DEFINITIONS: Definitions for Tables 3.4 and 3.7.

Species conservation status (Heritage Ranks, Federal and State status) cited from Wyoming Natural Diversity Database (WYNDD). 2001. University of Wyoming, Laramie, WY.

PIF Ranks cited from Cerovski, A., M. Gorges, T. Byer, K. Duffy, and D. Felley. 2000. Wyoming DRAFT Bird Conservation Plan. Wyoming Partners in Flight, Lander, WY.

Heritage Ranks

WYNDD uses a standardized ranking system developed by The Nature Conservancy's Natural Heritage Network to assess the global and statewide conservation status of each plant and animal species, subspecies, and variety. Each taxon is ranked on a scale of 1-5, from highest conservation concern to lowest. Codes are as follows:

- G** Global rank: Rank refers to the rangewide status of a species.
- T** Trinomial rank: Rank refers to the rangewide status of a subspecies or variety.
- S** State rank: Rank refers to the status of the taxon (species or subspecies) in Wyoming. State ranks differ from state to state.
 - 1** Critically imperiled because of extreme rarity (often known from 5 or fewer extant occurrences or very few remaining individuals) or because some factor of a species' life history makes it vulnerable to extinction.
 - 2** Imperiled because of rarity (often known from 6 to 20 occurrences) or because of factors demonstrably making a species vulnerable to extinction.
 - 3** Rare or local throughout its range or found locally in a restricted range (usually known from 21 to 100 occurrences).
 - 4** Apparently secure, although the species may be quite rare in parts of its range, especially at the periphery.
 - 5** Demonstrably secure, although the species may be rare in parts of its range, specially at the periphery.
- H** Known only from historical records. 1950 is the cutoff for plants; 1970 is the cutoff date for animals.
- X** Believed to be extinct.
- A** Accidental or vagrant: A taxon that is not known to regularly breed in the state or which appears very infrequently (typically refers to birds and bats).
- B** Breeding rank: A state rank modifier indicating the status of a migratory species during the breeding season (used mostly for migratory birds and bats)
- N** **Nonbreeding rank:** A state rank modifier indicating the status of a migratory species during the non-breeding season (used mostly for migratory birds and bats)
- ZN or ZB** Taxa that are not of significant concern in Wyoming during breeding (ZB) or non-breeding (ZN) seasons. Such taxa often are not encountered in the same locations from year-to-year.
- U** Possibly in peril, but status uncertain; more information is needed.
- Q** Questions exist regarding the taxonomic validity of a species, subspecies, or variety.
- ?** Questions exist regarding the assigned G, T, or S rank of a taxon.

Federal Status

The U.S. Fish & Wildlife Service (USFWS) is directed by the Endangered Species Act (ESA) to identify and protect Threatened and Endangered plant and animal species. USFWS revised its candidate system in 1996, eliminating the old categories of C2 and 3C. The following categories are now being used to rank listed and candidate species:

- Endangered** Defined in the ESA as a species, subspecies, or variety in danger of extinction throughout all or a significant portion of its range.
- Threatened** Defined in the ESA as a species, subspecies, or variety likely to become endangered in the foreseeable future throughout all or a significant portion of its range.
- E/SA** Treated as endangered due to similarity of appearance with a listed species.
- Proposed** Taxa formally proposed for listing as Endangered or Threatened (a proposal has been published in the Federal Register, but not a final rule).
- Candidate** (formerly C1): Taxa for which substantial biological information exists on file to support a proposal to list as Endangered or Threatened, but no proposal has yet been published in the Federal Register.

State Status

The Wyoming Game and Fish Department (WYG&F) has developed a matrix of habitat and population variables to determine the conservation priority of all native, breeding bird and mammal species in the state. Six classes of Species of Special Concern (SSC) are recognized, of which classes 1, 2, and 3 are considered to be high priorities for conservation attention.

These classes can be defined as follows:

- SSC1** Includes species with on-going significant loss of habitat and with populations that are greatly restricted or declining (extirpation appears possible).
- SSC2** Species in which (1) habitat is restricted or vulnerable (but no recent or significant loss has occurred) and populations are greatly restricted or declining; or (2) species with on-going significant loss of habitat and populations that are declining or restricted in numbers and distribution (but extirpation is not imminent).
- SSC3** Species in which (1) habitat is not restricted, but populations are greatly restricted or declining (extirpation appears possible); or (2) habitat is restricted or vulnerable (but no recent or significant loss has occurred) and populations are declining or restricted in numbers or distribution (but extirpation is not imminent); or (3) significant habitat loss is on-going but the species is widely distributed and population trends are thought to be stable.
- SSC4** Species of Special Concern but are not a high priority for conservation attention.

Partners In Flight (PIF)

Partner's In Flight (PIF) was formed by the National Fish and Wildlife Foundation in 1990 to develop Bird Conservation Plans in each state to keep common birds common and reverse the downward trends of declining species. Priority species were ranked using 7 criteria, which include relative abundance, breeding distribution, non-breeding distribution, threats on the breeding grounds, threats on non-breeding grounds, population trend, and area of importance.

Priority species are defined as follows:

Level 1 (Conservation Action) Species needs conservation action. Includes species of which Wyoming has a high percentage of and responsibility for the breeding population, monitoring, and the need for additional knowledge through research into basic natural history, distribution, etc.

Level 2 (Monitoring) The action and focus for the species is monitoring. Includes species of which Wyoming has a high percentage of and responsibility for the breeding population, species whose stability may be unknown, species that are peripheral for breeding in the habitat or state, or additional knowledge may be needed.

Appendix B. Bibliography

Literature Cited

- Auble, G. T. and M. L. Scott. 1998. Preliminary Results from Comparison of Cottonwood Communities Upstream and Downstream of Fontenelle Dam on Green River, WY. Unpublished
- Bartels, W. S. 1991. Early middle Eocene (Bridger A), lower vertebrates from the southern Green River Basin, Wyoming. [Abst] *Journal of Vertebrate Paleontology*, v. 11, p. 16A.
- Berk, D. 1998. Seedskadee National Wildlife Refuge Vegetation Inventory, Technical Memorandum No. 8260-98-01, U.S. Department of the Interior, Bureau of Reclamation.
- Bitterroot Consultants. 1996. Draft Feasibility for Riparian Restoration at Seedskadee National Wildlife Refuge, Corvallis, MT. 30p.
- Bureau Of Land Management. 1997. Green River Resource Management Plan and ROD. Rock Springs, WY
- Colorado River Storage Project Act. 1956. 43 U.S.C. 620 §620g. Recreational and fish and wildlife facilities.
- Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. *Wildlife Society Bulletin* 28(4): 967-985.
- Constanza, Robert, R. d'Agre, R. deGroot, S. Faber, M. Grasso, B. Hannon, K. Limberg, S. Naeem, R. O'Neil, J. Paruelo, R. Raskin, P. Sutton, and M. van den Belt. 1997. The value of the world's ecosystem services and natural capital. *Nature*. Vol. 387.
- Federal Register. Vol 35. No. 102 Public Land Order 4834, Wyoming, Withdrawal for Seedskadee National Wildlife Refuge.
- Frison, G. C. 1978. Prehistoric Hunters of the High Plains. Academic Press, New York, New York, USA.
- Frison, G. C. 1991. Prehistoric Hunters of the High Plains. Second Edition, Academic Press, New York, New York, USA.
- Grande, L. 1984. Paleontology of the Green River Formation, with a review of the fish fauna. *Geological Survey of Wyoming Bulletin*. 63:1-133.
- Gunnell, G. F. and W. S. Bartels. 1994. Early Bridgerian (middle Eocene) vertebrate paleontology and paleoecology of the southern Green River Basin, Wyoming. *Contributions to Geology*, University of Wyoming, 30: 57-69
- Laubhan, M. 1997. Report on Green River Refuges. Seedskadee National Wildlife Refuge Internal Report.
- Leidy, J. L. 1871. On the fossil vertebrates of the early Tertiary Formations of Wyoming. Report of the U. S. Geological Survey of the Territories. 4:353-372.
- _____. 1869. Notice of some extinct vertebrates from Wyoming and Dakota. *Academy Natural Sciences, Philadelphia, Proceedings*, v. 21, p. 63-67.
- MacGinitie, H. D. 1969. The Eocene Green River Flora of northwestern Colorado and northeastern Utah. University of California. *Geological Sciences*. 83:140 p.
- Matthew, W. D. 1909. The Carnivora and Insectivora of the Bridger Basin, middle Eocene: *Memoirs America Museum Natural History*. 9: 289-567.
- Miller, J. C. and M. Kornfeld. 1996. Salvage Excavations of 48SW4141 Dodge Bottom Interpretive Road Sweetwater County, Wyoming. Technical Report No. 13 Department of Anthropology, University of Wyoming, Laramie, Wyoming.
- Parrish, T. L. 1988. Mountain Plover habitat selection in the Powder River Basin, Wyoming. M.S. thesis. University of Wyoming, Laramie, Wyoming. 60 pages.
- Parrish, T. L., S. H. Anderson, and W. F. Oelklaus. 1993. Mountain Plover habitat selection in the Powder River Basin, Wyoming. *Prairie Naturalist* 25:219-226.
- Pioneer Environmental Services. 1997. Seedskadee National Wildlife Refuge Wildlife - Habitat Matrix and Species Accounts. Logan, UT. 567pp.
- Roehler, H. W. 1993. Eocene climates, depositional environments, and geography, Greater Green River Basin, Wyoming, Utah, and Colorado. U.S. Geological Survey Professional Paper 1506-F, 14 p.
- _____. 1992c. Correlation, composition, areal distribution and thickness of Eocene stratigraphic units, Greater Green River Basin, Wyoming, Utah, and Colorado. U.S. Geological Survey Professional Paper 1506-E, 49 p.
- Ryan, T. 1998. USBR. Personal Communication with Bear West, Salt Lake City, UT.
- Sullivan, R. 1980. A stratigraphic evaluation of the Eocene rocks of southwestern Wyoming: *Geological Survey of Wyoming Report of Investigations* 20. 50 p.
- Taylor, D. T. 1996. Summer Visitors in Sweetwater County Wyoming. University of Wyoming. Cooperative Extension Service.
- The National Wildlife Refuge System Improvement Act of 1997. Public Law 105-57. 16 U.S.C. 668dd.
- The White House Executive Order 12996- Management and General Public Use of the National Wildlife Refuge System, 1996.
- Thompson, K. W. and J. V. Pastor. May 1995. People of the Sage: 10,000 Years of Occupation in Southwest Wyoming. Cultural Resource Management Report No. 67. Archeological Services, Western Wyoming Community College.
- USDI, BLM. 1992. Green River Resource Area Resource Management Plan and Draft Environmental Impact Statement. Rock Springs Bureau of Land Management, Rock Springs, WY.
- USDI, BOR. 1959. Seedskadee Project Wyoming Definite Plan Report, Appendix B Water Supply Plan Formulation. Region 4, Salt Lake City, Utah.
- USDI, USFWS. 1982. National Wildlife Refuge System Refuge Manual. Washington D.C.

- USDI, USFWS. 1989-1996. Seedskaadee National Wildlife Refuge Annual Narrative Reports. National Wildlife Refuge System. Unpublished.
- USDI, Fish and Wildlife Service Bureau of Sport Fisheries and Wildlife. 1958. A report on fish and wildlife resources in relation to the plan for the Seedskaadee Project Green River, WY. Southwest Region Albuquerque, NM. 37 pp with Appendix A (6 pp).
- U.S. Forest Service. 1989. An Analysis of the Outdoor Recreation and Wilderness Situation in the United States: 1989-2040.
- United States v. Hells Canyon Guide Service; United States District Court, District of Oregon; Civil No. 79-743; 5-6; 1979.
- United States v. Brown; 552 F.2d 822; 8th Cir. 1977.
- United States v. Armstrong; No. 99-1190; 8th Cir. 1999.
- West, R. M. 1976. Paleontology and geology of the Bridger Formation, southern Green River Basin, southwestern Wyoming. Part 1. History of field work and geological setting. Milwaukee Public Museum Contributions in Biology and Geology. 7:1-12.
- Literature References (not cited in text)**
- Auble, G. T., M. L. Scott, and J. Friedman. 1997. Notes on Impacts of Fontenelle Dam on Cottonwood Regeneration at Seedskaadee NWR. Unpublished.
- Bailey, R. G. 1978. Description of the Ecoregions of the United States. U. S. Forest Service, Intermountain Region. Ogden, UT. 77pp.
- Bean, M. J. 1983. The Evolution of National Wildlife Law. Praeger Publishers. New York, New York, USA.
- Blackstone, D. L., Jr. 1980. Tectonic map of the Overthrust Belt, Western Wyoming, Southeastern Idaho and northeastern Utah showing current oil and gas drilling and development. The Geological Survey of Wyoming Map Series 8, Scale 1:316,800.
- Bradley, W. H. 1964. Geology of Green River Formation and associated rocks in southwestern Wyoming and adjacent parts of Colorado and Utah. U.S. Geological Survey Professional Paper 496-A, p. A1-A86.
- Buchanan, T. and M. Kamby. 1990. University of Wyoming Department of Geography and Recreation, 1990 Wyoming DRAFT State Comprehensive Outdoor Recreation Plan (SCORP), Department of Commerce.
- Buchheim, H. P. and R. C. Surdam. 1977. Fossil catfish and the depositional environment of the Green River Formation. Wyoming. Geology. 5:196-198.
- Buchheim, H. P. 1981. Paleoenvironments and fossil fishes of the Laney Member, Green River Formation, Wyoming. Pages 415-452 in J. Gray, A. J. Boucot, and W. B. N. Berry, editors. Communities of the Past. Stroudsburg, Pennsylvania, Hutchinson Ross Publishing Co., USA.
- De Voto, B. A. 1947. Across the wide Missouri. Houghton Mifflin, Boston, 451 p.
- DeBruin, R. H. and C. Boyd. 1991. Oil and gas map of Wyoming. The Geological Survey of Wyoming, Map Series 35, scale 1:500,000.
- Dover, J. H., and J. W. M'Gonigle. 1993. Geologic Map of the Evanston 30Ex 60E Quadrangle, Uinta and Sweetwater Counties, Wyoming. U. S. Geological Survey. Miscellaneous Investigation Series Map I-2168, scale 1:100,000.
- Fremont, J. C. 1845. The exploring expedition to the Rocky Mountains in the year 1842 and to Oregon and North California in the years 1843-44. Senate Executive Document 174, 28th Congress, 2nd Session, 693 p.
- Friedman, J. M., M. L. Scott, and G. T. Auble. 1997. Water Management and Cottonwood Forest Dynamics Along Prairie Streams. Pages 49-71 in Knopf, F. L., and F. B. Samson, eds., Ecology and Conservation of Great Plains Vertebrates. Springer-Verlag, New York, NY, USA.
- Gilmer, D. R., J. C. Case, L. A. Coombs, and L. L. Larsen. 1991. Landslide map of the Ogden 1E x 2E Quadrangle. The Geological Survey of Wyoming, Open File Report 91-2M, scale 1:250,000.
- Grande, L. 1994. Studies of paleoenvironments and historical biogeography in the Fossil Butte and Laney members of the Green River Formation. Contributions to Geology, University of Wyoming. 30:14-32.
- Harris, R. E., W.D. Hausel, and J. E. Meyer. 1985. Metallic and industrial minerals map of Wyoming. The Geological Survey of Wyoming, Map Series 14, scale 1:500,000.
- Hickman, B. J. 1983. A cultural resource investigation of the Farson-Fontenelle Road in Sweetwater County, Wyoming. Office of the Wyoming State Archaeologist, University of Wyoming, Laramie, WY. Project No. WY-78-82. Hwy Project No. WHD (SCP-7876). 133 pp.
- Howe, J., E. McMahon, and L. Propst. 1997. Balancing Nature and commerce in gateway communities. Island Press. Washington D. C. 153 pp.
- Intermountain West Joint Venture Implementation Plan. 1995. A component of the North American Waterfowl Management Plan. 24pp + appendices.
- Lazerwitz, D. J. 1994. Bones of Contention: The regulation of paleontological resources on the federal public lands. Indiana Law Journal. 69:601-636.
- Leidy, J. L. 1870. Notice of remains of fishes in the Bridger Tertiary Formation of Wyoming. Philadelphia Department of Geology, Academy of Natural Sciences, Proceedings. 25: 97-99.
- Miller, J. C. and M. Kornfeld. 1996. Salvage excavations of 48SW4141 Dodge Bottom Interpretive Road Sweetwater County, WY. Department of Anthropology, University of Wyoming. Technical Report No. 13. 49 pp.
- Oakleaf B., A. O. Cerovski, and B. Luce. 1996. Nongame bird and mammal plan. Wyoming Game and Fish Department. 177pp.
- Osborn, H. F. 1931. Cope: Master Naturalist. Princeton University Press, Princeton, N.J., USA. 740 p.
- Osborn, H. F., W. B. Scott, and R. F. Speir. 1878. Paleontological report of the Princeton Scientific Expedition 1877. Contributions Museum Archaeology, Princeton College, NJ, USA. 107 p.

- Osborn, H. F. 1913. Joseph Leidy: National Academy Biographical Memoirs. 7:339-396.
- Roberts, S. 1989. Wyoming Geomaps. Education Series 1, 41 p.
- Roehler, H. W. 1991. Revised stratigraphic nomenclature for the Wasatch and Green River Formations in Geology of the Eocene Wasatch, Green River, and Bridger (Washakie) Formations, Green River Basin, Wyoming, Utah, and Colorado. U.S. Geological Survey Professional Paper 1506-B, 38 p.
- Scott, W. B. 1939. Some memories of a paleontologist. Princeton Univ. Press, Princeton, NJ, USA. . 336 p.
- Scott, M. L., M. A. Wondzell, and G. T. Auble. 1993. Hydrograph Characteristics Relevant to the Establishment and Growth of Western Riparian Vegetation. Pages 237-246 in H. J. Morel-Seytoux ed., Proceedings of the Thirteenth Annual American Geophysical Union Hydrology Days. Hydrology Days Publications, Altherton, CA.
- Soil Conservation Service. 1957. Seedskadee Project Wyoming Soil Survey Report. Casper, WY. 118 pp.
- State of Wyoming, Wyoming Game and Fish Department. 1994. Loss of trout in side channels of the Green River below Fontanelle Dam during February, 1994. WYG&F Administrative Report.
- State of Wyoming, Wyoming Game and Fish Department, Nongame Bird and Mammal Plan. October 1996.
- USDI, BLM. 1985. Draft resource management plan/ environmental impact statement for the Kemmerer Resource Area oil, Kemmerer, Wyoming. Prepared by BLM Kemmerer Resources Area, Kemmerer, Wyoming, 217 p.
- USDI, BLM. 1986. Oregon/Mormon Pioneer National Historic Trails Management Plan. 65pp.
- USDI, BLM. 1979. Kemmerer Resource Area oil and gas leasing environmental assessment record. Prepared by BLM Kemmerer Resources Area, Kemmerer, Wyoming.
- USDI, BLM. 1991. Amoco Production Company Moxa Arch Natural Gas Production Project Environmental Assessment and Decision Record (WY-047-EA-91-47). Prepared by BLM Kemmerer Resources Area, Kemmerer, Wyoming, 122 p.
- USDI, BLM. 1992. Supplemental Environmental Assessment to Amoco Production Company Moxa Arch Natural Gas Production Project (WY-047 -EA-92-114). prepared by BLM Kemmerer Resources Area, Kemmerer, Wyoming, 62 p.
- USDI, BOR. 1972. Seedskadee Project Wyoming Definite Plan Report. Upper Colorado Region, Salt Lake City Utah. 58 pp.
- USDI, USFWS. 1995. Seedskadee National Wildlife Refuge, Refuge Development Plan.
- USDI, USFWS. 1996-1997. Seedskadee National Wildlife Refuge Annual Predator Management Report. Unpublished.
- USDI, USFWS. 1993. Land Acquisition - Decision Document for 1,800 acres expansion.
- USDI, USFWS. 1996. Seedskadee NWR Refuge Expansion - Preliminary Project Proposal. Includes discussion of transfer of 1,346 lands from USBR to the Service.
- USDI, USFWS. 1996. Refuges and Wildlife, Report regarding Seedskadee National Wildlife Refuge Public Use Minimum Requirements Evaluation.
- USDI, USFWS. 1992. Final Biological Opinion of Flaming Gorge Dam.
- USDI, 1966. Memorandum of Agreement Between the USBR and the Bureau of Sport Fisheries and Wildlife concerning the establishment of a compatible common boundary between the SNWR and adjoining Farm Units on the Seedskadee Project, WY. Contract N4-06-400-4402.
- University of Wyoming, 1996. Recreation on BLM Lands in Southwest Wyoming Per Unit Economic Values for Outdoor Recreation Big Game Hunting in Southwest Wyoming, Wyoming Mineral Tax Revenue from Southwest Wyoming, Southwest Wyoming Payments-In-Lieu of Payments (PILT), Economic Impacts Per Unit of Economic Activity. College of Agriculture Cooperative Extension Service, Department of Agricultural Economics, Laramie, WY, USA.
- Wyoming Geological Survey. 1973. Geology of Sweetwater County. County Resource Series 2- Sweetwater County, Wyoming. Scale 1:500,000.

Literature cited in Appendix L

- Beck, G. 1999. Perennial Pepperweed and Hoary Cress in Colorado. Pages 19-24 in. Proceedings: National Symposium on Tall Whitetop -1999. Alamosa, Colorado. 47 pp.
- Madson, C. 2001. What does the future hold for our wildlife? A Quiet Crisis. Wyoming Wildlife (September). 38 pp.
- Renz, M.J. and J.M. DiTomaso. 1999. Seasonal Carbohydrate Translocation Patterns of Perennial Pepperweed (*Lepidium latifolium*) and Implications for Control in California. Pages 31-36 in Proceedings: National Symposium on Tall Whitetop - 1999. Alamosa, Colorado. 47 pp.
- USDI, BLM. 1996. Green River Resource Area Resource Management Plan and Final Environmental Impact Statement. Volume 1 of 2. 602 pp.

Appendix C. RONS and MMS Projects

The following two tables show the top 10 RONS projects and the top 19 MMS projects associated with the CCP. The "Goal or Objective" column on the tables link back to the Goals, Objectives, and Strategies section in the CCP. For further information on these projects, please contact the Refuge Manager.

| RONS Projects | | | | | | |
|-------------------------------|--|---|----------------------|-----------------|-----------------------|------|
| RONS No. | Goal or Objective | Project Description | Construction Funding | First Year Need | Recurring Annual Need | FTE* |
| 00001 | A1, A2.1, A2.4, A2.5, B2.1, B2.2, B2.3 | Improve water level management to enhance wetland impoundments | | \$49,000 | | |
| 00002 | C1.1, C1.2, C2.1, C3.1, C3.2, C3.3, C4.1 | Improve directional and interpretive signing to enhance visitor experience and protect habitats | | \$36,000 | | |
| 00003 | C2.1, C3.1, C4.1 | Provide education outreach displays and protect historic trails | | \$40,000 | | |
| 97002 | A2.1, B4.1 | Improve trumpeter swan management and augmentation program | | \$38,000 | | |
| 97006 | B5.1 | Control and eradicate noxious weeds by utilizing sustainable methods | | \$78,000 | \$40,000 | .5 |
| 97014 | A2.4, A2.5, B1.1, B1.2, B1.3, B2.4, B4.2 | Implement riparian restoration efforts | | \$54,000 | \$50,000 | |
| 98008 | C1.1, C2.1, C3.1, C3.3, C5.1 | Enhance public education and outreach activities | | \$139,000 | \$74,000 | 1.0 |
| 98009 | C1, C1.1, C1.2, C3.1, C2.1, C4.1 | Maintain public use and Refuge facilities on Seedskadee and Cokeville Meadows NWRs | | \$125,000 | \$60,000 | 1.0 |
| 99003 | C1.1, C1.2, C2.1, C3.1, C4.1 | Enhance Refuge brochures and public information | | \$29,000 | | |
| 99005 | C5 | Enhance volunteer and temporary hire housing facility | | \$65,000 | | |
| 01001 | C1, C1.1, C1.2, C2, C3 | Enhance auto-tour roads | | \$155,000 | | |
| 01002 | C1.1, C3.1, C4.1 | Design and install intrepertive display at new refuge visitor/education center | | \$140,000 | | |
| Totals | | | | \$948,000 | \$224,000 | 2.5 |
| * FTE = Full Time Equivalency | | | | | | |

| MMS Projects | | | |
|---------------------|------------------------------|---|-------------|
| MMS No. | Goal or Objective | Description | Cost |
| 00001 | A1-A2; B1-B4; C1-C5 | Replace 1980 auto car tractor truck | \$140,000 |
| 00002 | A1-A2; B1-B4; C1-C5 | Replace deteriorating 1991 Chevy 3/4 ton pickup truck | \$40,000 |
| 00003 | A1-A2; B1-B4; C1-C5 | Replace over-used 1991 4x4 Chevy extended cab truck | \$40,000 |
| 00004 | A1-A2; B1-B4; C1-C5 | Replace worn-out 1981 International 6-yard dump truck | \$120,000 |
| 00005 | A1-A2; B1-B4; C1-C5 | Replace deteriorated 4x2 Dodge pickup truck | \$40,000 |
| 00006 | A2.1, B1.1, C1.1, C2.1, C3.1 | Replace worn-out John Deere 850 tractor/crawler | \$230,000 |
| 00007 | A1-A2; B1-B4; C1-C5 | Replace 1981 John Deere 550 tractor/crawler (dozer) | \$150,000 |
| 00008 | A1-A2; B1-B4; C1-C5 | Replace deteriorating 1980 Case front-end loader | \$165,000 |
| 00009 | C1.1, C1.2, C2.1, C3.2 | Replace worn-out 1979 road grader with 12 foot blade | \$200,000 |
| 00010 | A2.1, A2.4, A2.5, B2.1 | Replace water control structure at Pool 5 of the Hawley Wetland Impoundment | \$15,000 |
| 00011 | A2.1, A2.4, A2.5, B2.1 | Rehabilitate 8,000 feet of Hamp 2-C dike to improve wetland management | \$320,000 |
| 00012 | C1.1, C2.1, C4.1 | Restore 1922 Dodge suspension bridge remaining support structure | \$25,000 |
| 00014 | A2.1, B2.1, C1.1, C2.1, C3.2 | Replace outdated and worn-out 80 hp 1969 John Deere tractor | \$200,000 |
| 00015 | A1-A2; B1-B4; C1-C5 | Replace six hand-held radioes | \$18,000 |
| 95008 | C3 | Paint interior and exterior of shop building | \$20,000 |
| 97001 | C3, C5.1 | Rehabilitate residence lawns, windows, windbreaks, and cooling | \$70,000 |
| 99004 | A1-A2; B1-B4; C1-C5 | Replace worn-out all terrain vehicles (ATVs) | \$18,000 |
| 01001 | A1-A2; B1-B4; C1-C5 | Replace 4x4 Chevy Blazer | \$38,000 |
| 01002 | A1-A2; B1-B4; C1-C5 | Replace 4x4 Chevy Suburban | \$45,000 |
| 01003 | A1-A2; B1-B4; C1-C5 | Replace Dodge Ram 4x4 V8-3800 magnum fire truck | \$65,000 |
| 01004 | A1-A2; B1-B4; C1-C5 | Replace 1999 4x4 Silverado pickup truck | \$40,000 |
| 01005 | A1-A2; B1-B4; C1-C5 | Replace 1999 4x4 Silverado pickup truck | \$40,000 |
| 01006 | A1-A2; B1-B4; C1-C5 | Replace 1999 4x4 Chevy extended cab pickup with portable fuel tank | \$45,000 |
| 01007 | A1-A2; B1-B4; C1-C5 | Replace 1999 4x4 Ford SUP chassis 162 super-duty maintenance truck - diesel | \$50,000 |
| 01008 | A1-A2; B1-B4; C1-C5 | Replace 2000 12 cubic yard dump truck | \$118,000 |
| 01009 | A1-A2; B1-B4; C1-C5 | Replace 2000 Chevy flatbed 4x4 truck | \$40,000 |

Appendix D. Compatibility Determinations

Station Name: Seedskadee National Wildlife Refuge (NWR): Established November 30, 1965.

Establishing and Acquisition Authorities: Seedskadee NWR, located in Sweetwater County in southwestern Wyoming, was authorized under the provisions of Section 8 of the Colorado River Storage Project Act of April 11, 1956, Public Law 485 of the 84th Congress, 2nd Session. Section 8 of the Act specifically authorizes and directs the Secretary of the Interior to plan, develop, and maintain facilities for recreation and fish and wildlife conservation in connection with the BOR's Colorado River Storage Project and to purchase lands and withdraw public lands for these purposes. The Refuge is intended to restore prime waterfowl and wildlife habitat lost through the construction of Fontenelle and Flaming Gorge Reservoirs.

The Director approved acquisition of Seedskadee NWR on June 11, 1958. It was established November 30, 1965, with the purchase of the first tract of private land.

Purpose(s) for which Established: Each refuge within the National Wildlife Refuge System (System) is managed to fulfill the mission of the System as well as the specific purposes for which each refuge was established. Seedskadee NWR's purpose is defined by two pieces of Federal enabling legislation. The principal purpose of Seedskadee NWR is to provide for the conservation, maintenance, and management of wildlife resources and its habitat including the development and improvement of such wildlife resources. Additionally, the Refuge is charged to protect the scenery, cultural resources and other natural resources and provide for public use and enjoyment of wildlife-dependent activities.

The two pieces of enabling legislation are:

1. Fish and Wildlife Coordination Act: "... shall be administered by him/her (Secretary of the Interior) directly or in accordance with cooperative agreements . . . and in accordance with such rules and regulations for the conservation, maintenance and management of wildlife, resources thereof, and its habitat thereon, . . ." 16 U.S.C. 664
2. Colorado River Storage Act (section 8): "In connection with the development of the Colorado River Storage Project (CRSP) and of the participating projects, the Secretary is authorized and directed to investigate, plan, construct, operate, and maintain . . . (1) public recreational facilities on lands withdrawn or acquired . . ." for the Colorado River Storage Project or participating projects in order to "... conserve the scenery, the natural, historic, and archaeological objects, and the wildlife on said lands, and to provide for public use and enjoyment of the same and of the water areas created by these projects by such means as are consistent with primary purposes of said projects . . . and (2) facilities to mitigate losses of and improve conditions for, the propagation of fish and wildlife." The Secretary may "... dispose of . . ." the facilities "... to Federal . . . agencies . . . upon such terms and conditions as will best promote their development and operation in the public interest." 43 U.S.C. 620g

National Wildlife Refuge System Mission: The Mission of the National Wildlife Refuge System is "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."



This goose, designed by J.N. "Ding" Darling, has become the symbol of the National Wildlife Refuge System.

Description of Proposed Use: Wildlife Observation, Wildlife Photography, Environmental Interpretation and Environmental Education

The Refuge strives to provide opportunities that support wildlife-dependent recreation, education, and outreach to the public. Approximately 6,000 visitors come to Seedskadee National Wildlife Refuge annually for wildlife/wildland observation, photography, and interpretation/education. The majority of the use is focused on the auto-tour route located near the Refuge headquarters, the auto-tour route near Upper Dodge Bottoms, Lombard Ferry interpretive site, and visitors completing scenic floats on the Green River.

Interpretation and environmental education services are provided when staff are available and include talks or guided tours for school groups, scouts, 4-H clubs, and special interest groups. The public is invited to a variety of special events sponsored by the Refuge including Take A Kid Fishing Day, International Migratory Bird Day, National Wildlife Refuge Week, etc.

The Comprehensive Conservation Plan proposes to continue with the above uses and add the following to improve wildlife viewing, interpretation, and access for visitors:

- Build an Education/Visitor Center Building adjacent to the Headquarters to expand the visitor center displays, group presentation area, and wildlife viewing opportunities.
- Develop an interpretive trail at the Lombard Ferry Historical Site to further interpret this site.
- Develop an interpretive trail near the headquarters to interpret historical sites and wildlife habitat areas.
- Assist schools by conducting limited Refuge environmental education programs.
- Develop new Refuge brochures and update old brochures to meet new Service standards.
- Develop a River interpretive boat trail brochure.
- Develop interpretive panels at a minimum of five pullouts along the auto tour routes.
- Develop teacher workshops to help teachers educate students about the Refuge's natural resources.
- Improve four existing boat ramps located on the Refuge and work with cooperators to establish boat ramps off-Refuge.
- Continue participation in "special community events" like the Green River Annual Fly Swap, Take a Kid Fishing Day, etc.
- Improve auto pullouts along Refuge roads which offer optimum wildlife viewing opportunities.
- Provide the Refuge General Public Use Brochure at 15 primary Refuge entrances - the brochure will provide a map showing designated roads and list all Refuge regulations.
- Develop a road marker system to facilitate navigation on Refuge roads and reduce off-road travel.

Availability of resources:

Currently, resources are stretched to continue the existing wildlife-dependent recreation. An outdoor recreation planner is required to meet the Refuge's current demands. The additional items to be added from the Comprehensive Conservation Plan are tied to funding requests in the form of the attached RONS and MMS projects (Appendix C).

Anticipated impacts of the use:

Some disturbance to wildlife will occur in areas of the Refuge frequented by visitors. A majority of the use that occurs on the Refuge occurs along the 15 mile auto-tour route, the 8 mile loop road at Upper Dodge Bottoms, the 18 mile East River Road, and on the first 15 miles of Green River which flows through the Refuge. The remaining areas receive minimal use and disturbance. Primary wildlife species disturbed by vehicles, floaters, and hikers are pronghorn antelope, moose, mule deer, raptors, sage grouse, waterfowl, trumpeter swans, and rabbits.

Construction of interpretive facilities, a new education center, and improved roads will result in the loss of a small portion of wildlife habitat. The improved roads may increase both the amount of traffic and vehicle speeds which may result in increased wildlife mortality. It is anticipated that all uses will increase, particularly if better access and interpretation are offered.

Justification:

Based upon biological impacts presented above and in the Environmental Assessment, it is determined that wildlife observation, wildlife photography, interpretation, and environmental education within Seedskadee National Wildlife Refuge will not materially interfere with or detract from the purposes for which this Refuge was established. By limiting areas open to public use and closing non-designated Refuge roads, these impacts can be lessened. Monitoring of activities and their impacts and limiting the location and time of year for wildlife-dependent visits will maintain use at an acceptable level.

Although human activities have been shown to disturb wildlife and habitat, the stipulations presented below and in the CCP should reduce impacts to a minimal level. One of the secondary goals of the National Wildlife Refuge System is to provide opportunities for the public to develop an understanding and appreciation for wildlife when a use is found compatible. The four uses are identified as priority public uses in the National Wildlife Refuge System Improvement Act of 1997 and will help meet that goal at Seedskadee NWR with only minimal conflicts with the wildlife conservation mission of the Refuge System.

Determination: Wildlife Observation, Wildlife Photography, Interpretation, and Environmental Education are compatible.

Stipulations necessary to ensure compatibility:

- ✓ During peak concentrations of migratory waterbirds or during critical wintering periods, areas may be closed and access restricted to minimize wildlife disturbance and provide resting areas.
- ✓ Monitor use, regulate access, and maintain necessary facilities to prevent habitat degradation in high public use areas.
- ✓ Monitor levels of use and corresponding effects on wildlife.
- ✓ Implement additional educational and interpretive programs that discuss wildlife disturbance.
- ✓ Vehicles will be restricted to designated Refuge roads and the speed limit will be 25 miles per hour.
- ✓ Road construction will focus on improving existing roads. No new roads will be constructed.
- ✓ Enforce Refuge regulations.
- ✓ Improve signing and availability of Refuge information brochures.
- ✓ River use, specifically boating, may be restricted in the future to a daily limit on numbers of launches for non-commercial users.
- ✓ Recreationists will be asked to provide a voluntary 1/4 mile buffer zone to trumpeter swans.

Description of Proposed Use:

Commercial Outfitters (Fishing, Scenic Floats)

Currently six commercial outfitters are issued Special Use Permits to conduct commercially guided sport fishing and scenic tours on Seedskaadee National Wildlife Refuge. These activities are permitted on the Green River from the north boundary of the Refuge to the Six Mile Hill Boat Ramp (Otterson Ramp). All commercial guiding activities must be in compliance with the Special Conditions issued with the Special Use Permits (5 RM 17.3) and information found in the "Operating Plan: Commercial Outfitting for Sport Fishing on Seedskaadee National Wildlife Refuge." An annual fee is charged for each special use permit through the User Fee Demonstration program. Funds generated from these permits are used to help pay for implementation of the program, including improvement of Refuge infrastructure for wildlife and people. In 1999, seven outfitters conducted 304 trips on the Refuge between April 1 and October 31.

The CCP proposes to continue with the proposed use. Development of the following may minimize visitor impacts on resources and ensure a quality recreational experience for the visiting public:

- Improve law enforcement coverage associated with this use.
- Monitor impacts of use to Refuge resources and "visitor experience."
- Further reduce numbers of outfitters to four or less in accordance with Draft Commercial Outfitting Plan.

Availability of resources:

Current resources are stretched to maintain the existing commercial outfitter permit operation. If additional staff support were available, this program could be better managed and effective law enforcement implemented to monitor compliance. The additional items to be added from the CCP are tied to funding requests in the form of the attached RONS projects (Appendix C). Funding of the RONS projects would accomplish the goals of the CCP and improve the existing program.

Anticipated Impacts of the use:

Commercial outfitting for sport fishing will result in increased public use of the Refuge. This results both from individual guided trips and from national advertising associated with the commercial businesses. Cumulative impacts of this increased use have correlating effects on wildlife, habitat, and the fisheries resource. This includes more disturbance to wildlife, vegetation trampling, potential introduction and spread of exotic aquatic and terrestrial plants, potential transmission of diseases including whirling disease, problems associated with disposal of human waste, and deposition of lead sinkers and fishing line. These impacts, however, apply to all angling activity, both commercial and non-commercial. Special conditions of the Special Use Permits are designed to minimize these impacts. In addition, limiting numbers of commercial outfitters will also minimize these impacts.

Permitting commercial outfitting on the Refuge results in some negative feelings within the local community. Some residents feel strongly that there is no place for commercial guiding on the Refuge. Comments from local residents also express concern about having to compete for a limited public resource with a commercial guide who is making a profit on those same resources. As a result, to some degree, permitting commercial guiding on the Refuge negatively impacts the Refuge's relationship with the local community. Regulating the numbers of outfitters and guides helps mitigate these impacts somewhat.

Commercial outfitting creates additional wear and tear on Refuge roads, boat ramps, and other facilities. Time spent administering the program diverts staff time from other activities and programs.

To a limited degree, permitting regulated commercial guiding on the Refuge may increase public awareness of Seedskaadee Refuge and the Refuge System, helping to build support for the Service's mission. However, this is highly dependent on an individual guide's efforts in educating their clients.

Justification:

Fishing is a popular wildlife-dependent public use of the Refuge. Commercially-guided sport fishing, in compliance with the Special Conditions of the Special Use Permit and the "Operating Plan: Commercial Outfitting for Sport Fishing on Seedskaadee National Wildlife Refuge," has no more impacts on wildlife than other recreational anglers. Guided trips allow visitors from various parts of the country to enjoy Seedskaadee National Wildlife Refuge and its associated resources. In addition, it provides an additional opportunity for community members with disabilities to utilize the Refuge.

Determination:

Commercial Outfitting for Sport Fishing and Scenic Tours are compatible when conducted within guidelines stipulated in the "Operating Plan: Commercial Outfitting for Sport Fishing on Seedskaadee National Wildlife Refuge," and if additional staff funding is provided to administer and monitor the program. The addition of an outdoor recreation planner would greatly facilitate the administration of this program.

Stipulations necessary to ensure compatibility:

- ✓ Based on fisheries data, public comments, impacts to wildlife and habitat, and Refuge goals, the Refuge can support a maximum of four outfitters for commercial guiding on the Refuge (see "Operating Plan: Commercial Outfitting for Sport Fishing on Seedskaadee National Wildlife Refuge"). The Refuge currently has six outfitters that have established commercial guiding use on the Refuge. Through voluntary attrition, over a period of unspecified years, the number of Special Use Permits will be reduced to four or less. Permits are non-transferrable and will be retired as outfitters stop guiding on the Refuge.
- ✓ Commercial guiding for sport fishing is highly regulated on the Refuge. Use is limited to between April 1 and October 31 to minimize impacts to wildlife. In addition, numbers of trips per day for each outfitter is limited to minimize impacts to wildlife and to the general public. Outfitters and their guides must be in compliance with all Special Conditions on the Special Use Permit. For specific details regarding the special conditions, please contact the refuge manager.
- ✓ User fees have been established as part of the Entrance and Recreation User Fee Demonstration Program. These fees are used to cover the majority of the expenses the Refuge incurs for running the commercial outfitting for sport fishing program. Collection of these fees is instrumental to this program to prevent diversion of station funds from other programs.

Description of Proposed Use: Fishing

A secondary use of the Refuge is public sport fishing according to State Regulations. Year-round bank, wade, and boat fishing is allowed. Visitors participating in this use at the Refuge are estimated at 6,000 per year. Available facilities include four boat ramps, registration boxes, several instream habitat improvement projects, and parking areas. In addition, Fontenelle Dam operations are coordinated with the State Fish and Wildlife Agency to optimize conditions for sport fisheries.

Approximately half of the 36-mile-long Refuge has been designated as trophy trout waters (northern section of the Refuge). Anglers in the trophy trout section of the River are restricted to artificial flies and lures and may only keep one trout over 20 inches. General State regulations for trout apply to the southern half the Refuge. Game fish include rainbow, brown, and cutthroat trout, and white fish (native species).

The Comprehensive Conservation Plan proposes to continue with the above uses and add the following to improve fishing opportunities and access for visitors:

- Improve the four existing boat ramps and associated parking areas.
- Provide additional interpretative signs to inform the public about Refuge resources.
- Work with adjacent landowners to add additional boat ramps off Refuge lands.
- Develop a new fishing/hunting brochure.
- Add a rest room facility at the Dodge Bottoms boat ramp.
- Install a sill at Big Island to restore an historic river oxbow and improve riparian and fish habitat.
- Work with Wyoming Game and Fish Department to establish a wakeless zone through the Refuge.
- Improve vehicle pullouts throughout the Refuge.

Availability of resources:

Currently, sufficient resources are available to continue the existing recreational fishing.

Anticipated impacts of the use:

Fishing and other human activities cause disturbance to wildlife. Cumulative impacts of this increased use have correlating effects on wildlife, habitat, and the fisheries resource. This includes more disturbance to wildlife, vegetation trampling, potential introduction and spread of exotic aquatic and terrestrial plants, potential transmission of diseases including whirling disease, problems associated with disposal of human waste, and deposition of lead sinkers and fishing line. Birds or mammals feeding or resting on or near the River may be disturbed by boats or anglers fishing from the bank. The current visitor use is often low enough that disturbance by anglers have minimal impacts to most wildlife species. Over the past couple of years, the reputation of the Refuge's trophy trout waters has spread and subsequently the amount of angling pressure has increased. There are now days when cumulative boat/foot traffic may be having negative impacts to some wildlife.

Travel on non-designated roads and the creation of additional two-tracks continues to be a problem.

During the critical late fall and winter months, impacts may be occurring to wintering birds, especially trumpeter swans. Boating associated with fishing may be especially detrimental to over-water or riverine nesting species such as grebes, herons, eagles, and mergansers. Development of seasonal closed areas may be warranted in the future if visitor use increases.

Justification:

Based upon biological impacts described above and in the Environmental Assessment, it is determined that recreational fishing within Seedskaadee NWR will not materially interfere with or detract from the purposes for which the Refuge was established.

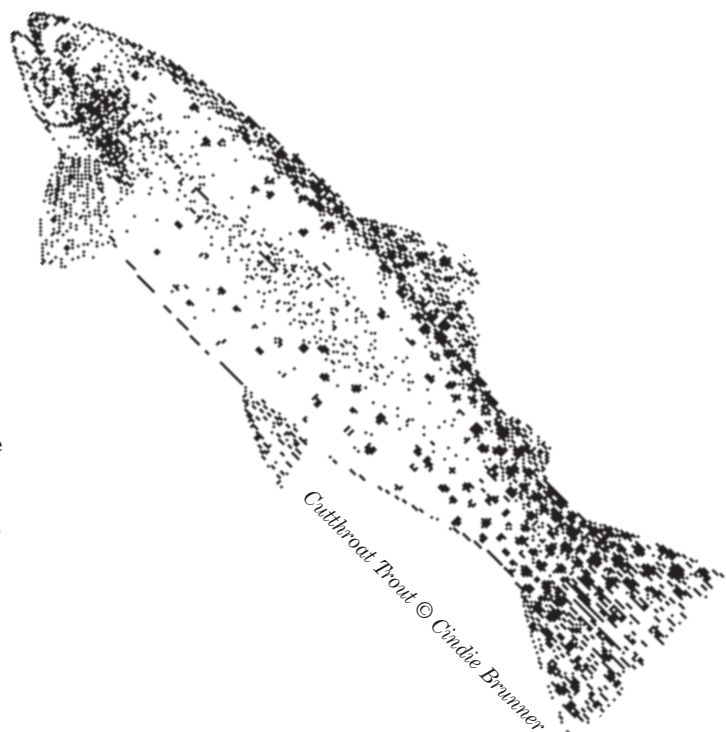
One of the secondary goals of the National Wildlife Refuge System is to provide opportunities for public fishing when compatible, and it is identified as a priority public use in the National Wildlife Refuge System Improvement Act of 1997. Current recreational fishing at Seedskaadee NWR will support this goal with only minimal conflicts with the wildlife conservation mission of the Refuge System.

Determination:

Recreational fishing is compatible.

Stipulations necessary to ensure compatibility:

- ✓ Monitor existing use to ensure that facilities are adequate and disturbance to wildlife continues to be minimal.
- ✓ Work with the Wyoming Game and Fish Department to limit boat use to non-motorized or wakeless power devices (no jet skis, powering boating, etc.).
- ✓ Only the riverine sections of the Refuge will be open to fishing (no wetland impoundments, ditches or marshes will be open to fishing).
- ✓ Parking lot, road, and related access facilities will be maintained as necessary to prevent erosion or habitat damage.
- ✓ Promote use of non-toxic sinkers, split shot, and lures.
- ✓ During peak concentrations of migratory waterbirds or for the protection of special wildlife species/habitats, areas may be closed and access limited to minimize any wildlife disturbances.
- ✓ The Refuge may have to limit numbers of boats per day in the future to prevent wildlife disturbance and maintain a quality fishing experience for anglers.



Description of Proposed Use: Recreational Hunting

Seedskaadee NWR is open to hunting of mourning dove, sage grouse, mule deer, pronghorn antelope, moose, waterfowl, cottontail rabbit, skunk, red fox, and raccoon. Hunting seasons start around September 1 and continue through February. Visitation for these activities is estimated at 3,000. Species are hunted according to State and Federal laws.

Currently, two closed areas exist on the Refuge. Approximately 800 acres are closed to migratory bird hunting below Highway 28. A second area of approximately 800 acres is closed to all hunting and protects Refuge buildings and primary wetland impoundments. When these backwater closed areas freeze over in fall or early winter, there are no open-water areas remaining which are closed to hunting on the Refuge.

Hunting of mourning dove, cottontail rabbit, skunk, fox, and raccoon is minimal. Waterfowl, grouse, and big game hunts comprise the greatest hunting pressure (approximately 2,950 hunters). Hunting pressure is often concentrated around the opening of each hunt season, but a steady hunt pressure continues throughout the seasons.

The CCP proposes to continue most of the above uses and add or change the following to improve the hunting experience and better protect Refuge resources:

- Develop a hunting/fishing brochure.
- Modify the existing closed hunting areas to better accommodate wildlife needs and improve hunting opportunities. A separate public process will be initiated to develop new closed area boundaries.
- Update the Hunting Stepdown Management Plan to address changes in National Wildlife Refuge policy and CCP goals and objectives.

Availability of resources:

Currently, sufficient resources are available to continue the existing recreational hunting. Additional law enforcement support is necessary to ensure compliance with Refuge regulations.

Anticipated impacts of the use:

Hunters disturb non-target species and harvest target species. Recreational hunting will remove individual animals from the wildlife populations ensuring that carrying capacity (especially for big game species) is not exceeded (possibly impacting other species habitat). The areas closed to various hunting activities do provide some sanctuary for target and non-target species. Once wetland impoundments which are closed to hunting freeze up, no sanctuary areas are available for waterfowl and swans, and consequently disturbance to these species increases.

Travel on non-designated roads and the creation of additional two-tracks (illegal off-road travel) continues to be a problem.

Justification:

Hunting is a legitimate wildlife management tool that is used to manage deer, antelope, moose, and, where necessary and justified, predator populations. This is necessary to ensure that populations above the carrying capacity are controlled to reduce impacts to habitat and other wildlife that also depend upon that habitat. Hunting of predators such as skunk, raccoon, and red fox has, in the past, benefitted ground-nesting species such as waterfowl, geese, swans, grouse, cranes, etc. In addition, raccoon and red fox are nonnative in Wyoming and considered as exotic species. Some wildlife disturbance will occur during the hunting seasons. Proper zoning, regulations, and Refuge seasons will be designated to minimize any negative impact to wildlife populations using the Refuge.

Based upon biological impacts presented in the CCP and in the Environmental Assessment, it is determined that recreational hunting within Seedskaadee NWR will not materially interfere with or detract from the purposes for which this Refuge was established.

One of the secondary goals of the National Wildlife Refuge System is to provide opportunities for public hunting when it is found to be compatible, and it is identified as a priority public use in the National Wildlife Refuge System Improvement Act of 1997.

Determination: Recreational hunting is compatible.

Stipulations necessary to ensure compatibility:

- ✓ Only non-toxic shot is permitted on the Refuge when hunting with a shot gun. This restriction minimizes the exposure of waterfowl and other wildlife to lead.
- ✓ Hunting must be in accordance with Federal and State regulations.
- ✓ Hunting on Seedskaadee NWR will take place in a manner that will minimize disturbance to migrating waterbirds.
- ✓ Hunting will be evaluated to provide a safe hunt (reduce conflicts between hunt seasons).
- ✓ The Refuge deer, antelope and moose hunts will be coordinated with the Wyoming Game and Fish Department to determine the number of permits to manage the populations.
- ✓ Monitor all hunting uses to assure they do not interfere with and are compatible with other wildlife-dependent recreational activities.
- ✓ During critical wintering periods for waterbirds or for the protection of special wildlife species/habitats, areas may be closed and access limited to minimize any wildlife disturbances.
- ✓ Refuge areas closed to hunting must be re-evaluated to ensure adequate habitat for migrating, feeding, and resting waterfowl and other wildlife is available. A closed area inclusive of some portion of the main stem of the Green River must be created to ensure compatibility of the hunting program.
- ✓ Dog training on the Refuge will not be allowed. Dogs must be confined or leashed except when participating in a legal hunt for sage grouse, cottontail rabbits and migratory game birds.

Description of Proposed Use: Camping

Camping is not currently permitted on the Refuge except for a limited number of special groups (i.e. scouts) which are conducting projects to enhance Refuge habitat (i.e. trash pickup, protecting trees, etc.). Historically, camping occurred on lands which were eventually acquired (or transferred) to Seedskaadee NWR. Some demand occurs for camping on the Refuge from visitors wishing to conduct multiple day floats through the Refuge. Currently, three BLM/ BOR developed campgrounds are located approximately five miles north of the Refuge boundary. The BLM lands surrounding the Refuge also offer camping opportunities.

Availability of resources:

Development of specific campgrounds would require additional funding to build, maintain, and monitor. Currently, resources are stretched to maintain existing Refuge facilities and conduct law enforcement of existing public uses. Resources are not available to accommodate this use. Camping is not required to participate in the six priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education and interpretation).

Anticipated impacts of the use:

Camping is a high impact activity which often results in the degradation of Refuge habitat. Camping in itself will disturb and disperse wildlife. Human activity, generators, loud motors, music, and dogs associated with camping disturb wildlife and detract from the outdoor experience for other Refuge users. Fires and firewood collection damage habitat and pose serious resource threats. Use of detergent, soap, and toothpaste in or near rivers harms fish and other aquatic life. Human waste creates unsanitary conditions and litter. Campers often leave garbage, trash, and other undesirable items. Illegal removal of natural objects (plants, antlers, live animals, etc.) and cultural objects may result from camper visits. Creation of "improvements" (lean-tos, tables, chairs, game poles, etc.) and alternation of the site (trenching) are also byproducts of camping.

Camping results in inappropriate uses, tramples vegetation (particularly herbaceous and shrub layers), and devalues wildlife habitats. Camping can degrade land, water, and wildlife by simplifying plant communities, increasing mortality, displacing and disturbing wildlife and distributing refuse (Boyle and Samson 1985). In addition, camping induced soil disturbance may provide conditions that favor weed infestations. Camping in riparian areas may also result in increased runoff into streams due in part to exposed soil and reduction in vegetation (Green 1998). Camping also requires additional law enforcement efforts that may have to be directed at a wide range of violations from those listed above to domestic disturbance/assaults.

Justification:

Camping is not required to support the priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education and interpretation). Developed campgrounds are available five miles north of the Refuge and the surrounding BLM lands provide primitive camping opportunities. In addition, numerous hotel accommodations are available 45 minutes away in Green River and 30 minutes away in Farson, Wyoming.

Determination:

Camping is not a compatible use unless conducted under a special use permit for the exclusive purpose of completing a civic project to enhance Refuge habitat.

Stipulations necessary to ensure compatibility:

- ✓ Any camping permitted under a special use permit will not exceed one nights stay on Refuge lands and group size will not exceed 12 individuals.
- ✓ Within any given year only three special use permits will be issued for camping in order to minimize impacts to wildlife and habitat.
- ✓ Groups permitted to camp on Refuge lands for the purpose of completing specific projects must adhere to all conditions specified in the special use permit and Refuge regulations.
- ✓ Refuge management will identify campsite locations. All solid waste must be removed from Refuge lands.
- ✓ Special use permits for camping will be issued based on the project proposed and cannot be reserved more than four months in advance.

**Description of Proposed Use:
Horseback Riding, Picnicking**

Picnicking is often associated with many of the wildlife-dependent recreational uses such as hunting, fishing, hiking, wildlife observation, boating, and wildlife photography. Horseback riding is rarely observed on the Refuge and is most often affiliated with hunting or the removal of trespass cattle and sheep. Horses may travel anywhere on the Refuge which is open to public foot access. Numerous locked gates, fences, and cattle guards make the Refuge difficult to ride through. The CCP does not propose any additional improvements beyond maintaining the existing use.

Availability of resources:

Currently, sufficient resources are available to continue the existing recreational picnicking and horseback riding.

Anticipated impacts of the use:

Picnicking and horseback riding may cause disturbance to wildlife and increase litter problems. Horses brought in from outside the local area may introduce noxious weeds not currently on the Refuge via fecal material. Present levels of these activities do not appear to be a problem. Limiting of areas open to public use at specific times of the year can limit impacts. Monitoring of activities and their impacts and limiting the location and time of year for wildlife-dependent visits will maintain use at an acceptable level.

Justification:

Picnicking and horseback riding do not appear to create any special problems and are most often associated with other wildlife-dependent uses such as hunting, fishing, or wildlife viewing.

Determination:

Picnicking and horseback riding are compatible.

Stipulations necessary to ensure compatibility:

- ✓ Visitors must comply with Refuge regulations.
- ✓ Monitor levels of use and effects on wildlife.
- ✓ Monitor use, regulate access, and maintain necessary facilities to prevent habitat degradation in high public use areas.
- ✓ During critical wintering periods for waterbirds or for the protection of special wildlife species/habitats, areas may be closed and access limited to minimize any wildlife disturbances.

**Description of Proposed Use:
Cross-country skiing, Snowshoeing**

Occasionally, winter visitors engage in cross-country skiing and snowshoeing activities (less than 10 visitors/year estimated). Often these uses are conducted in association with other wildlife-dependent recreational uses such as wildlife observation, wildlife photography, and hunting. These activities are permitted in any areas open to foot travel. The Refuge staff does not groom or maintain any winter trails. The CCP does not propose any additional improvements beyond maintaining the existing use.

Availability of resources:

Currently, sufficient resources are available to continue the existing recreational cross-country skiing and snowshoeing uses.

Anticipated impacts of the use:

Cross-country skiing and snowshoeing may cause disturbance to wildlife during critical winter periods. Present levels of these activities do not appear to be a problem. Limiting areas open to public use at specific times of the year can reduce impacts. Monitoring activities and their impacts and limiting the location and time of year for wildlife-dependent visits will maintain use at an acceptable level.

Justification:

Cross-country skiing and snowshoeing do not appear to create any special problems and are most often associated with other wildlife-dependent uses such as hunting, wildlife viewing, and wildlife photography.

Determination:

Cross-country skiing and snowshoeing are compatible.

Stipulations necessary to ensure compatibility:

- ✓ Monitor these uses to assure they do not interfere with, and are compatible with, other wildlife-dependent recreational activities.
- ✓ Monitor existing use to ensure that disturbance to wildlife continues to be minimal during the critical winter months.
- ✓ During peak concentrations of wintering waterbirds (especially trumpeter swans) or for protection of special wildlife species/habitat, areas may be closed and access limited to minimize any wildlife disturbance.

Description of Proposed Use: Off-road vehicles (motorized dirt bikes, all-terrain-vehicles, snowmobiles)

Off-road vehicles which are not licensed by the State for highway travel are not permitted on Refuge lands (50 CFR 27.31). Vehicles licensed for highway travel are allowed on designated Refuge roads. Travel off any designated Refuge road is prohibited.

Availability of resources:

Support of off-road vehicle use would require additional funding for law enforcement and would cause extensive damage to wildlife habitats. Currently, resources are stretched to maintain existing Refuge facilities and conduct law enforcement of existing public uses. Resources are not available to accommodate off-road vehicle use. The use of off-road vehicles is not required to participate in the six priority public uses.

Anticipated impacts of the use:

Motorized off-road vehicles are disturbing to wildlife and impact vegetation and soils when used off of designated roads. Loud motors detract from the quality of other forms of Refuge recreation. Studies indicate snowmobile disturbance increases the home range sizes of winter ungulates and increases deer metabolism (Moen et al. 1982, Dorrance et al. 1975). Snowmobile trails provide access to habitats for species such as coyotes and bobcat that otherwise may not use certain winter habitats. Snowmobile use hinders the solitude of the Refuge for winter visitors and may reduce air quality.

Illegal off-road use continues to occur, despite attempts to close non-designated roads and two-track spur roads. Many signs have been removed or destroyed and fences cut by off-road violators.

Justification:

Use of off-road vehicles is not necessary to support the priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education and interpretation). In fact, these types of vehicles often degrade other recreationists experiences. Surrounding BLM, BOR, and USFS lands provide numerous opportunities to recreate with these types of vehicles.

Determination:

Off-road vehicle use (dirt bikes, all-terrain-vehicles, snowmobiles) is not a compatible Refuge use.

Description of Proposed Use: Hiking and Cycling

Hiking is a popular activity which is often associated with wildlife observation, wildlife photography, and hunting. Hiking occurs along roads, trails and throughout various habitats of the Refuge. Bicycles are considered vehicles and are restricted to designated Refuge roads. Off-road cycling is not permitted. Cycling is most affiliated with wildlife observation.

Approximately 500 visitors engage in these activities annually. The CCP proposes to continue with the above uses and add the following to improve hiking opportunities:

- Develop a short trail at the Lombard Ferry Historical Site.
- Develop an interpretive hiking trail near the Refuge Headquarters.

Availability of resources:

Currently, sufficient resources are available to continue the existing levels of hiking, and cycling.

Anticipated impacts of the use:

These activities, when conducted responsibly, may create minor and temporary disturbances to wildlife. At the current level of use, these activities are not expected to materially interfere with Refuge purposes. Limiting of areas open to public use at specific times of the year can reduce impacts. Monitoring of activities and their impacts and limiting the location and time of year for wildlife-dependent visits will maintain use at an acceptable level.

Justification:

Hiking and cycling do not appear to create any special problems and are most often associated with other wildlife-dependent uses such as hunting, wildlife viewing and wildlife photography.

Determination:

Hiking and cycling are compatible uses.

Stipulations necessary to ensure compatibility:

- ✓ Cycling is restricted to designated Refuge roads which are open to vehicle traffic. Bicycles are considered vehicles on the Refuge.
- ✓ Hiking may occur anywhere on the Refuge open to visitor use (public entry). During certain times of the year, the Refuge may exclude public entry into portions of the Refuge to protect habitat or reduce disturbance to sensitive wildlife species.

Description of Proposed Use:

Providing Livestock Access to Water

As part of the purchase of lands from the Rock Springs Grazing Association (RSGA), the Service is required by a Warranty Deed (10/26/1996) to provide access to water for livestock. The way in which livestock are afforded access to water shall be jointly determined by RSGA and the Seedskaadee NWR Manager. Watering opportunities which occur on Refuge lands (outside current water gaps) will be permitted via a special use permit.

Availability of resources:

Currently, resources are available to continue this use. Additional staffing is needed to would provide for better monitoring of this activity.

Anticipated impacts of the use:

Sheep trailing within Sweetwater County generally occurs between April 1 and May 15. The Service provides direct guidance via a special use permit to RSGA permittees as to where they can water sheep on Refuge lands. Approximately 7 to 10 sheep bands (200 to 2,000 sheep/band) trail along the Refuge boundary. During the trailing period, short duration trampling and grazing of vegetation occurs. Any wildlife in the area, especially ground-nesting birds would be temporarily and/or permanently disturbed or displaced. Nest trampling can occur. Vegetation, primarily grasses/forbs, will be consumed and damage to shrubs may occur from trampling. Long-term changes to vegetation may happen because trailing occurs in the same areas each year.

Justification:

The Service is obligated to provide this activity as indicated in the Warranty Deed signed 10/26/1996. It is a legal requirement for the Refuge to provide RSGA livestock members access to water for livestock. Access to water may occur directly on Refuge lands or the Refuge may provide off-Refuge watering sites.

Determination:

This activity is not considered a compatible use of the Refuge. Provided that all stipulations are followed by all cooperators of the RSGA in the annual special use permit, impacts can be minimized.

Stipulations necessary to ensure compatibility:

- ✓ Herders may not camp on Seedskaadee NWR.
- ✓ Herders will immediately exit Seedskaadee NWR after watering sheep.
- ✓ Herders will keep sheep moving across Seedskaadee NWR except when sheep are watering at specified sites. Grazing is not permitted.
- ✓ Herders will water sheep at specific watering sites indicated on maps supplied by the Refuge Manager to avoid cottonwood groves and riparian shrub (willow) areas.
- ✓ Operators will be fully accountable for the actions of their herders. RSGA will be fully accountable for the actions of its operators.
- ✓ Use of vehicles off designated roads is prohibited. All Refuge regulations apply to all operators, herders, and the RSGA.
- ✓ All gates will be locked and/or closed immediately after livestock enter or exit the Refuge.

Description of Proposed Use: Research

Research is completed on refuges to address specific refuge management problems or provide information to assist with regional/national research questions (i.e. research on specific species like sage grouse, trumpeter swans, pepperweed, etc.). Research results often have a direct benefit for management activities. Current research conducted on Seedskaadee NWR involves invasive species, riparian restoration, and public use. It is anticipated that various research projects will continue on the Refuge over the next 15 years to address a variety of local and national issues.

Availability of resources:

Currently, resources are stretched to continue the existing research projects. Often staff are required to assist with research projects in some capacity and a balance between research demands and other duties must be maintained. Additional assistance with invasive species research is needed.

Anticipated impacts of the use:

Depending on the type of research projects, disturbances may occur to wildlife and/or wildlife habitat. Prior to permitting any research projects, the Service will fully explore potential impacts to Refuge resources relative to the value of information gathered for refuge or national interests. Research projects will be strictly monitored and are required to comply with Refuge regulations and special stipulations dictated by special use permits.

Justification:

Research often results in a better understanding of the natural resources studied and often assists in solving resource management issues. The knowledge gained by research should outweigh disturbances to wildlife and habitat. Efforts will be made to minimize all potential disturbances. Researchers must obtain a special use permit from the refuge manager which will outline conditions required to comply with refuge management.

Determination:

Research conducted at Seedskaadee NWR is found to be compatible with the purposes of the Refuge provided all permit conditions are followed.

Stipulations necessary to ensure compatibility:

- ✓ All researchers must be issued special use permits by the refuge manager to conduct research on the Refuge.
- ✓ Researchers must comply with all Refuge regulations unless authorized otherwise by the refuge manager in the conditions of the special use permit.
- ✓ All data collected by the researcher also becomes property of the Refuge. Copies of any reports, summaries, and data regarding the research must be provided 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.

Description of Proposed Use: Construction of Environmental Education and Visitor Center

Seedskadee NWR plans to construct a 6,000 square foot building for the purpose of providing an interpretative center and environmental education training area. The building would be located between the Refuge Headquarters and housing residence #5. The proposed building is one story. The entire building would be fully accessible to people with disabilities. The main floor of the facility would contain interpretive displays, rest rooms, and an office. The basement level would contain a kitchen, rest room, and a large open room which would be used to conduct environmental education programs or Refuge/community meetings. Construction of this building would improve the Service's ability to conduct public outreach and environmental education on Seedskadee NWR.

Availability of resources:

Funding for the construction of this project will be supplied by the Bureau of Reclamation. Current staff is available to administer the construction and completion of this project. Additional funding will be required in future Refuge budgets to maintain the facility (heat, electricity, phone, etc.) and create/maintain/update interpretive displays. An additional staff position (outdoor recreation specialist) will also be required to coordinate outreach and education programs.

Anticipated impacts of the use:

The area impacted by the construction of the building would be less than one acre and has been previously disturbed. The area has been cleared previously for cultural resources and Section 7.

Visiting public which formerly visited the headquarters office will be directed to the new visitor/education building. Creation of the new building may attract more tourists and environmental education groups to the Refuge and, therefore, increase the potential public use and awareness of the Refuge.

Costs of maintaining the new building (electricity, phone, heat) and providing adequate staff will increase the overall funding needs of the Refuge.

Disturbance to wildlife may increase if public use increases. Monitoring activities and their impacts and limiting the location and time of year for wildlife-dependent visits will maintain use at an acceptable level.

Water use for domestic purposes may increase slightly with addition of more visitors.

Justification:

The current office/visitor center cannot accommodate current school groups, does not provide adequate office space for Refuge employees, and limits display of interpretive materials. The addition of the new facility will provide an area for the Refuge staff to conduct slide presentations and environmental education programs. Transfer of interpretive displays from the current headquarters to the new building will provide areas for additional office space. The new facility will contain one office and also provide an area to expand the current interpretative displays which are very limited. The new building will also provide the public a place to conduct meetings regarding environmental issues.

Determination:

Construction of the new visitor and education building will support several of the secondary goals of the National Wildlife Refuge System which are to provide for wildlife observation, interpretation, and environmental education. Based on biological impacts described above, it is determined that the construction of this building will not materially interfere with or detract from the purposes for which the Refuge was established.

Stipulations necessary to ensure compatibility:

- ✓ Service will comply with all building codes.
- ✓ During construction, efforts will be made to minimize disturbance to the immediate construction area. All disturbed areas around the building will be landscaped with native vegetation.
- ✓ All features of the building must be fully accessible to people with disabilities.

Description of Proposed Use:
Construction of an 800 foot interpretive trail at the Lombard Ferry Historical Site

Seedskadee National Wildlife Refuge plans to build an 800 foot asphalt trail at the Lombard Ferry site adjacent to State Highway 28. The trail and two additional interpretive signs will be designed to match an existing handicapped-accessible interpretive walkway. The trail will follow an already disturbed pathway that parallels the Green River to a replica of a ferry used by early settlers to cross the River. The completed trail will provide Refuge visitors with an overview of the Refuge and an insight into the significance of the area as a River crossing by pioneers using several historical trails that traverse the Refuge. This site currently receives a relatively high volume of public use, including many people passing through that otherwise may not stop to visit the Refuge. Completion of the trail will enhance the Refuge's ability to conduct public outreach for these and other visitors.

Availability of resources:

Funding of this project will come from several partnered sources. A private family with historic ties to the area is donating funds for purchase of new interpretive signs and benches. Funding for the construction of the trail will be supplied by the Bureau of Reclamation. The Bureau of Land Management is purchasing and producing the interpretive signs and bases, assisting with planning and construction details, and will maintain the asphalt trail as needed. Finally, Refuge staff will complete project planning, administer all phases of construction, complete naturalization of the area when completed, and monitor the site.

Anticipated impacts of the use:

- Some short-term disturbance could occur to wildlife during construction.
- The area that would be impacted by the construction of the trail is already a disturbed site, devoid of vegetation. Revegetation of the site at the conclusion of the project will make the site more visually aesthetic.
- A cultural resources survey has already been completed, and the area has been cleared for construction.
- Construction of a new trail will focus public use in a limited area, reducing impacts to contiguous habitat.
- Disturbance to wildlife could increase if public use increases. However, due to the steady rate of visitation in the warmer months and the proximity of the site to State Highway 28, it is expected that any additional impacts would be minimal.

Determination:

Construction of this trail is compatible with Refuge and Refuge System purposes. It will support several of the secondary goals of the Refuge System including providing opportunities for wildlife observation, interpretation, and environmental education. The construction of this trail will not materially interfere with or detract from the purposes for which the Refuge was established.

Stipulations necessary to ensure compatibility:

- ✓ During construction, efforts will be made to minimize disturbance to the immediate construction area. The entire trail area, including all disturbed sites, will be landscaped/naturalized with native vegetation.
- ✓ All features of the trail must be fully accessible to people with disabilities.
- ✓ Use of the trail and surrounding associated area will be monitored by Refuge staff after its completion to ensure the integrity of the site is maintained.

Description of Proposed Use: Beaver Trapping

The Refuge staff proposes to continue to allow trapping of beaver, *Castor canadensis*, on SeedsKadee National Wildlife Refuge. Changes in the hydrology of the Green River since the completion of the Fontenelle Dam in 1964 has had a significant impact on recruitment of cottonwood and willow trees. Cottonwood and willow trees that dominate the riparian forest no longer regenerate to the degree necessary to maintain a healthy forest. This forest zone is critical, however, to a large variety of migrating and nesting birds and resident wildlife. Due to the very high and expanding beaver population, many areas of the Refuge have experienced extensive damage to mature and seedling cottonwood and willow trees by beaver. Girdling or cutting down mature cottonwoods generally results in the tree's death. To alleviate this situation, beaver will be trapped and removed from the Refuge to minimize damage to trees and reduce beaver numbers to meet their carrying capacity of the Refuge.

Availability of resources:

Current Refuge resources are stretched and additional funding and staff are necessary to ensure this program is consistently applied to achieve Refuge objectives. Funding RONS projects in Appendix C would accomplish the goals of the CCP and improve the existing program.

Anticipated impacts on Service lands, waters or interests:

Reduction of beaver numbers will have a direct, positive effect on the preservation of mature and seedling cottonwood and willow trees. This is critically important for the Refuge given the extremely low recruitment rate of new trees. These trees provide habitat for nesting and migrating bird species. They are important perching and roosting sites for wintering raptors, including bald and golden eagles. Several heron rookeries, which are dependent on mature cottonwoods, are also located on the Refuge. Resident wildlife species also benefit from these riparian forests, which provide significant food and shelter for species such as moose, mule deer, sage grouse, and many other species.

The digging of bank dens by beaver, in some cases, damages water control structures, levees, irrigation ditches, or wetland management units. Beaver also routinely block or obstruct water control structures. A reduction in beaver numbers will reduce damages they cause to these facilities, saving significant amounts of staff time throughout the year on repairs.

Beaver trapping is supported by the Wyoming Game and Fish Department. It will provide an opportunity for a local resident to trap.

Justification:

Changes in the hydrology of the Green River since the completion of the Fontenelle Dam in 1964 has had a significant impact on recruitment of cottonwood and willow trees. Cottonwood and willow trees that dominate the riparian forest no longer regenerate to the degree necessary to maintain a healthy forest. This forest zone is critical, however, to a large variety of migrating and nesting birds and resident wildlife. Due to the very high and expanding beaver population, many areas of the Refuge have experienced extensive damage to mature and seedling cottonwood and willow trees by beaver. Girdling or cutting down mature cottonwoods generally results in the tree's death. To alleviate this situation, beaver must be trapped and removed from the Refuge to minimize damage to trees and reduce beaver numbers to meet their carrying capacity of the Refuge.

In the past, some mature cottonwood trees have been protected by wrapping the tree bases with wire. While individual cottonwood groves are wrapped annually by volunteer groups, this alternative is still not practical on a large scale, primarily due to the labor needs and the large numbers of trees that need protection. Hiring a professional trapper is a cost efficient, fast, and low-profile way to reduce beaver population levels on the Refuge.

The following excerpt is taken from Beaver: Water Resources and Riparian Habitat Manager by Olsen and Hubert, 1994: "Unlimited beaver populations can be detrimental to riparian habitats. Likewise, removing beavers completely from an area can eliminate a natural component of an ecosystem that is important to many species of animals and plants. Management cannot embrace total protection or reduction of beaver populations, but (rather) discretionary management that promotes adequate harvest where conflict occurs or protection where habitat enhancement is needed"

Determination:

Beaver trapping conducted under a special use permit for management purposes is considered a compatible use.

Stipulations necessary to ensure compatibility:

- ✓ Trapping is only permitted via a special use permit issued by the refuge manager. Permittee must adhere to all special conditions listed in the special use permit (see special use permit for a full list of stipulations).
- ✓ Trapping will be done in compliance with Wyoming Game and Fish Department regulations.
- ✓ Permittee will provide a report, in writing, on the number, age, and sex of beaver taken and numbers of trap nights. Permittee will also provide a map (Refuge travel map) marking the locations of dens, food caches, trap sets, and where beaver were taken. Report and maps will be provided to the Refuge office within one month of the completion of trapping.
- ✓ Only beaver may be trapped. Any non-target animals that are still alive will be released immediately and a record of species and their condition will be provided to the Refuge office. All non-target animals killed will be turned over to the Refuge for proper disposition. Traps may not be set in any areas where evidence of river otter use exists.
- ✓ Failure to comply with any terms of the special use permit or other Refuge regulations may result in revocation of the permit.

Description of Proposed Use:
Commercial Shuttle Service

The Refuge proposes to issue special use permits for the purpose of allowing commercial shuttle services on Seedskaadee National Wildlife Refuge. The shuttle service is used primarily by boaters needing assistance moving their vehicle from a launch site to a take-out site. Shuttle services will be permitted only on designated roads on the Refuge. All commercial shuttle service activities must be in compliance with general Refuge regulations and the Special Conditions issued with the Special Use Permit.

Availability of resources:

Current resources are stretched to maintain the existing commercial permit operations. If additional staff support were available, this program could be better managed and effective law enforcement implemented to monitor compliance. The additional items to be added from the CCP are tied to funding requests in the form of the attached RONS projects (Appendix C). Funding of the RONS projects would accomplish the goals of the CCP and improve the existing program.

Anticipated impacts on Service lands, waters or interests:

Commercial shuttles may result in increased use of the Refuge. Shuttle services provide a useful and needed public service for visitors. A permitted shuttle service could reduce wear and tear to Refuge roads and other resources due to familiarity with Refuge regulations. In addition, personnel conducting shuttles may disperse information about Refuge regulations to visitors thereby decreasing the numbers of violations of Refuge regulations and reducing impacts to resources.

Commercial shuttle services may create additional wear and tear on Refuge roads, boat ramps, and other facilities and will also be deriving a profit from using these facilities. A fee for the Special Use Permit will help mitigate these impacts. Time spent administering the program diverts staff time from other activities and programs.

Justification:

Commercial shuttle services provide a valuable service to many people who float the Green River on Seedskaadee National Wildlife Refuge. Allowing commercial shuttle services under a Special Use Permit will provide the Refuge with a means to monitor this activity and ensure compliance with Refuge regulations. This may also provide the Refuge with an opportunity to provide additional information about the Refuge to clients of the shuttle service.

Determination:

Commercial shuttle services are compatible when conducted under the stipulations of a special use permit and if additional staff funding is provided to administer and monitor the program. The addition of an outdoor recreation planner would greatly facilitate the administration of this program.

The following stipulations are required to ensure compatibility:

- ✓ Permittee and employees must be in compliance with all Special Conditions listed on the Special Use Permit. For specific details, refer to the Special Use Permit.
- ✓ User fees have been established as part of the Entrance and Recreation User Fee Demonstration Program. These fees are used to cover the majority of the expenses the Refuge incurs for running the commercial outfitting for sport fishing program. Collection of these fees is instrumental to this program to prevent diversion of station funds from other programs.
- ✓ Permits are not transferrable and renewed annually.
- ✓ Permittee must comply with all Refuge regulations.

Literature Cited:

Boyle, S.A. and F. B. Samson. 1985. Effects of onconsumptive recreation on wildlife: a review. Wildl. Soc. Bull. 13:110-116.


Dorrance, M.J., P. J. Savage, and D.E. Huff. 1975. Effects of snowmobiles on white-tailed deer. J. Wildl. Manage. 39:563-569.

Green, D. M. 1998. Recreational impacts on erosion and runoff in a central Arizona riparian area. J. Soil and Water Conserv. Vol. 53, No. 1, pp. 38-42.

Moen, A. N., S. Whittemore, and B. Buxton. 1982. Effects of disturbance by snowmobiles on heart rate of captive white-tailed deer. N. Y. Fish and Game J. Vol. 29, No. 2, pp.176-183.

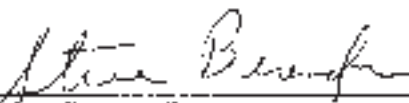
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Signature:


Project Leader

9/10/2002
Date

Concurrence:


Refuge Program Supervisor

9/24/02
Date


Regional Chief, NWRS

9/24/02
Date

Appendix E. Legislation and Policies Legal Parameters And Policy Direction

Following is a list of the most pertinent statutes establishing legal parameters and policy direction for the National Wildlife Refuge System. At the end of the list are those statutes and mandates that pertain to Reclamation's role in upper Colorado River management and Refuge development.

For some laws that provide special guidance or have strong implications relevant to the Service and the refuges, summaries are offered below. Many of the summaries have been taken from *The Evolution of National Wildlife Law* by Michael J. Bean.

Summary of Congressional Acts, Treaties, and other Legal Acts Relating to Administration of the National Wildlife Refuge System.

1. The National Wildlife Refuge System Improvement Act of 1997. The Act establishes that the conservation of fish, wildlife, plants and their habitats is the mission of the NWRs and sets forth the policies and procedures through which the System and individual refuge are to be managed in order to fulfill that mission for the long-term benefit of the American people. The Act requires that public use of a refuge may be allowed only where the use is compatible with the mission of the System and purpose of the individual refuge, and sets forth a standard by which the Secretary shall determine whether such uses are compatible. It establishes as the policy of the United States that wildlife-dependent recreation, when it is compatible, is a legitimate and appropriate public use of the Refuge System, through which the American public can develop appreciation for fish and wildlife. It establishes compatible wildlife-dependent recreational uses as the priority general public use of the Refuge System. Finally, it also requires the Secretary to prepare comprehensive conservation plans for each refuge.
2. Executive Order 12996, 3/25/96, Management and General Public Use of the NWRs. In this Executive Order, the President defined the mission of the NWRs and identified four guiding principals and issued ten directives to the Secretary of Interior on how the System should be managed in the future. The Executive Order identified opportunities for compatible wildlife-dependent recreation, habitat protection, partnerships with sportsmen, other conservation interests and public involvement as guiding principals of the Refuge System. In particular, the President identified "compatible wildlife-dependent recreation activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation as priority general public uses of the Refuge System."
3. Recreational Fisheries...Executive Order.
4. Lacey Act of 1900, as amended (16 U.S.C. 701).
5. Antiquities Act of 1906 (16 U.S.C. 431).
6. Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711).
Migratory Bird Treaty Act of 1978 (40 Stat. 755).
7. Migratory Bird Conservation Act (1929), as amended (16 U.S.C. 715-715s). "Migratory Bird Conservation Act (16 U.S.C. 715-715d, 715e, 715f-715r) — The Act of February 18, 1929, (45 Stat. 1222) established a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds. The Commission consists of the Secretary of the Interior (as chairman), the Secretaries of Transportation and Agriculture, two members of the Senate and two of the House of Representatives, and an ex-officio member from each State in which acquisition is being considered.

The Commission, through its chairman, is directed to report by the first Monday in December of each year to Congress on its activities. The Secretary of the Interior is authorized to cooperate with local authorities in wildlife conservation and as to conduct investigations, to publish documents related to North American birds, and to maintain and develop refuges. The Act provides for cooperation with States in enforcement. It established procedures for acquisition by purchase, rental or gift of areas approved by the Commission for migratory birds.

Public Law 94-215, approved February 17, 1976, (90 Stat. 190) included in acquisition authority under the Act the purchase or rental of a partial interest in land or waters.

Public Law 95-552, approved October 30, 1978, (92 Stat. 2071) required that the Secretary of the Interior consult with the appropriate units of local government and with the Governor of the State concerned, or the appropriate State agency, before recommending an area for purchase or rental under the provisions of the Act. This provision was subsequently amended by P.L. 98-200, approved December 2, 1983 (97 Stat. 1378); P.L. 98-548, approved October 26, 1984 (98 Stat. 2774); and P.L. 99-645, approved November 10, 1986 (100 Stat. 3584) to require that either the Governor or the State agency approve each proposed acquisition.

Public Law 95-616, approved November 8, 1978, (92 Stat. 3110) authorized acquisition of areas for purposes other than inviolate sanctuary."
8. Fish and Wildlife Coordination Act (1934), as amended (16 U.S.C. 661-666). This Act was "the first major Federal wildlife statute to employ the strategy of compelling consideration of wildlife impacts. The act authorized 'investigations to determine the effects of domestic sewage, trade wastes, and other polluting substances on wildlife, encouraged the development of a program for the maintenance of an adequate supply of wildlife on the public domain' and other Federally owned lands, and called for state and Federal cooperation in developing a nationwide program of wildlife conservation and rehabilitation."
9. Historic Sites Act of 1935 (16 U.S.C. 461).
10. Convention of Nature Protection and Wildlife Preservation in the Western Hemisphere 1940 (56 Stat. 1354).
11. Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742-742).

12. Refuge Recreation Act, as amended (Public Law 87-714, 76 Stat. 653; 16 U.S.C. 460k) September 28, 1962. This Act authorizes the Secretary of the Interior “to administer areas of the System ‘for public recreation when in his judgment public recreation can be an appropriate incidental or secondary use; provided, that such public recreation use shall be permitted only to the extent that it is practicable and not inconsistent with the primary objectives for which each particular area is established.’ Recreational uses ‘not directly related to the primary purposes and functions of the individual areas’ of the System may also be permitted, but only on an express determination by the Secretary that they ‘will not interfere with the primary purposes’ of the refuges and that funds are available for their development, operation, and maintenance.” This legislation is the basis for establishment of the refuge allowable use compatibility process. A compatibility process not only invokes consistency with refuge purposes, but also National Wildlife Refuge System goals in NWRS Improvement Act 1997.
13. Refuge Revenue Sharing Act of 1964 (16 U.S.C. 715s), as amended (P.L. 95-469, approved 10-17-78). This Act provides “that the net receipt from the sale or other disposition of animals, timber, hay, grass, or other products of the soil, minerals, shells, sand, or gravel, from other privileges, or from leases for public accommodations or facilities in connection with the operation and management’...of areas of the National Wildlife Refuge System shall be paid into a special fund. The monies from the fund are then to be used to make payments for public schools and roads to the counties in which refuges having such revenue producing activities are located.”
14. Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 460L-4 to 460L-11), and as amended through 1987.
15. National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd - 668ee). This Act, derived from sections 4 and 5 of Public Law 89-669, “consolidated ‘game ranges’, ‘wildlife ranges’, ‘wildlife management areas’, ‘waterfowl production areas’, and ‘wildlife refuges’, into a single ‘National Wildlife Refuge System.’ It placed restrictions on the transfer, exchange, or other disposal of lands within the System; clarified the Secretary’s authority to accept donations of money to be used for land acquisition; and, most importantly, authorized the Secretary, under regulations, to ‘permit the use of any area within the System for any purpose, including, but not limited to, hunting, fishing, public recreation and accommodations, and access whenever he determines that such uses are compatible with the major purposes for which such areas were established.”
16. National Historic Preservation Act of 1966 (16 U.S.C. 470).
17. National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321-4347).
18. Environmental Education Act of 1975 (20 U.S.C. 1531-1536).
19. Endangered Species Act of 1973 (16 U.S.C. 1531-1543 87 Stat. 884) P.L. 93-205). The Endangered Species Act as amended by Public Law 97-304, The Endangered Species Act Amendments of 1982, dated February 1983. The 1973 Act “builds its program of protection on three fundamental units. These include two classifications of species—those that are ‘endangered’ and those that are ‘threatened’—and a third classification of geographic areas denominated critical habitats.”

This Act: (1) Authorizes the determination and listing of species as endangered and threatened, and the ranges in which such conditions exist; (2) Prohibits unauthorized taking, possession, sale, and transport of endangered species; (3) Provides authority to acquire land for the conservation of listed species, using land and water conservation funds; (4) Authorizes establishment of cooperative agreements and grants-in-aid to states that establish and maintain active and adequate programs for endangered and threatened wildlife; and, (5) Authorizes the assessment of civil and criminal penalties for violating the Act or regulations.

Section 7 of the Endangered Species Act requires Federal agencies to ensure that any action authorized, funded, or carried out by them does not jeopardize the continued existence of listed species or modify their critical habitat.
20. Floodplain Management Executive Order of 1977 (Executive Order 11988, dated May 24, 1977).
21. Wetlands Preservation Executive Order of 1977 (Executive Order 11990, dated May 24, 1977).
22. The Archeological Resource Protection Act of 1979 (P.L. 96-95, 93 Stat. 721, dated October 1979) (16 U.S.C. 470aa - 47011).
23. Fish and Wildlife Conservation Act of 1980 (P.L. 96-366, dated September 29, 1980). (“Nongame Act”) (16 U.S.C. 2901-2911; 94 Stat. 1322).
24. Administrative Procedures Act (5 U.S.C. 551-559, 701-706, 1305, 3105, 3344, 4301, 5362, 7521; 60 Stat. 237), as amended (P.L. 79-404, as amended).
25. Bald Eagle Protection Act of 1940 (16 U.S.C. 668-668d; 54 Stat. as amended).
26. Canadian United States Migratory Bird Treaty (Convention Between the United States and Great Britain for Canada for the Protection of Migratory Birds. (39 Stat. 1702; TS 628), as amended.
27. Clean Air Act (42 U.S.C. 1857-1857f; 69 Stat. 322), as amended.
28. Cooperative Research and Training Units Act (16 U.S.C. 753a-753b, 74 Stat. 733, as amended. P.L. 86-686).
29. Federal Aid in Fish Restoration Act (16 U.S.C. 777-777k, 64 Stat. 430).
30. Federal Aid in Wildlife Restoration Act (16 U.S.C. 669-669i; 50 Stat. 917), as amended.
31. Federal Environmental Pesticide Control Act of 1972 (7 U.S.C. 136-136y; 86 Stat. 975), as amended.

32. Federal Land Policy Management Act of 1976 (43 U.S.C. 1701-1771, 1714-1716 for land acquisitions and other U.S.C. sections; 90 Stat. 2743). Public Law 94-579, October 1976.
33. Federal Power Act (16 U.S.C. 791a 825r; 41 Stat. 1063), as amended.
34. Federal Property and Administrative Services Act of 1949 (40 U.S.C., 471-535, and other U.S.C. sections; 63 Stat. 378), as amended.
35. Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251-1265, 1281-1292, 1311-1328, 1341-1345, 1361-1376, and other U.S.C. titles; 86 Stat. 816), as amended.
36. Federal Water Project Recreation Act (16 U.S.C. 4601-12-4601-21; 79 Stat. 213), as amended P.L. 89-72, approved July 1985.
37. Fish and Wildlife Improvement Act of 1978 (16 U.S.C. 7421; 92 Stat. 3110) P.L. 95-616, November 1978.
38. Flood Control Act of 1944 (16 U.S.C. 460d, 825s and various sections of title 33 and 43 U.S.C.; 58 Stat 887), as amended and supplemented.
39. Freedom of Information Act (5 U.S.C. 552; 88 Stat. 1561.
40. Refuge Trespass Act (18 U.S.C. 41; Stat 686).
41. Rivers and Harbors Act of 1899 (33 U.S.C. 401 et seq.; 30 Stat. 1151, as amended and supplemented.
42. Transfer of Certain Real Property for Wildlife Conservation Purposes Act of May 1948, (16 U.S.C. 667b-667d; 62 Stat. 240), as amended.
43. Water Resources Planning Act (42 U.S.C., 1962-1962a-3; 79 Stat. 244), as amended.
44. Waterfowl Depredations Prevention Act (7 U.S.C. 442-445; 70 Stat. 492), as amended.
45. Clean Water Act of 1972, Section 404. Under this Act, permits are required to be obtained for discharges of dredged and fill materials into all waters, including wetlands. Implementation of the 404 program involves three other Federal agencies in addition to limited state involvement. The Environmental Protection Agency (EPA), the National Marine Fisheries Service, and the Service review permit applications and provide comments and recommendations on whether permits should be issued by the Corps. The EPA has veto authority over permits involving disposal sites if impacts are considered unacceptable, and also develops criteria for discharges and state assumption of the 404 program. Due to a national lawsuit, Section 404 regulations were changed in 1984, and now apply to tributaries of navigable waters, isolated wetlands, and waters where interstate commerce is involved. With the new regulations, all washes, drainage, and tributaries of navigable waters, including ephemeral and perennial streams, are included under the 404 program in Arizona.
46. The Flood Security Act of 1985 (Farm Bill). Revised.
47. Migratory Bird Hunting and Conservation Stamp Act. (U.S.C. 718d(b)-c).
48. Mining Act of 1872, as amended (30 U.S.C. 21 et. Seq.) Authorizes and governs prospecting and mining for the so-called "hardrock" minerals such as gold and silver, on public lands.
49. Mineral Leasing Act of 1920, as amended (30 U.S.C. 181 et. Seq.) Authorizes and governs leasing of public lands for development of deposits of coal, oil, gas and other hydrocarbons, sulphur, phosphate, potassium, and sodium, Section 185 of this title contains provisions relating to granting rights-of-way over Federal lands for pipelines. (Additional requirements for refuges are found at 16 U.S.C. 668dd(d)(2).)
50. Federal Coal Leasing Amendment Act of 1976 In section 16, the Act provides that nothing in the Mining Act, the Mineral Leasing Act, or the Mineral Leasing Act for Acquired Lands authorizes the mining of coal on refuges.
51. Mineral Leasing Act for Acquired Lands as amended (30 U.S.C. 351 et. seq.) Authorizes and governs mineral leasing on acquired lands.
52. Wyoming State Statute 23-1-105, Migratory Bird Refuges Gives consent of state to acquisition of land (20,000 acres) by United States in the Seedskadee area for the purpose of establishing and maintaining a migratory bird refuge. If ceases to be used as a migratory bird refuge, the land reverts back to the State. Provides for the owner of any land acquired under this section to reserve all oil, gas, coal, or other minerals as well as the right to enter the land for exploration, development and production of oil, gas, coal, or other minerals.
53. 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

Bureau of Reclamation Mandates.

1. Colorado River Storage Project Act, Section 8 (43 U.S.C. 620-620o, except certain sections classified to the Colorado River Basin Project Act; 70 Stat. 105), as amended. This Act authorized the Secretary of the Interior to construct a variety of dams, power plants, reservoirs, and related works. This Act also authorized and directed the Secretary, in connection with the development of the Colorado River Storage Project and participating projects, to investigate, plan, construct, and operate facilities to mitigate losses of, and improve conditions for, fish and wildlife and public recreational facilities. This Act provided authority to acquire lands and to lease or convey lands and facilities to state and other agencies.
2. Colorado River Basin Project Act, Sept. 30, 1968, Public Law 90-537, 82 Stat. 885.
3. Colorado River Basin Salinity Control Act, June 24, 1974, Public Law 93-320, 88 Stat. 266.
4. Reclamation Act of 1902, 32 Stat. 388, 43 U.S.C. 391.
5. Upper Colorado River Basin Compact, approved by Congress, December 21, 1928, c 42 § 13, 45 Stat. 1064.
6. Conservation of Wildlife, Fish and Game, March 10, 1934, 48 Stat. 401.
7. Coordination of Recreation Programs, Public Law 88-29, May 28, 1963, 77 Stat. 49.
8. The Seedskadee Reclamation Act of 1958, August 28, 1958, 72 Stat. 963.

Appendix F. Species List of Seedskadee NWR

Birds

Loons

Common Loon *Gavia immer*

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*
Black-crowned Night-Heron *Nycticorax nycticorax*

Ibises and Spoonbills

White-faced Ibis *Plegadis chihi*

New World Vultures

Turkey Vulture *Cathartes aura*

Swans, Geese, and Ducks

Snow Goose *Chen caerulescens*
Ross' Goose *Chen rossii*
Canada Goose *Branta canadensis*
Trumpeter Swan *Cygnus buccinator*
Tundra Swan *Cygnus columbianus*
Wood Duck *Aix sponsa*
Gadwall *Anas strepera*
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*
Long-tailed Duck *Clangula hyemalis*
Bufflehead *Bucephala albeola*
Common Goldeneye *Bucephala clangula*
Barrow's Goldeneye *Bucephala islandica*
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*
Swainson's Hawk *Buteo swainsoni*

Red-tailed Hawk
Ferruginous Hawk
Rough-legged Hawk
Golden Eagle

Buteo jamaicensis
Buteo regalis
Buteo lagopus
Aquila chrysaetos

Falcons and Caracaras

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

Gallinaceous Birds

Greater Sage-Grouse *Centrocercus urophasianus*

Rails

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

Cranes

Sandhill Crane *Grus canadensis*
Whooping Crane *Grus americana*

Plovers

Black-bellied Plover *Pluvialis squatarola*
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*
Upland Sandpiper *Bartramia longicauda*
Long-billed Curlew *Numenius americanus*
Marbled Godwit *Limosa fedoa*
Semipalmated Sandpiper *Calidris pusilla*
Western Sandpiper *Calidris mauri*
Least Sandpiper *Calidris minutilla*
Baird's Sandpiper *Calidris bairdii*
Pectoral Sandpiper *Calidris melanotos*
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

Franklin's Gull *Larus pipixcan*
Bonaparte's Gull *Larus philadelphia*
Ring-billed Gull *Larus delawarensis*
California Gull *Larus californicus*
Herring Gull *Larus argentatus*
Caspian Tern *Sterna caspia*
Common Tern *Sterna hirundo*
Forster's Tern *Sterna forsteri*
Black Tern *Chlidonias niger*

Pigeons and Doves

Rock Dove Introduced *Columba livia*
Mourning Dove *Zenaidura macroura*

| | | | |
|---------------------------------|--|-----------------------------------|-----------------------------------|
| Cuckoos and Anis | | | |
| Yellow-billed Cuckoo | | <i>Coccyzus americanus</i> | |
| Typical Owls | | | |
| Great Horned Owl | | <i>Bubo virginianus</i> | |
| Snowy Owl | | <i>Nyctea scandiaca</i> | |
| Burrowing Owl | | <i>Athene cunicularia</i> | |
| Long-eared Owl | | <i>Asio otus</i> | |
| Short-eared Owl | | <i>Asio flammeus</i> | |
| Northern Saw-whet Owl | | <i>Aegolius acadicus</i> | |
| Nightjars | | | |
| Common Nighthawk | | <i>Chordeiles minor</i> | |
| Common Poorwill | | <i>Phalaenoptilus nuttallii</i> | |
| Swifts | | | |
| White-throated Swift | | <i>Aeronautes saxatalis</i> | |
| 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> | |
| Woodpeckers | | | |
| Lewis' Woodpecker | | <i>Melanerpes lewis</i> | |
| Red-headed Woodpecker | | <i>Melanerpes erythrocephalus</i> | |
| Yellow-bellied Sapsucker | | <i>Sphyrapicus varius</i> | |
| Red-naped Sapsucker | | <i>Sphyrapicus nuchalis</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> | |
| Least Flycatcher | | <i>Empidonax minimus</i> | |
| Hammond's Flycatcher | | <i>Empidonax hammondii</i> | |
| Gray Flycatcher | | <i>Empidonax wrightii</i> | |
| Dusky Flycatcher | | <i>Empidonax oberholseri</i> | |
| Cordilleran Flycatcher | | <i>Empidonax occidentalis</i> | |
| Say's Phoebe | | <i>Sayornis saya</i> | |
| Western Kingbird | | <i>Tyrannus verticalis</i> | |
| Eastern Kingbird | | <i>Tyrannus tyrannus</i> | |
| Shrikes | | | |
| Loggerhead Shrike | | <i>Lanius ludovicianus</i> | |
| Northern Shrike | | <i>Lanius excubitor</i> | |
| Vireos | | | |
| Plumbeous Vireo | | <i>Vireo plumbeus</i> | |
| Warbling Vireo | | <i>Vireo gilvus</i> | |
| Red-eyed Vireo | | <i>Vireo olivaceus</i> | |
| Crows, Jays, and Magpies | | | |
| Blue Jay | | <i>Cyanocitta cristata</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 | | | |
| Horned Lark | | <i>Eremophila alpestris</i> | |
| Swallows | | | |
| Tree Swallow | | | <i>Tachycineta bicolor</i> |
| Violet-green Swallow | | | <i>Tachycineta thalassina</i> |
| Northern Rough-winged Swallow | | | <i>Stelgidopteryx serripennis</i> |
| Bank Swallow | | | <i>Riparia riparia</i> |
| Cliff Swallow | | | <i>Petrochelidon pyrrhonota</i> |
| Barn Swallow | | | <i>Hirundo rustica</i> |
| Titmice and Chickadees | | | |
| Black-capped Chickadee | | | <i>Poecile atricapilla</i> |
| Mountain Chickadee | | | <i>Poecile gambeli</i> |
| Nuthatches | | | |
| Red-breasted Nuthatch | | | <i>Sitta canadensis</i> |
| White-breasted Nuthatch | | | <i>Sitta carolinensis</i> |
| Creepers | | | |
| Brown Creeper | | | <i>Certhia americana</i> |
| Wrens | | | |
| Rock Wren | | | <i>Salpinctes obsoletus</i> |
| Bewick's Wren | | | <i>Thryomanes bewickii</i> |
| House Wren | | | <i>Troglodytes aedon</i> |
| Marsh Wren | | | <i>Cistothorus palustris</i> |
| Kinglets | | | |
| Ruby-crowned Kinglet | | | <i>Regulus calendula</i> |
| Old World Warblers | | | |
| Blue-gray Gnatcatcher | | | <i>Polioptila caerulea</i> |
| Thrushes | | | |
| Mountain Bluebird | | | <i>Sialia currucoides</i> |
| Townsend's Solitaire | | | <i>Myadestes townsendi</i> |
| Veery | | | <i>Catharus fuscescens</i> |
| Swainson's Thrush | | | <i>Catharus ustulatus</i> |
| Hermit Thrush | | | <i>Catharus guttatus</i> |
| American Robin | | | <i>Turdus migratorius</i> |
| Mimic Thrushes | | | |
| Gray Catbird | | | <i>Dumetella carolinensis</i> |
| Northern Mockingbird | | | <i>Mimus polyglottos</i> |
| Sage Thrasher | | | <i>Oreoscoptes montanus</i> |
| Brown Thrasher | | | <i>Toxostoma rufum</i> |
| Starlings | | | |
| European Starling | | | <i>Sturnus vulgaris</i> |
| Wagtails and Pipits | | | |
| American (Water) Pipit | | | <i>Anthus rubescens</i> |
| Waxwings | | | |
| Bohemian Waxwing | | | <i>Bombycilla garrulus</i> |
| Cedar Waxwing | | | <i>Bombycilla cedrorum</i> |
| Wood Warblers | | | |
| Tennessee Warbler | | | <i>Vermivora peregrina</i> |
| Orange-crowned Warbler | | | <i>Vermivora celata</i> |
| Nashville Warbler | | | <i>Vermivora ruficapilla</i> |
| Virginia's Warbler | | | <i>Vermivora virginiae</i> |
| Yellow Warbler | | | <i>Dendroica petechia</i> |
| Chestnut-sided Warbler | | | <i>Dendroica pensylvanica</i> |
| Magnolia Warbler | | | <i>Dendroica magnolia</i> |
| Yellow-rumped Warbler | | | <i>Dendroica coronata</i> |
| Pine Warbler | | | <i>Dendroica pinus</i> |
| American Redstart | | | <i>Setophaga ruticilla</i> |
| Northern Waterthrush | | | <i>Seiurus noveboracensis</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

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*
 Vesper Sparrow *Pooecetes gramineus*
 Lark Sparrow *Chondestes grammacus*
 Sage Sparrow *Amphispiza belli*
 Lark Bunting *Calamospiza melanocorys*
 Savannah Sparrow *Passerculus sandwichensis*
 Grasshopper Sparrow *Ammodramus savannarum*
 Fox Sparrow *Passerelia iliaca*
 Song Sparrow *Melospiza melodia*
 Lincoln's Sparrow *Melospiza lincolnii*
 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*
 Snow Bunting *Plectrophenax nivalis*

Cardinals, Grosbeaks, and Allies

Rose-breasted Grosbeak *Pheucticus ludovicianus*
 Black-headed Grosbeak *Pheucticus melanocephalus*
 Lazuli Bunting *Passerina amoena*
 Indigo Bunting *Passerina cyanea*
 Dickcissel *Spiza americana*

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*
 Brown-headed Cowbird *Molothrus ater*
 Baltimore Oriole *Icterus galbula*

Finches

Gray-crowned Rosy Finch *Leucosticte tephrocotis*
 Black Rosy-Finch *Leucosticte atrata*
 Pine Grosbeak *Pinicola enucleator*
 Cassin's Finch *Carpodacus cassinii*
 House Finch *Carpodacus mexicanus*
 Common Redpoll *Carduelis flammea*
 Pine Siskin *Carduelis pinus*
 American Goldfinch *Carduelis tristis*
 Evening Grosbeak *Coccothraustes vespertinus*

Mammals

Cinereus or Masked Shrew *Sorex cinereus*
 Merriam's Shrew *Sorex merriami*
 Dusky or Montane Shrew *Sorex monticolus*
 Common Water Shrew *Sorex palustris*
 Vagrant Shrew *Sorex vagrans*
 Western Small-footed Myotis *Myotis ciliolabrum*
 Long-eared Myotis *Myotis evotis*
 Little Brown Myotis *Myotis lucifugus*
 Long-legged Myotis *Myotis volans*
 Hoary Bat *Lasiurus cinereus*
 Silver-haired Bat *Lasionycteris noctivagans*
 Big Brown Bat *Eptesicus fuscus*
 Pallid Bat *Antrozous pallidus*
 Pygmy Rabbit *Brachylagus idahoensis*
 Desert Cottontail *Sylvilagus audubonii*
 White-tailed Jackrabbit *Lepus townsendii*
 Least Chipmunk *Tamias minimus*
 Yellow-bellied Marmot *Marmota flaviventris*
 Uinta Ground Squirrel *Spermophilus armatus*
 Wyoming Ground Squirrel *Spermophilus elegans*
 Golden-mantled Ground Squirrel *Spermophilus lateralis*
 Thirteen-lined Ground Squirrel *Spermophilus tridecemlineatus*
 White-tailed Prairie-dog *Cynomys leucurus*
 Northern Pocket Gopher *Thomomys talpoides*
 Olive-backed Pocket Mouse *Perognathus fasciatus*
 Great Basin Pocket Mouse *Perognathus parvus*
 Ord's Kangaroo Rat *Dipodomys ordii*
 American Beaver *Castor canadensis*
 Deer Mouse *Peromyscus maniculatus*
 Northern Grasshopper Mouse *Onychomys leucogaster*
 Bushy-tailed Woodrat *Neotoma cinerea*
 Long-tailed Vole *Microtus longicaudus*
 Montane Vole *Microtus montanus*
 Meadow Vole *Microtus pennsylvanicus*
 Sagebrush Vole *Lemmyscus curtatus*
 Common Muskrat *Ondatra zibethicus*
 Western Jumping Mouse *Zapus princeps*
 Common Porcupine *Erethizon dorsatum*
 Coyote *Canis latrans*
 Red Fox *Vulpes vulpes*
 Black Bear *Ursus americanus*
 Common Raccoon *Procyon lotor*
 Ermine *Mustela erminea*
 Long-tailed Weasel *Mustela frenata*
 American Mink *Mustela vison*
 American Badger *Taxidea taxus*
 Northern River Otter *Lontra canadensis*
 Striped Skunk *Mephitis mephitis*
 Bobcat *Lynx rufus*
 Wapiti or Elk *Cervus elaphus*
 Mule or Black-tailed Deer *Odocoileus hemionus*
 Moose *Alces alces*
 Pronghorn *Antilocapra americana*

Reptiles and Amphibians

Reptiles

| | |
|-----------------------------|---|
| Many-lined Skink | <i>Eumeces multivirgatus</i> |
| Northern Sagebrush Lizard | <i>Sceloporus graciosus</i> |
| Northern Plateau Lizard | <i>Sceloporus undulatus</i> |
| Eastern Short-Horned Lizard | <i>Phrynosoma douglassi</i> |
| Eastern Yellowbelly Racer | <i>Coluber constrictor</i> |
| Great Basin Gopher Snake | <i>Pituophis melanoleucas</i> |
| Wandering Garter Snake | <i>Thamnophis elegans</i> |
| Western Plains Garter Snake | <i>Thamnophis radix subspeci. haydenies</i> |

Amphibians

| | |
|-----------------------|---------------------------------|
| Tiger Salamander | <i>Ambystoma tigrinum</i> |
| Great Basin Spadefoot | <i>Scaphiopus intermontanus</i> |
| Northern Leopard Frog | <i>Rana pipiens</i> |
| Boreal Chorus Frog | <i>Pseudacris triseriata</i> |

Fish

| | |
|-----------------------------|---------------------------------|
| Rainbow Trout | <i>Oncorhynchus mykiss</i> |
| Snake River Cutthroat Trout | <i>Oncorhynchus clarki</i> |
| Bonnieville Cutthroat Trout | <i>Oncorhynchus clarki utah</i> |
| Kokanee Salmon | <i>Oncorhynchus nerki</i> |
| Brown Trout | <i>Salmo trutta</i> |
| Lake Trout | <i>Salvelinus namaychus</i> |
| Mountain Whitefish | <i>Prosopium williamsoni</i> |
| Channel Catfish | <i>Ictalurus punctatus</i> |
| Smallmouth Bass | <i>Micropterus dolomieu</i> |
| Mottled Sculpin | <i>Cottus bairdi</i> |
| White Sucker | <i>Catostomus commersoni</i> |
| Mountain Sucker | <i>Catostomus platyrhynchus</i> |
| Flannelmouth Sucker | <i>Catostomus latipinnis</i> |
| Bluehead Sucker | <i>Catostomus discobolus</i> |
| Common Carp | <i>Cyprinus carpio</i> |
| Utah Chub | <i>Gila atraria</i> |
| Roundtail Chub | <i>Gila robusta</i> |
| Bonneville Redside Shiner | <i>Richardsonius balteatus</i> |
| Fathead Minnow | <i>Pimphales promelas</i> |
| Speckled Dace | <i>Rhinichthys osculus</i> |

Vascular plant species of Seedskadee National Wildlife Refuge, Sweetwater County, Wyoming

Last Update – 1/04/2001, Following Dorn 1992.

| <u>SCIENTIFIC NAME</u> | <u>COMMON NAME</u> | <u>FAMILY</u> | <u>TYPE</u> |
|---|---|------------------|-------------|
| TREES | | | |
| * <u>Populus angustifolia</u> James. | Narrowleaf cottonwood | SALICACEAE | NP |
| SHRUBS | | | |
| * <u>Artemisia frigida</u> Willd. | Fringed sagebrush | ASTERACEAE | NP |
| * <u>Artemisia nova</u> A. Nels. | Black sagebrush | ASTERACEAE | NP |
| * <u>Artemisia spinescens</u> Eaton | Bud sagebrush | ASTERACEAE | NP |
| * <u>Artemisia tridentata</u> Nutt. | Big Sagebrush | ASTERACEAE | NP |
| * <u>Atriplex confertifolia</u> (Torrey & Frem.) Wats. | Shadscale | CHENOPODIACEAE | NP |
| * <u>Atriplex gardneri</u> (Moq.) Dietr. | Gardner saltbush (former Nuttall) | CHENOPODIACEAE | NP |
| <u>Betula occidentalis</u> Hook. | Water birch | BETULACEAE | NP |
| <u>Chrysothamnus linifolius</u> Greene | Green/Douglas rabbitbrush | ASTERACEAE | NP |
| * <u>Chrysothamnus nauseosus</u> (Pallas ex Pursh) Britt. | Gray/Rubber rabbitbrush | ASTERACEAE | NP |
| * <u>Cornus sericea</u> L. (former = <u>C. stolonifera</u>) | Red-osier dogwood | CORNACEAE | NP |
| * <u>Elaeagnus commutata</u> Bernh. Ex Rydb. | Silverberry/wolf willow | ELAEAGNACEAE | ? |
| <u>Elaeagnus angustifolia</u> L. | Russian olive | ELAEAGNACEAE | IP |
| <u>Eriogonum brevicaulis</u> Nutt. | Umbrella plant | POLYGONACEAE | ?? |
| * <u>Grayia spinosa</u> (Hook.) Moq. | Spiny hop-sage | CHENOPODIACEAE | NP |
| <u>Gutierrezia sarothrae</u> (Pursh) Britt. & Rusby | Snakeweed | ASTERACEAE | NP |
| * <u>Leptodactylon pungens</u> (Torrey) Nutt. | Granite prickly gilia | POLEMONIACEAE | NP |
| <u>Lycium barbarum</u> L. | Matrimony vine | SOLANACEAE | IP |
| <u>Opuntia</u> Spp? | Prickly pear cactus | CACTACEAE | NP |
| * <u>Pediocactus simpsonii</u> (Engelm.) Britt. & Rose | Pincushion cactus | CACTACEAE | NP |
| * <u>Rhus trilobata</u> Nutt. | Skunkbush/fragrant sumac | ANACARDIACEAE | NP |
| * <u>Ribes aureum</u> Pursh | Wax currant, golden currant | GROSSULARIACEAE | NP |
| 1* <u>Ribes oxycanthoides</u> L. var. <u>setosum</u> Lindl. Dorn | Missouri/Redshoot gooseberry | GROSSULARIACEAE | NP |
| * <u>Rosa woodsii</u> Lindl. | Woods' rose | ROSACEAE | NP |
| * <u>Salix bebbiana</u> Sarg. | Bebb willow | SALICACEAE | NP |
| * <u>Salix exigua</u> Nutt. | Coyote willow | SALICACEAE | NP |
| <u>Salix lasiandra</u> Benth. var. <u>caudate</u> (Nutt.) Sudw. | Whiplash willow | SALICACEAE | NP |
| * <u>Sarcobatus vermiculatus</u> (Hook.) Torr. | Black greasewood | CHENOPODIACEAE | NP |
| * <u>Shepherdia argentea</u> (Pursh) Nutt. | Silver buffaloberry | ELAEAGNACEAE | NP |
| <u>Tamarix ramosissima</u> Ledeb. | Salt cedar | TAMARICACEAE | IP |
| * <u>Tetradymia canescens</u> DC. | Gray horsebrush | ASTERACEAE | NP |
| * <u>Tetradymia spinosa</u> H.&A. | Cottonthorn horsebrush | ASTERACEAE | NP |
| FORBS | | | |
| <u>Abronia fragrans</u> Nutt.ex Hook. | Snowball sand verbena | NYCTAGINACEAE | ? |
| ² <u>Abronia micrantha</u> Torrey | Sandpuffs | NYCTAGINACEAE | ?A |
| * <u>Acroptilon repens</u> L. = <u>Centaurea repens</u> (L.) De Candolle | Russian knapweed | ASTERACEAE | IP |
| <u>Agoseris glauca</u> (Pursh) Raf. | Pale agoseris | ASTERACEAE | ?P |
| * <u>Allium textile</u> Nels. & Macbr. | Wild onion | LILIACEAE | NP |
| <u>Antennaria parvifolia</u> Nutt. | Littleleaf pussytoes | ASTERACEAE | ?P |
| * <u>Arabis holboellii</u> Hornem. | Holboell rockcress | BRASSICACEAE | ?B-P |
| * <u>Arenaria hookeri</u> Nutt. | Hooker sandwort | CARYOPHYLLACEAE | ? |
| * <u>Artemisia dracunculus</u> L. | Tarragon sawwort | ASTERACEAE | NP |
| * <u>Artemisia ludoviciana</u> Nutt. | Louisiana wormwood/sawwort | ASTERACEAE | NP |
| * <u>Asclepias speciosa</u> Torrey | Showy milkweed | ASCLEPIADACEAE | NP |
| ** <u>Aster chilensis</u> Nees refer to <u>A. ascendens</u> Lindl. | Pacific aster | ASTERACEAE | ? |
| * <u>Astragalus agrestis</u> Dougl.ex G. Don | Purple/Field milkvetch | FABIACEAE | ?P |
| * <u>Astragalus argophyllus</u> Nutt. | Silver-leafed Milkvetch | FABIACEAE | ?P |
| * <u>Astragalus canadensis</u> L. | Canada/Short-toothed milkvetch | FABIACEAE | ?P |
| * <u>Astragalus chamaeleuce</u> Gray | Milkvetch | FABIACEAE | ?P |
| * <u>Astragalus convallarius</u> Greene (<u>diversifolius</u> , Dorn) | Lesser Rushy milkvetch/Timber poisonvetch | FABIACEAE | ?P |
| * <u>Astragalus geyeri</u> Gray | Geyer's Milkvetch | FABIACEAE | ?P |
| * <u>Astragalus pubentissimus</u> T&G. | Green River milkvetch | FABIACEAE | ?P |
| * <u>Astragalus purshii</u> Dougl. Ex. Hook. | Wooly pod milkvetch/Purshes locoweed | FABIACEAE | ?P |
| * <u>Astragalus spatulatus</u> Sheld. | Draba/Tufted milkvetch | FABIACEAE | ?P |
| * <u>Astragalus tenellus</u> Pursh. | Loose flower milkvetch | FABIACEAE | ?P |
| * <u>Calochortus nuttallii</u> T&G | Nuttall's mariposa lily | LILIACEAE | NP |
| <u>Camissonia minor</u> (A. Nels.) Raven | Evening primrose family | ONAGRACEAE | ? |
| * <u>Camissonia scapoidea</u> (T.&G.) Raven | Naked stemmed evening primrose | ONAGRACEAE | ? |
| <u>Cardaria draba</u> (L.) Desv. | Hoary cress | BRASSICACEAE | IP |
| * <u>Cardaria pubescens</u> (Meyer) Jarmol. | Longstalk whitetop | BRASSICACEAE | IP |
| * <u>Carduus nutans</u> L. | Musk thistle | ASTERACEAE | IA-B |
| * <u>Castilleja angustifolia</u> (Nutt.) G. Don (former <u>chromosa</u> A. Nels.) | Desert paintbrush | SCROPHULARIACEAE | NP |
| * <u>Centaurea muculosa</u> Lam. | Spotted knapweed | ASTERACEAE | IB-P |
| * <u>Chenopodium glaucum</u> L. | Oakleaf goosefoot | CHENOPODIACEAE | ?A |
| <u>Chenopodium leptophyllum</u> (Moq.) Nutt. ex Wats. | Slimleaf goosefoot | CHENOPODIACEAE | ?A |
| * <u>Cicuta maculata</u> (in Dorn) [old? <u>Douglasii</u> (DC.) Coult. & Rose] | Water hemlock | APIACEAE | NP |
| <u>Cirsium arvense</u> (L.) Scop. | Canada thistle | ASTERACEAE | IP |
| * <u>Cirsium foliosum</u> (Hook.) DC. [<u>C. scariosum</u> Nutt.] | Elk thistle | ASTERACEAE | NP |
| * <u>Cirsium vulgare</u> (Savi) Tenore | Bull thistle | ASTERACEAE | IB |

| | | | |
|---|------------------------------|------------------|-------|
| * <i>Cleome lutea</i> Hook. | Yellow beeplant | CAPPARACEAE | NA |
| <i>Comandra</i> sp. [C. <i>umellata</i> (L.)??] | Bastard Toadflax | SANTALACEAE | ?? |
| <i>Convolvulus arvensis</i> L. | Field bindweed | CONVOLVULACEAE | IP |
| * <i>Cordylanthus ramosus</i> Nutt. Ex Benth. | Bushy birdbeak | SCROPHULARIACEAE | ?? |
| * <i>Crepis runcinata</i> (James) T.&G. | Dandelion hawkbeard | ASTERACEAE | ?P |
| * <i>Cryptantha flavoculata</i> (A. Nels.) Payson | Roughseed cryptantha | BORAGINACEAE | NB-P |
| * <i>Cryptantha sericea</i> (Gray) Payson | Cryptantha | BORAGINACEAE | NB-P |
| * <i>Cymopterus acaulis</i> (Pursh) Raf. | Biscuit root | APIACEAE | NP |
| * <i>Cymopterus longipes</i> Wats. | Biscuit root | APIACEAE | NP |
| * <i>Descurainia pinnata</i> (Walt.) Britt | Pinnate tansy-mustard | BRASSICACEAE | NA |
| * <i>Descurainia sophia</i> (L.)Webb ex Prantl | Flixweed tansy-mustard | BRASSICACEAE | IA |
| * <i>Erigeron glabellus</i> Nutt. | Smooth fleabane | ASTERACEAE | ?? |
| * <i>Erigeron pumilus</i> Nutt. | Low fleabane | ASTERACEAE | ?? |
| * <i>Eriogonum cernuum</i> Nutt. | Nodding eriogonum | POLYGONACEAE | ?A-B |
| * <i>Eriogonum ovalifolium</i> Nutt. | Cushion eriogonum | POLYGONACEAE | ?? |
| <i>Euphorbia brachycera</i> Engelm. var. <i>robusta</i> (Engelm.) Dorn | Rocky Mountain spurge | EUPHORBIACEAE | ?P |
| <i>Euphorbia glyptosperma</i> Engelm. | Ridgeseed spurge | EUPHORBIACEAE | ?A |
| * <i>Gaura coccinea</i> Nutt. ex Pursh | Scarlet gaura | ONAGRACEAE | NP |
| * <i>Gilia leptomeria</i> Gray | Gilia | POLEMONIACEAE | NA |
| <i>Glaux maritima</i> L. | Sea-milkwort | PRIMULACEAE | ?? |
| * <i>Glycyrrhiza lepidota</i> Pursh | American licorice | FABACEAE | NP |
| * <i>Grindelia squarrosa</i> (Pursh) Dunal | Curlycup gumweed | ASTERACEAE | NB-P |
| <i>Gypsophila paniculata</i> L. | Babysbreath | CARYOPHYLLACEAE | IP |
| * <i>Halimolobos virgata</i> (Nutt.) Schulz | Halimolobos | BRASSICACEAE | ?? |
| * <i>Halogeton glomeratus</i> (Bieb.) Meyer | Common halogeton | CHENOPODIACEAE | IA |
| * <i>Haplopappus acaulis</i> (Nutt.) Gray | Stemless goldenweed | ASTERACEAE | ?P |
| * <i>Haplopappus lanceolatus</i> (Hook.) T.&G. | Lanceleaf goldenweed | ASTERACEAE | ?P |
| 6* <i>Haplopappus nuttallii</i> T. & G. [Former <i>Machaeranthera grindelioides</i> Nutt. Shinners] | Nuttall goldenweed | ASTERACEAE | ?? |
| * <i>Helenium autumnale</i> L. | Common sneezeweed | ASTERACEAE | ?P |
| * <i>Hippuris vulgaris</i> L. | Common maretail | HIPPURIDACEAE | NP |
| * <i>Hymenopappus filifolius</i> Hook. | Fineleaf hymenopappus | ASTERACEAE | ?P |
| * <i>Hyoscyamus niger</i> L. | Black henbane | SOLANACEAE | IA-B |
| 7* <i>Ipomopsis congesta</i> (Hook.) Grant [former = <i>Gilia congesta</i> Hook.] | Common ball-head gilia | POLEMONIACEAE | ?? |
| * <i>Iris missouriensis</i> Nutt. | Rocky Mountain iris | IRIDACEAE | NP |
| * <i>Iva axillaries</i> Pursh | Poverty weed | ASTERACEAE | NP |
| <i>Kochia scoparia</i> (L.) Schrad. | Kochia | CHENOPODIACEAE | IA |
| <i>Lactuca serriola</i> L. | Prickly lettuce | ASTERACEAE | ?NA-B |
| <i>Lappula occidentalis</i> (S. Wats.) Greene | Western sticktight | BORAGINACEAE | NA |
| * <i>Lepidium latifolium</i> L. | Tall whitetop, pepperweed | BRASSICACEAE | IP |
| <i>Lepidium perfoliatum</i> L. | Clasping pepperweed | BRASSICACEAE | IA |
| * <i>Lepodactylon pungens</i> (Torr.) Nutt. | Lepodactylon | POLEMONIACEAE | ?? |
| * <i>Lesquerella alpina</i> (Nutt.) Wats. | Bladderpod | BRASSICACEAE | ?? |
| * <i>Lesquerella ludoviciana</i> (Nutt.) Wats. | Bladderpod | BRASSICACEAE | ?? |
| * <i>Lithospermum incisum</i> Lehm. | Narrow-leaf gromwell | BORAGINACEAE | NP |
| * <i>Lupinus argenteus</i> Pursh. [= <i>L. caudatus</i>] | Silvery lupine | FABIACEAE | NP |
| * <i>Lupinus pusillus</i> Pursh. | Rusty lupine | FABIACEAE | NA |
| * <i>Lygodesmia grandiflora</i> (Nutt.) T. & G. | Skeletonweed | ASTERACEAE | ?P |
| * <i>Machaeranthera canescens</i> (Pursh) Gray | Purple aster | ASTERACEAE | ?P |
| 9* <i>Maianthemum stellatum</i> (L.) Link | Starry solomon plume | LILIACEAE | N? |
| * <i>Malcolmia africana</i> (L.) R.Br. | Malcolmia | BRASSICACEAE | ?A |
| * <i>Medicago sativa</i> L. | Alfalfa | FABIACEAE | IP |
| * <i>Melilotus albus</i> Medic. | White sweet-clover | FABACEAE | IA-B |
| * <i>Melilotus officinalis</i> (L.) Pallas | Yellow sweet-clover | FABACEAE | IA-B |
| * <i>Mentha arvensis</i> L. | Field mint | LAMIACEAE | NP |
| * <i>Mirabilis linearis</i> (Pursh) Heimerl | Narrowleaf umbrella wort | NYTAGINACEAE | ?P |
| <i>Monolepis nuttalliana</i> (Schultes) Greene | Poverty-weed | CHENOPODIACEAE | NA |
| * <i>Nama densum</i> Lemmon | Leafy/Matted nama | HYDROPHYLLACEAE | ?A |
| * <i>Oenothera caespitosa</i> Nutt. | Tufted evening primrose | ONAGRACEAE | N? |
| 10* <i>Oenothera hookeri</i> T. & G.?? | Hooker evening primrose | ONAGRACEAE | N? |
| 11* <i>Oenothera pallida</i> Lindl. | Hairy calyx evening primrose | ONAGRACEAE | N? |
| <i>Oenothera villosa</i> Thunb. | Evening-primrose | ONAGRACEAE | NB |
| * <i>Orobancha fasciculata</i> Nutt. | Tufted broomrape | OROBANCHACEAE | N? |
| * <i>Oxytropis deflexa</i> (Pallas) DC. | Drop-pod locoweed | FABIACEAE | NP |
| * <i>Oxytropis riparia</i> Litv. | River oxytrope | FABIACEAE | NP |
| * <i>Oxytropis sericea</i> Nutt. ex T. & G. | Silky crazyweed | FABIACEAE | NP |
| * <i>Penstemon arenicola</i> A. Nels. | Sand penstemon; beardtongue | SCROPHULARIACEAE | NP |
| <i>Penstemon eriantherus</i> Pursh | Crested penstemon | SCROPHULARIACEAE | NP |
| * <i>Penstemon fremontii</i> T. & G. ex Gray | Fremont penstemon | SCROPHULARIACEAE | NP |
| * <i>Phlox hoodii</i> Richardson | Hood's phlox | POLEMONIACEAE | NP |
| * <i>Physaria acutifolia</i> Rydb. | Twinpod/Bladderpod | BRASSICACEAE | NP |
| * <i>Physostegia parviflora</i> Nutt. Ex Gray | False dragonhead | LAMIACEAE | ?? |
| * <i>Plantago eriopoda</i> Torr. | Saline/Redwood plantain | PLANTAGINACEAE | NP |
| * <i>Plantago major</i> L. | Broadleaf plantain | PLANTAGINACEAE | IP |
| * <i>Polygonum aviculare</i> L. | Prostrate knotweed | POLYGONACEAE | IA |
| * <i>Potentilla anserina</i> L. | Common silverweed | ROSACEAE | NP |
| * <i>Potentilla hippiana</i> Lehm. | Wooly potentilla | ROSACEAE | NP |
| 12* <i>Psoraleidum lanceolatum</i> (Pursh) Rydb | Lemon scurf pea | FABIACEAE | ?P |
| * <i>Ranunculus cymbalaria</i> Pursh | Marsh/Seaside buttercup | RANUNCULACEAE | NP |
| <i>Rorippa curvipes</i> Greene | Cress | BRASSICACEAE | ?? |
| * <i>Rorippa sinuate</i> (Nutt.) A.S. Hitch. | Spreading yellow cress | BRASSICACEAE | ?? |

| | | | |
|--|--------------------------|------------------|------|
| * <i>Rumex crispus</i> L. | Curly dock | POLYGONACEAE | NP |
| * <i>Rumex hymenosepalus</i> Torrey | Dock | POLYGONACEAE | ?? |
| * <i>Rumex maritimus</i> L. [var. <i>fueginus</i> (Phil) Dusen] | Dock | POLYGONACEAE | ?? |
| * <i>Salicornia rubra</i> A. Nels. | Rocky Mountain glasswort | CHENOPODIACEAE | |
| ¹³ <i>Salsola iberica</i> Sennen | Russian thistle | CHENOPODIACEAE | IA |
| ¹⁴ * <i>Schoenocrambe linifolia</i> (Nutt.) Greene | Plains/Basin mustard | BRASSICACEAE | ?P |
| * <i>Senecio hydrophilus</i> Nutt. | Groundsel | ASTERACEAE | NP |
| * <i>Sisyrinchium</i> spp. | Blue-eyed grass | IRIDACEAE | NP |
| * <i>Solanum rostratum</i> Dun. | Buffalobur | SOLANACEAE | NA |
| * <i>Solidago missouriensis</i> Nutt. | Missouri goldenrod | ASTERACEAE | NP |
| * <i>Sonchus arvensis</i> L.ssp. <i>uliginosus</i> (Bieb.) Nyman | Marsh sow-thistle | ASTERACEAE | IP |
| * <i>Sonchus asper</i> L. Hill | Spiny sowthistle | ASTERACEAE | IA |
| * <i>Sphaeralcea coccinea</i> (Nutt.) Rydb. | Scarlet globemallow | MALVACEAE | NP |
| * <i>Sphaeromeria argentea</i> Nutt. | False sagebrush | ASTERACEAE | ?P |
| * <i>Sphaerophysa salsula</i> (Pall.) DC. | Swainsonpea | FABIACEAE | IP |
| * <i>Taraxacum officinale</i> Weber in Wiggers | Common dandelion | ASTERACEAE | IP |
| * <i>Tiquilia nuttallii</i> (Hook.) Richardson | Tiquilia | BORAGINACEAE | ?A |
| * <i>Townsendia incana</i> Nutt. | Hoary townsendia | ASTERACEAE | ?? |
| * <i>Trifolium andinum</i> Nutt. | Nuttal clover | FABACEAE | ?? |
| <i>Triglochin maritimum</i> L. var. <i>elatum</i> (Nutt) Gray | Maritime arrowgrass | JUNCAGINACEAE | NP |
| * <i>Typha latifolia</i> L. | Common cattail | TYPHACEAE | NP |
| <i>Valeriana edulis</i> Nutt. ex T. & G. | Edible valeriana | VALERIANACEAE | ?P |
| <i>Verbena bracteata</i> Lag. & Rodr. | Prostrate vervain | VERBENACEAE | ?A-P |
| * <i>Veronica anagallis-aquatica</i> L. | Water Speedwell | SCROPHULARIACEAE | ?? |
| <i>Vicia americana</i> | American vetch | FABACEAE | ?P |
| * <i>Xanthium strumarium</i> L. | Common cocklebur | ASTERACEAE | NA |

FERN ALLIES

| | | | |
|--------------------------------------|-------------------------------|--------------|----|
| * <i>Equisetum laevigatum</i> A. Br. | Smooth scouringrush/horsetail | EQUISETACEAE | NP |
|--------------------------------------|-------------------------------|--------------|----|

GRASSES

| | | | |
|---|---|---------|-------------------|
| * <i>Agropyron cristatum</i> (L.) Gaertn. | Crested wheatgrass | POACEAE | IP |
| * <i>Agropyron spicatum</i> (Pursh) Scribn. & Sm. = <i>Elymus spicatus</i> (Pursh) Gould | Bluebunch wheatgrass | POACEAE | NP |
| * <i>Agropyron trachycaulum</i> x <i>Hordeum jubatum</i> hybrid | | | |
| * <i>Agrostis stolonifera</i> L. | Redtop, Bentgrass | POACEAE | IP |
| <i>Alopecurus aequalis</i> Sobol. | Shortawn foxtail | POACEAE | NP |
| <i>Alopecurus arundinaceus</i> Poirat | Creeping foxtail (Garrison is a cultivar) | POACEAE | IP |
| * <i>Alopecurus pratensis</i> L. | Meadow foxtail | POACEAE | IP |
| * <i>Beckmannia syzigachne</i> (Steudel) Fern. | American sloughgrass | POACEAE | NA |
| * <i>Bromus inermis</i> Leyss. | Smooth brome | POACEAE | IP |
| <i>Bromus tectorum</i> L. | Cheatgrass brome | POACEAE | IA |
| ¹⁵ * <i>Calamagrostis stricta</i> (Timm) Koeler | Northern reedgrass | POACEAE | NP |
| * <i>Deschampsia cespitosa</i> (L.) Beauv. | Tufted hairgrass | POACEAE | NP |
| * <i>Distichlis spicata</i> (L.) Greene | Inland saltgrass | POACEAE | NP |
| * <i>Elymus cinereus</i> Scribn. & Merr. | Great Basin wildrye | POACEAE | NP |
| * <i>Elymus hispidus</i> (Opiz) Melderis = <i>Agropyron intermedium</i> (Host.)Beauv. | Intermediate wheatgrass | POACEAE | IP |
| * <i>Elymus repens</i> (L.) Gould = <i>Agropyron repens</i> (L.) Beauv. | Quackgrass | POACEAE | IP |
| <i>Elymus smithii</i> (Rydb.) Gould= <i>Agropyron smithii</i> Rydb. | Western wheatgrass | POACEAE | NP |
| ¹⁶ <i>Elymus trachycaulus</i> (Link) Gould ex Shinners var. <i>andinus</i> (Scribn. & Sm.) Dorn = <i>Agropyron subsecundum</i> . | Bearded wheatgrass | POACEAE | ?P |
| <i>Elymus trachycaulus</i> (Link) Gould ex Shinners var. <i>trachycaulus</i> = <i>Agropyron trachycaulum</i> (Link) Malte | | | |
| | Slender wheatgrass | POACEAE | ?P |
| * <i>Festuca pratensis</i> Huds. = <i>F. elatior</i> L. | Meadow fescue | POACEAE | IP |
| * <i>Hilaria jamesii</i> (Torr.) Benth | Galleta | POACEAE | ?? |
| * <i>Hordeum jubatum</i> L. | Foxtail barley | POACEAE | NP |
| <i>Muhlenbergia asperifolia</i> (Nees & Mey. Ex Trin) Parodi | Scratchgrass | POACEAE | NP |
| * <i>Muhlenbergia richardsonii</i> (Trin.) Rydb. | Mat Muhly | POACEAE | NP |
| * <i>Oryzopsis hymenoides</i> (R. & S.) Riker ex Piper | Indian ricegrass | POACEAE | NP |
| <i>Phalaris arundinacea</i> L. | Reed canarygrass | POACEAE | IP |
| <i>Pheum pratense</i> L. | Timothy | POACEAE | IP |
| <i>Phragmites australis</i> (Cav) Trin. Ex Steudel | Common Reed | POACEAE | IP |
| <i>Poa juncifolia</i> Scribn. | Alkali bluegrass | POACEAE | NP |
| <i>Poa nevadensis</i> Vasey ex Scribn. | Nevada bluegrass | POACEAE | NP |
| <i>Poa pratensis</i> L. | Kentucky bluegrass | POACEAE | IP |
| * <i>Sitanion hystrix</i> (Nutt.) J.G. Smith | Bottlebrush squirreltail | POACEAE | * <i>Spartina</i> |
| <i>gracilis</i> Trin. | Alkali cordgrass | POACEAE | |
| * <i>Sporobolus airoides</i> (Torrey) Torrey | Alkali sacaton | POACEAE | NP |
| * <i>Stipa comata</i> Trin. & Rupr. | Needle and thread grass | POACEAE | NP |

SEDGES

| | | | |
|--|--------------------|------------|----|
| * <i>Carex douglasii</i> Boott | Douglas sedge | CYPERACEAE | |
| * <i>Carex lanuginosa</i> Michx. | Wooly sedge | CYPERACEAE | |
| * <i>Carex nebrascensis</i> Dewey | Nebraska sedge | CYPERACEAE | |
| * <i>Carex praegracilis</i> Boott | Silver sedge | CYPERACEAE | |
| * <i>Carex rostrata</i> Stokes | Beaked sedge | CYPERACEAE | |
| * <i>Carex simulata</i> Mack. | Short-beaked sedge | CYPERACEAE | |
| * <i>Eleocharis palustris</i> (L.) R.&S. | Common spikerush | CYPERACEAE | NP |
| * <i>Scirpus acutus</i> Muhl. ex Bigelow | Tule bulrush | CYPERACEAE | NP |
| * <i>Scirpus pungens</i> Vahl. | Common threesquare | CYPERACEAE | NP |

RUSHES

Juncus balticus Willd. Wiregrass JUNACEAE NP

WEED SPECIMENS IN HERBARIUM – NOT FOUND ON REFUGE (YET)

| | | | |
|------------------------------------|--------------------|---------------|----|
| * <i>Euphorbia esula</i> L. | Leafy spurge | EUPHORBIACEAE | IP |
| * <i>Centaurea solstitialis</i> L. | Yellow starthistle | ASTERACEAE | IP |
| * <i>Hypericum perforatum</i> L. | St. John's-wort | HYPERICACEAE | IP |
| * <i>Lythrum salicaria</i> | Purple Loosestrife | LYTHRACEAE | IP |

<Plant Type Codes: I = Introduced; N = Native; A = Annual; B = Biennial; P = Perennial

* Denotes plant specimen in herbarium.

NOTES:

- ¹**Ribes oxycanthoides* L. var. *setosum* Lindl. Dorn Missouri/Redshoot gooseberry
Ribes setosum specimen in herbarium. Dorn lists *Ribes oxycanthoides* L. var. *setosum* Lindl. Dorn.
- ²*Abronia micrantha* Torrey Sandpuffs
Tripteroalyx micranthus listed in "Plants of Seedskaadee National Wildlife Refuge"
Dorn 92 – *T. Micranthus* not listed. *A. micrantha* is listed.
Uinta Basin Flora listed "*T. Micranthus* (Torr.) Hook. [*T. pedunculatus* (Jones) Stand.; *Abronia micrantha* Torr.]"
- ³ *Aster chilensis* –
Specimen in herbarium *A. chilensis*. Uinta Basin Flora. Lists *chilensis* but spp. Referable to *ascendens* (Lindl.) Cronq.
- ⁴* *Astragalus convallarius* Greene Lesser Rushy milkvetch/Timber poisonvetch
Uinta Basin Flora. Reports *A. diversifolius* Gray is misapplied. No spp. for *convallarius* Greene in Dorn 92, only *diversifolius* var. *diversifolius* listed in the Green River Basin.
- ⁵**Cirsium foliosum* (Hook.) DC. Elk thistle
Dorn 92 – *C. foliosum* recorded in Yellowstone Park, Sheridan. *C. scariosum* Nutt. Recorded in nw,nwc,nec,cw,c.
Weeds of West – Lists *C. foliosum* in picture but references *C. scariosum* in index.
- ⁶**Haplopappus nuttallii* T. & G. Nuttall goldenweed
Machaeranthera grindelioides Nutt. Shinners specimen in herbarium. Uinta Basin Flora – lists *M. grindelioides* (*Haplopappus nuttallii* T. & G.). In Dorn's index lists *M. grindelioides* = *H. nuttallii*
- ⁷* *Ipomopsis congesta* (Hook.) Grant Common ball-head gilia
Gilia congesta specimen in herbarium. Uinta Basin Flora lists *Gilia congesta* Hook. [*Ipomopsis congesta* (Hook.) V. Grant] as common widespread desert shrub, sagebrush and pinyon-juniper communities.
- ⁸**Lupinus argenteus* Pursh.[= *L. caudatus*] Silvery lupine
- **Lupinus caudatus* Kell. Tailcup lupine
- ⁹**Maianthemum stellatum* (L.) Link Starry solomon plume
Dorn 92 - *Smilacina* = *Maianthemum*; Old name: *Smilacina stellata*
- ¹⁰**Oenothera hookeri* T. & G. Hooker evening primrose
Uinta Basin Flora – *O. elata* H.B.K. [*O. hookeri* T. & G. var. *angustifolia* Gates]
Dorn 92 – No index listing for *O. elata* or *hookeri*. Is this maybe *O. laciniata* or *villosa*?
- ¹¹**Oenothera pallida* Lindl. Hairycalyx evening primrose
Oenothera trichocalyx specimen in herbarium. Dorn lists *O. pallida* with *trichocalyx* as a variety. Uinta Basin Flora lists *O. pallida* Lindl. Pale e. (*O. trichocalyx* Nutt. ex T. & G.)
- ¹²* *Psoralea lanceolata* (Pursh) Rydb Lemon scurf pea
Psoralea lanceolata Pursh in herbarium. Dorn 92 lists *Psoralea* changed to *Pedimelum* or *Psoralidium*. And *lanceolata* to *lanceolatum*.
Uinta Basin Flora agrees.
- ¹³*Salsola iberica* Sennen Russian thistle
Name from Weeds of the West, Russian thistle synonyms include *S. kali* L. and *S. pesitfer* A. Nels. Dorn 92 lists two *Salisola* spp. – *S. australis* R. Br. and *S. collina* Palles.
- ¹⁴**Schoenocrambe linifolia* (Nutt.) Greene Plains/Basin mustard
Uinta Basin Flora = [*Sisymbrium linifolium* (Nutt.) Nutt. in T. & G.]
Dorn 92 does not list *Sisymbrium linifolium*.
- ¹⁵**Calamagrostis stricta* (Timm) Koeler Northern reedgrass
Calamagrostis neglecta (Ehrh.) Gaertn. in herbarium and in Hitchcock 2nd ed.
Dorn 92 – *C. neglecta* not listed
Uinta Basin Flora "*C. stricta* (Timm) Koeler Northern r. [*C. inexpansa* Gray; *C. neglecta* (Ehrh.) Gaertn.]
- ¹⁶E *lymus trachycaulus* (Link) Gould ex Shinners var. *andinus* (Scribn. & Sm.) Dorn Bearded Wheatgrass
Agropyron subsecundum in herbarium as Bearded wheatgrass . Dorn 92 – *A. subsecundum* is now *Elymus trachycaulus* with Slender wheatgrass as var. *trachycaulus* and Bearded Wheatgrass as var. *andinus*.

Plants removed from list because of possible misidentification or unknown species.

- A. *Arabis perennans* Wats. Rockcress
Dorn 92 – Records only in Albany county.
- B. *Salix eriocephala* Michaux var. *watsonii* (Bebb) Dorn Yellow willow SALICACEAE
Dorn 92 – *Salix eriocephala* Michx. Records for Black Hills; E, nec only. No variety for *eriocephala*
- C. *Dracocephalum nuttallii* False dragonhead LAMIACEAE
D. nuttallii not listed in Dorn or Uinta Basin Flora
- D. *Epilobium* spp. Willow-herb ONAGRACEAE
Unknown species
- E. *Erigeron controversus* Fleabane; wild daisy ASTERACEAE
E. controversus not listed in Dorn or Uinta Basin Flora
- F. *Lathyrus* sp. Pea-vine FABACEAE
Unknown spp.
- G. **Plantago tweedyi* Tweedy plantain PLANTAGINACEAE
Dorn 92 – “moist places in mountains” nw,cw,c,sc
- H. **Agropyron caninum* POACEAE
Dorn 92 – not listed.
Hitchcock - “This is the species [*A. subsecundum*] which has generally been called by American botanists *A. caninum* (L.) Beauv.; that is a European species, differing in having 3-nerved glumes.
Uinta Basin Flora – Recognized as a diverse complex in which several species have similarities and intergradation including *A. caninum* by Cronquist and others (1977). Also “*A. trachycaulum* (Link) Malte Slender w. [*A. caninum* L. ssp. *Majis* (Vasey) C. L. Hitchc.

Literature cited:

- Dorn R. D. 1992 Vascular plants of Wyoming, 2nd edition. Mountain West Publishing. Cheyenne, Wyoming. 340pp.
- Goodrich, S. and E. Neese. 1986. Uinta Basin Flora. USDA Forest Service – Intermountain Region. Ogden, Utah. 320pp.
- Hartman, R. L. and C. H. Refsdal. 1995. Status report on the general floristic inventory of southwest Wyoming and adjacent northeast Utah. Rocky Mountain Herbarium. University of Wyoming, Laramie.
- Hitchcock, A. S. 1950. Manual of the grasses of the United States, 2nd edition, Volume 1 & 2. Dover publications, Inc. New York.
- USDA, NRCS. 1999. The PLANTS Database (<http://plants.usda.gov/plants>). National Plant data Center, Baton Rouge, LA 70874-4490. USA.
- Whitson, T. D., L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, and R. Parker. 1996. Weeds of the West, 5th Edition. Pioneer of Jackson Hole, Jackson, Wyoming. 630pp.

List was compiled from

- Seedskadee National Wildlife Refuge herbarium list,
- Seedskadee National Wildlife Refuge herbarium,
- “Plants of Seedskadee National Wildlife Refuge”,
- “Survey for (*Spiranthes diluvialis*) Ute Ladies’-Tresses on the Seedskadee National Wildlife Refuge”, P.E. Kung,
- Bitterroot Consultants, 1996, Riparian Revegetation Suitability Study Plant Species List – Appendix A.
- “Field guide to selected grasses and shrubs of Seedskadee National Wildlife Refuge”, by Barbara J. Scott 1986

Appendix G. Mailing List

Federal Officials

- U.S. Congress Woman Representative, Barbara Cubin, Washington, D.C. and Rock Springs, WY
- U.S. Senator Craig Thomas, Washington, D.C. and Rock Springs, WY
- U.S. Senator Mike Enzi, Washington, D.C. and Jackson, WY

Federal Agencies

- Bureau of Land Management
Andy Tenney, Rock Springs, WY
Dave Vesterby, Rock Springs, WY
Renee Dana, Rock Springs, WY
Lorraine Keith, Rock Springs, WY
Jeff Rawson, Kemmerer, WY
Priscilla Mecham, Pinedale, WY
- Bureau of Reclamation
Provo Area Office, Provo, UT
Environmental Resources Group, Salt Lake City, UT
Fontenelle Dam, Gary Butterfield, Fontenelle, WY
- Fossil Butte National Monument, Dave McGinnis, Kemmerer, WY
- National Resource Conservation Service, Farson, WY
- U.S. Corps of Engineers, Cheyenne, WY
- U.S. Environmental Protection Agency, Wes Wilson, Denver, CO
- U.S. Forest Service
Don Duff, Salt Lake City, UT
Bert Kaluza, Vernal, UT
Bonnie Jacques, Ogden, UT
Steve Sams, Manila, UT
Kemmerer, WY
Jackson, WY
Green River, WY
- U.S. Fish & Wildlife Service
Lee Carlson, Golden, CO; Mike Long, Cheyenne, WY;
Shannon Heath, Helena, MT; Salt Lake City, UT;
Lander, WY; Grand Island ES, Grand Island, NE; Ouray
NWR, Vernal, UT; Browns Park NWR, Maybell, CO;
National Elk Refuge, Jackson, WY; Portland, OR;
Sherwood, OR; Sacramento, CA; Albuquerque, NM;
Fort Snelling, MN; Atlanta, GA; Hadley, MA; Anchorage,
AK; Juneau, AK; Arlington, VA; Shepherdstown, WV;
Lakewood, CO; Alamosa/Monte Vista NWR, CO;
Crescent Lake NWR, NE; Lost Trail NWR, MT;
Rainwater Basin WMD, NE; Arapaho NWR, CO;
Arrowwood NWR, ND; Sand Lake NWR, SD; Waubay
NWR, SD; Medicine Lake NWR, MT
- U.S. Geological Survey
Mike Scott and Greg Auble, Fort Collins, CO
BRD, Rick Schroeder, Ft. Collins, CO

State Officials

- Governor Jim Geringer
- State Senate Dist. 14, Mark Harris
- State Senate Dist. 12, Rae Job
- State Rep. House Dist. 39, Chris Boswell
- State Rep. House Dist. 18, John L. Eyre
- State Rep. House Dist. 16, Larry Levitt
- State Rep. House Dist. 48, George 'Bud' Nelson
- State Rep. House Dist. 17, Fred Parady
- State Rep. House Dist. 60, Bill Thompson

State Agencies

- Illinois Department of Natural Resources, Springfield, IL
- Wyoming Game and Fish Department
Bill Long, Jackson, WY
Ron Lockwood, Kemmerer, WY
Duane Kerr, Green River, WY
Tom Christiansen, Green River, WY
Steve DeCecco, Green River, WY
Mark Fowden, Cheyenne, WY
Neil Hymas, Cokeville, WY
Lucy Diggins, Green River, WY
Susan Patla, Jackson, WY
Robert Keith, Green River, WY
Ron Remmick, Green River, WY
Superior, WY
Casper, WY
Pinedale, WY
- State Historic Preservation Office, Laramie, WY
- State Historic Preservation Office, Cheyenne, WY
- Utah Division of Wildlife, Vernal, UT
- Colorado Division of Wildlife, Maybell, CO

Tribes

- Shoshone Business Council, Fort Washakie, WY
- Arapaho Business Committee, Fort Washakie, WY
- Uintah & Ouray Tribal Bus. Council, Ft. Duchesne, UT

City/County/Local Governments

- City of Green River, City Hall, Green River, WY
- City of Pinedale, Pinedale, WY
- City of Kemmerer, Kemmerer, WY
- City of Rock Springs, Rock Springs, WY
- County Commission, Lincoln County, Kemmerer, WY
- Board of County Commissioners, Sweetwater County, Carl Maldonado, Ted Ware, John Pallesen
- Dist Mgr, Eden Valley Irrigation Dist, Farson, WY
- Green River Chamber of Commerce, Green River, WY
- Green River Police Dept., Greg Gillen, Green River, WY
- Lincoln County, Randy Wilson, Kemmerer, WY
- Rock Springs Chamber of Commerce, Dave Hanks, Rock Springs, WY
- Town of Cokeville, Cokeville, WY
- Town of Labarge, Labarge, WY
- Sweetwater County Fire Warden, Denny Washam, Rock Springs WY
- Sweetwater County Planner, Green River, WY
- Uinta County Commissioners, W. Robert Stoddard, Evanston, WY

Libraries

- Cokeville Branch Library, Cokeville, WY
- Lincoln County Library, Kemmerer, WY
- Rock Springs Library, Rock Springs, WY
- Sublette County Library, Pinedale, WY
- Sweetwater County Library, Green River, WY
- White Mountain Library, Rock Springs, WY

Newspapers/Radio

- Casper Star Tribune, Dave Boyd, Casper, WY
- Casper Star Tribune, Jeff Gearino, Green River, WY
- Green River Star, Keith Jantz, Green River, WY
- Kemmerer Gazette, Don Kiminski, Kemmerer, WY
- Pinedale Roundup, Janet Montgomery, Pinedale, WY
- Rocket-Miner, Greg Little, Rock Springs, WY
- Sublette Examiner, Cat Urbigkit, Pinedale, WY

Businesses

- Bear West Consulting, Salt Lake City, UT
- BHE Environmental, Cincinnati, OH
- Creative Fishing Adventures, Jim Willians, Manila, UT
- Crosson Ranch Inc, John Crosson, Green River, WY
- Flaming Gorge Lodge, Rock Springs, WY
- Fontenelle Services, Kemmerer, WY
- Four Seasons Fly Fishers, Murray, UT
- Good Sam's Club, Al Shedden, Rock Springs, WY
- Great Outdoor Shop, Rex Poulson, Pinedale, WY
- Highland Desert Flies, Bennie Johnson, Green River, WY
- Horne Engineering Services, Bel Air, MD
- Landmark Design, Jan Striefel, Salt Lake City, UT
- OCI Wyoming, IJ Rogers, Green River, WY
- Park City Fly Shop, Chris Kunkle, Park City, UT
- Sweet Dreams Inn, George and Tree, Green River, WY
- Sweetwater County TV, Paula Wannacott, Rock Springs, WY
- Sweetwater County Weed and Pest, Farson, WY
- Solitary Angler, Van Beacham, Kemmerer, WY
- Wind River Sporting Goods, Jack Ely, Green River, WY

Organizations

- Animal Protection Institute, Sacramento, CA
- Federation of Flyfishers, Larry Watson, Bozeman, MT
- Cheyenne High Plains Audubon Society, Cheyenne, WY
- Audubon Society, Gretchen Muller, Washington, D.C.
- Big Sandy Group, Farson, WY
- Central Wyoming Outfitters Assoc, Chris Peterson, Casper, WY
- Defenders of Wildlife, Washington, D.C.
- Friends of WY Deserts, Meridith Taylor, Dubois, WY
- KRA Corporation, Paul E. Wilson, Bethesda, MD
- National Trappers Assoc. Inc., New Martinsville, WV
- National Wildlife Refuge Assoc., Colorado Springs, CO
- North American Pronghorn Foundation, Casper, WY; Rawlins, WY
- People For The USA, Randy Shipman, Rock Springs, WY
- Rock Springs Grazing Assoc, Rock Springs, WY
- States West Water Resources Corp., Patrick Tyrrell, Cheyenne, WY
- Sweetwater County Wildlife Assoc, Dick Randall, Rock Springs, WY
- Trout Unlimited, Joe McGurrin, Arlington, VA
- The Nature Conservancy, Ben Pierce, Lander, WY; John Humke, Boulder, CO
- The Wilderness Society, Washington, D.C.
- The Wildlife Society, CMPS, Len Carpenter, Fort Collins, CO
- Water for Wildlife Foundation, Lander, WY
- Wildlife Management Institute, Washington, D.C. and Pratt, KS
- Wyoming Ducks Unlimited, Barry Floyd, Casper, WY
- Wyoming Native Plant Society, Phillip White, Laramie, WY
- Wyoming Trout Unlimited, Kathy Buckner, Jackson, WY
- Wyoming Outdoors Council, Dan Heilig, Lander, WY
- Wyoming Outfitters Assoc, Jane Chelberg, Cody, WY
- Wyoming Resource Council, John McGee, Cody, WY
- Wyoming Sportsmen's Assoc, John Burd, Casper, WY
- Wyoming Stock Growers Assoc, Cheyenne, WY
- Wyoming Wildlife Federation, Kim Floyd, Cheyenne, WY; Dan Chu, Cheyenne, WY
- Wyoming Woolgrowers Assoc, Casper, WY

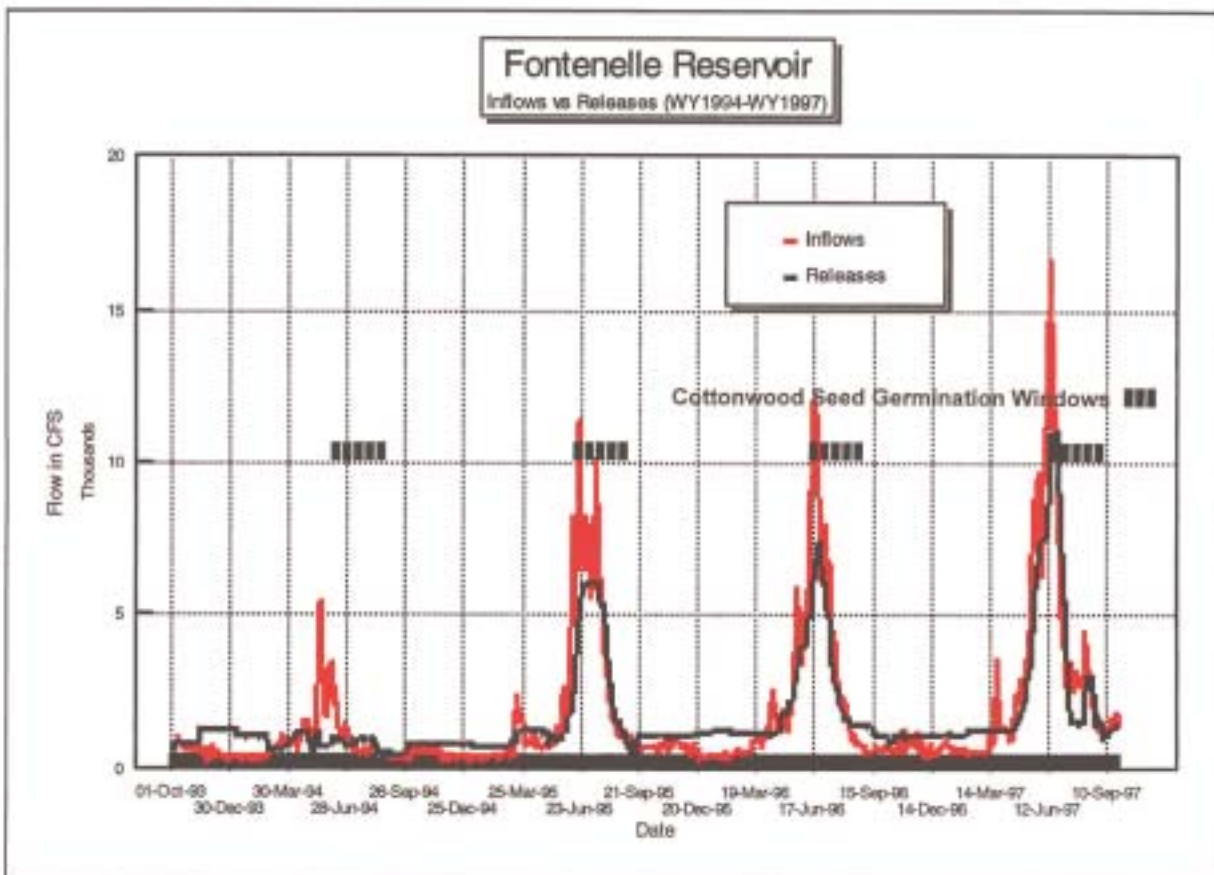
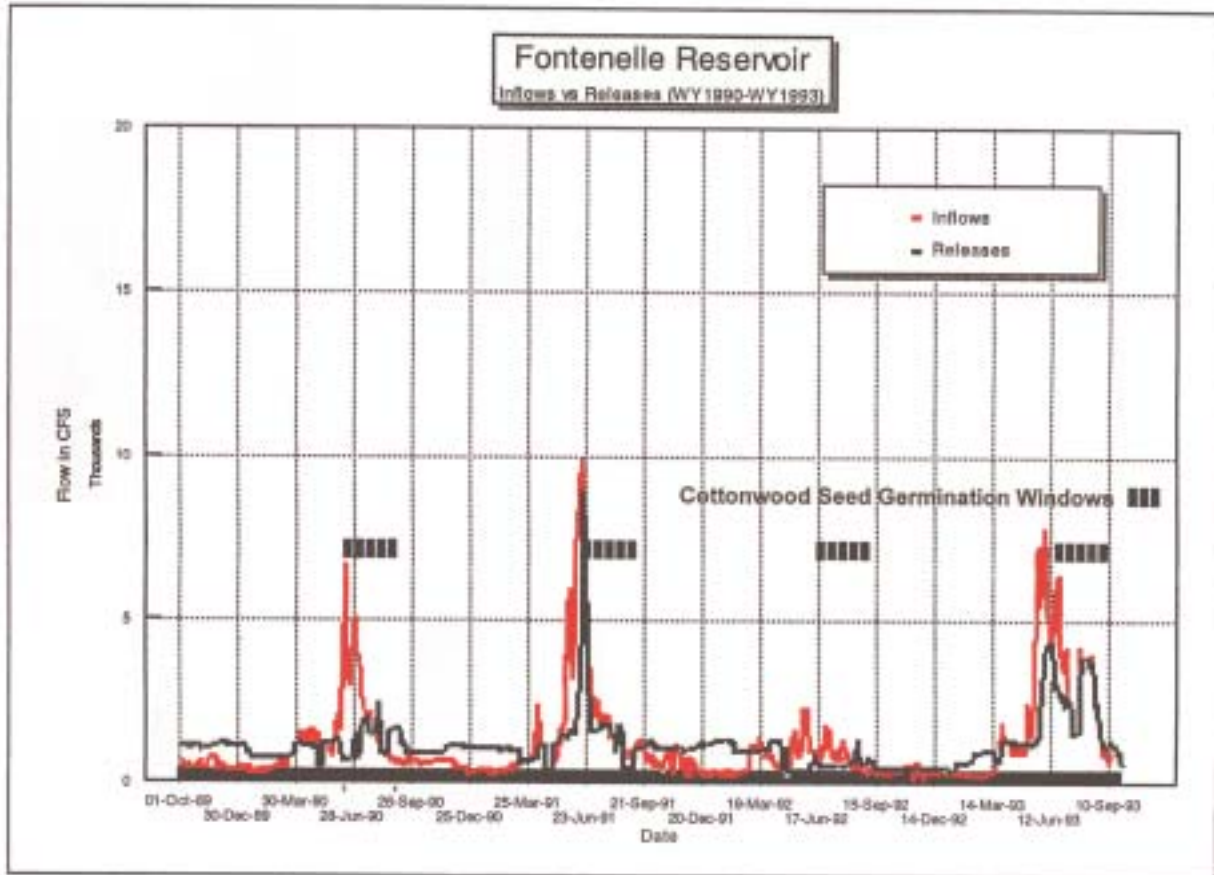
Schools/Universities

- Northwestern University, Prof. Paul Friesema, Evanston, IL
- Western WY Community College, Green River, WY
- Western WY Community College, Rock Springs, WY
- Colorado State University, Dept. of Fishery and Wildlife Biology, Ken Wilson, Ft. Collins, CO
- Utah State University, Rich Etchberger, Vernal, UT
- University of Wyoming, Department of Zoology, Laramie, WY

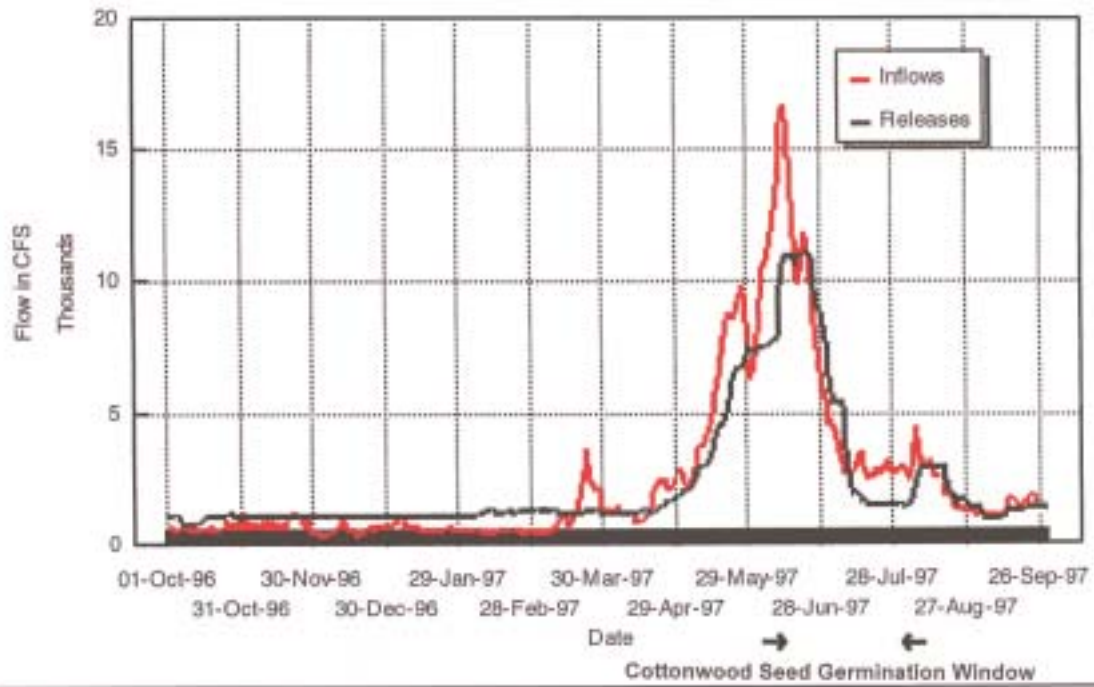
Individuals

- Brian Allan
- Sandra Banks
- Bob Barwick
- Mary Beery
- Eric Berg
- Dale Blakley
- Ed Boese
- Ron Boudan
- Tom Brehim
- Tim Buman
- Lamont Clark
- Craig Crompton
- Bill Cummings
- Keith Dana
- Bob Doak
- Terry Dockter
- Fred Eales
- Mike Ebert
- John Faccio
- John Freeman
- Ray Frink
- Nick Gillio
- Brian Halpain
- Doug Hamel
- Chris Harbin
- Joseph Harris Sr.
- Howard Hart
- Don Hartman
- Jimmy Helmick
- John Howard
- Lyn Howe
- Carlos Johnsen
- Polly Karshner
- Dave Kawvlok
- Brad Keys
- Joe Laird
- Donald Lilley
- Allison Lyon
- John McDonnell
- Larry Means
- Pat Mehle
- Darrel Melvin
- Tim Merchant
- Jim Metzger
- Steve Mines
- Robert Moore
- Moe Morrow
- Frederick Muller, M.D.
- Patrick Newell
- Mitch Nielson
- Randy Nielson
- Dan and Kristina Parson
- Bruce Peterson
- Vance Peterson
- Vernon Phinney
- Norm Piner
- Kevin Quitberg
- Ken Reed
- Ted Remus
- Pat Robbins
- David Roose
- Ed Sabourin
- Matt Salitrik
- Tara Salitrik
- Dan Schmill
- Dr. Ruth Shea
- Les Skinner
- George Slonebraker
- Dr. David Sowada
- Bill Taliaferro
- Thoman Ranch
- Brad Thoren
- Kathleen Tucker
- Kent Vessels
- Bill Weeks
- Carl Williams
- H. Ray Williams
- Bruce Woodward
- Robert Yonts
- JoAnn Zakatruk

Appendix H. Hydrographs of Green River



Fontenelle Reservoir Inflows vs Releases (WY1997)



Appendix I. List of Preparers

The Planning Team for the Seedskaadee National Wildlife Refuge CCP included the following individuals.

U.S. Fish & Wildlife Service

Refuge Staff

- Seedskaadee NWR Manager Carol Damberg and former Manager Anne Marie LaRosa

Region 6 Regional Office

- Michael Spratt, Chief, Division of Refuge Planning, R6
- Ty Berry, former Chief, Technical Services, Refuges and Wildlife, R6
- Jaymee Fojtik, GIS Specialist, Division of Refuge Planning, R6
- Sean Fields, GIS Specialist, Division of Refuge Planning, R6
- Shannon Heath, Outdoor Recreation Planner, EVS, R6
- Mary Jennings, Wyoming Field Office, Ecological Services, USFWS
- Wayne King, Regional Biologist, Refuges and Wildlife, R6
- Barbara Shupe, Editor, Division of Refuge Planning, R6
- Carol Taylor, former Chief, Branch of Land Acquisition and Refuge Planning, Division of Realty
- Bernardo Garza, Refuge Planner, Division of Refuge Planning, R6
- Cheryl Williss, Chief, Division of Water Resources, R6

Bear West Consulting Team

- Dennis Earhart, Bear West Team Manager
- Emilie Charles, Bear West
- Jan Striefel, Landmark Design
- Bob Nagel, AGRC
- Scott Evans and William Adair, Pioneer

Bureau of Reclamation

- Darrel Welch, Resource Management and Planning, Technical Service Center, Denver, CO
- Fred Liljegren, Resource Management and Planning, Upper Colorado Regional Office Salt Lake City, UT
- Al Simpson, Provo Area Office, UT

Bureau of Land Management

Rock Springs District, WY

- Renee Dana

Wyoming Game and Fish Department

Green River, WY

- Mark Fowden
- Ron Remmick

Written by: Primary authors are Carol Damberg, current refuge manager; and Anne Marie LaRosa, former refuge manager of Seedskaadee NWR; and Dennis Earhart and Emilie Charles of Bear West Company.

The Refuge Planners assisting the Refuge staff in development of this Draft CCP are Bernardo Garza, current Refuge Planner; and Carol Taylor, former Chief of the branch of Land Acquisition and Refuge Planning.

In addition to members of the planning team, the following individuals provided valuable assistance in preparing this Plan: members of the Refuge staff including Edward Rodriguez, Doug Damberg, Gene Smith, Suzanne Beauchaine Halvorson, Lamont Glass, Adam Halvorson, Lorraine Keith, Tom Koerner, and Karl Stanford; Lou Ballard and Rhoda Lewis, USFWS Region 6; Greg Auble, Murray Laubhan and Mike Scott of the Biological Resources Division of the USGS; Mike Pucherelli, Manager of the Remote Sensing and Geographic Information for USBR at the Technical Service Center in Denver, CO; Leigh Fredrickson of Gaylord Memorial Laboratory; Rob Keith of the WYG&F; Andy Tienney and Dave Vesterby of the Rock Springs District (BLM); and Gustav F. Winterfeld, Ph.D. who provided assistance with the paleontological resource review.

Draft CCP Maps were prepared by: Jaymee Fojtik, GIS Specialist, Division of Refuge Planning, USFWS, R6 and Bob Nagel of Utah Automated Geographic Resource Center.

Final CCP Maps were prepared by: Sean Fields, GIS Specialist.

Draft Document (or portions of the document) were reviewed by Refuge staff and Ken McDermond, Patty Stevens, Michael Spratt, Bridget McCann, Linda Coe, Ty Berry, Wayne King, Rhoda Lewis, Bernardo Garza, Barbara Shupe, USFWS; Rick Schroeder, Liz Bellantoni, USGS; Dale Henry, National Wildlife Refuge Association; BLM, Rock Springs District; Darrel Welch, USBR, Upper Colorado Regional Office., Ron Remmick, Robert Keith, WYGF.

Appendix J. Intra-Service Section 7 Consultation Documentation

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Persons: Carol Darnberg
José Bernardo Garza

Telephone Numbers: (307) 875-2187 x 12
(303) 236-8145 x 672

Date: August 30, 2002

I. Region: 6

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

III. Pertinent Species and Habitat:

A. Listed species and/or their critical habitat within the action area:

bald eagle, *Haliaeetus leucocephalus* (listed threatened and proposed delisting)

black-footed ferret, *Mustela nigripes* (listed endangered)

whooping crane, *Grus americana* (Experimental population; ~~RECENTLY LISTED AS EXTINCT~~)

Ute ladies' tresses orchid, *Spiranthes diluvialis* (listed threatened)

Colorado pikeminnow, *Ptychocheilus lucius* (listed endangered)

humpback chub, *Gila cypha* (listed endangered)

razorback sucker, *Xyramphus texanus* (listed endangered)

bonytail chub, *Gila elegans* (listed endangered)

There is no federally designated critical habitat on the action area (Seedskadee NWR)

B. Proposed species and/or proposed critical habitat within the action area:

Mountain plover *Charadrius montanus*

C. Candidate species within the action area:

Yellow-billed cuckoo, *Coccyzus americanus*

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

IV. Geographic area or station name and action.

Station: Seedskadee National Wildlife Refuge (Green River basin in southwestern Wyoming)

Action: Issuance and Implementation of Comprehensive Conservation Plan for Seedskadee NWR

V. Location (map attached):

A. Ecoregion Number and Name: Seedskadee NWR is located within the Service's Region 6, Mountain-Prairie Region, and specifically in the Upper Colorado River Ecosystem (Green River basin)

B. County and State: Sweetwater County, Wyoming

C. Section, township, and range:

Seedskadee NWR includes parts or all of Sections 14, 15, 16, 21, 22, 23, 25, 26, 27 & 36, Township 23 North, Range 111 West; Sections 30, 31, 32, 33 & 34, Township 23 North, Range 110 West; Sections 1, 2, 3, 4, 5, 6, 8, 9, 11, 12, 13, 21, 22, 23, 25, 26, 27, 28, 33, 34, 35 & 36, Township 22 North, Range 110 West; Sections 1 & 2, Township 21 North, Range 110 West; Sections 6, 7, 17, 18, 19, 20, 28, 29, 31, 32 & 33, Township 22 North, Range 109 West; Sections 5, 6, 7, 8, 9, 15, 16, 17, 18, 20, 21, 22, 23, 26, 27, 35 & 36, Township 21 North, Range 109 West; and, Sections 4, 5, 8 & 9, Township 20 North, Range 109 West.

D. Distance & direction to nearest town: Seedskadee NWR is approximately 37 miles northwest of Green River, WY

E. Species/habitat occurrence:

bald eagle: This species nests in (see map) and migrates through the Refuge along the riparian corridor of the Green River as it runs through the Refuge. Currently three bald eagle nests are known to occur in the Refuge (1 in Tallman management unit; 1 between McCullen and Yancy management units; and 1 between Pal and Lower Hawley management units).

whooping crane: An experimental population of this species used to be an infrequent visitor to the Refuge during its migration, and had been observed on the Hawley wetland unit (1991). However, this population was recently determined to be extinct by the Service. Thus the Refuge will no longer address this species nor assess in this Biological Evaluation what could have been the impacts of the implementation of the CCP on this crane.

- mountain plover: This species is known to use the Dry Creek management unit of (and/or adjacent lands to) the Refuge. The Refuge staff monitors this management unit annually to look for breeding or migrating mountain plovers.
- black-footed ferret: The Refuge lies within the historical range of this listed species which was observed historically on the Refuge. While the Refuge encompasses white-tailed prairie dog colonies (within Dry Creek, Hay Farm, Johnson, Otterson, Tallman, and Yancy management units), it is unlikely that these colonies could currently sustain a ferret population on Refuge lands. However, at present it is unknown what is the prairie dog density at the Refuge, or if the prairie dog colonies within the Refuge are part of a larger prairie dog colonies complex (i.e., within 4.3 miles of another colony) extending outside of the Refuge.
- Ute ladies'-tresses orchid: While the Refuge lies in between areas known to have populations of this listed species (Colorado and Montana), there are no known populations of this species on the Refuge. An orchid survey, within suitable orchid habitat, recently performed during the blooming period of this species in the Refuge (2000) failed to locate this plant within the Refuge.
- Colorado River Fishes: The endangered bonytail (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and razorback sucker (*Xytrichthys texanus*) inhabit the Colorado River and the Green River from the confluence with the Colorado River upstream to near the Willow Creek confluence (Swallow Canyon). The mainstem Green River and its tributary, the Yampa, contain the largest known riverine populations of Colorado pikeminnow and razorback sucker. Humpback chub have a limited, discontinuous distribution in canyon-bound habitats and persist in small numbers in Desolation and Whirlpool Canyons. The bonytail is extremely rare throughout the Upper Basin.
- The Refuge lies directly upstream from known stream habitats inhabited by these listed species. However, there are no known records of these species ever occurring at the site of the Refuge. Prior to the construction of the Fontenelle Dam, they may have occurred as far north as Green River, but this is unknown. Habitat and hydrologic conditions needed by these species no longer occur at the present site of the Refuge.

VI. Description of proposed action

The proposed action is: development and implementation of a Comprehensive Conservation Plan to guide the management of Seedskae NWR for the next 15 years. Implementation of this Plan comprises implementation of all actions and activities to achieve the stated goals contained in the Plan that will ultimately lead to the fulfillment of the purposes for which Congress established Seedskae NWR and assist in the fulfillment of the goals of the National Wildlife Refuge System.

VII. Determination of effects:

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

- bold eagle:** Implementation of the CCP will have beneficial effects on this threatened species as the eagle's wintering habitat along the Green River will be enhanced and protected. The CCP calls for continued protection (as well as monitoring) of this species and its nesting and feeding habitats, as well as relocation of some Refuge roads (i.e., reduction of disturbance from vehicular traffic). The CCP calls for continued use of the Green River corridor along the Refuge for wildlife-dependent recreational activities (e.g., river floaters, hikers, fishermen, hunters, bird watchers, etc.). Refuge staff believes current yearly use of riparian habitats by visitors is approximately as follows: 500 hikers; 500 river craft; 2,000 hunters; 5,000 fishermen; and, 200 other river users. The Refuge staff has and will invoke its authority to protect bald eagles by disallowing and cordoning off all human activities within 1/2 mile of any bald eagle roosting or nesting site. All construction activities within a one-mile radius from an eagle's nest will be delayed until after the eaglets are able to fly. Any activity within the one-mile radius of an eagle's nest will be postponed until Section 7 consultation between the Refuge's and Ecological Service's staffs has been finalized and measures to avoid or mitigate impacts to bald eagles are agreed upon and implemented.
- mountain plover:** This species is known to use the Refuge. The CCP calls for preservation of the Refuge habitats conducive to this species, as well as for the relocation of roads that could disturb this plover. Thus implementation of the CCP should have beneficial effects on this species. The Refuge staff currently monitors for presence, and possible nesting activities, of this species in the Refuge. Furthermore, if construction or concentrated human

activities occur on the Refuge in suitable nesting habitat, surveys will be conducted according to the Service's survey guidelines. If an active nest(s) is (are) located, the staff will invoke all necessary authority to implement emergency closures (on a ¼ of a mile radius from April 10 through July 10) of sites where nesting occurs in order to eliminate human-related impacts that could adversely affect nesting success by plovers.

- black-footed ferret: While there are historic observations of this species at the present site of the Refuge, this species has not been seen in Seedskadee NWR since it was federally listed (1970). None of the CCP's objectives or strategies calls for disturbance of habitats currently inhabited by the ferrets' main prey base (prairie dogs). Furthermore, the CCP proposes relocation of currently existing roads crossing prairie dog habitats away from this rodent's habitats. Therefore, implementation of the actions itemized in the CCP should have beneficial effects to the habitats and/or prey species of this federally listed species.
- Ute ladies'-tresses orchid: This species has never been found on the Refuge despite a recent orchid-specific survey (2000) within suitable habitats. Nevertheless, the goals and objectives of the CCP call for enhancement and protection of habitats that could harbor now or in the future populations of this listed plant species. If this species is found in the Refuge, the Service will establish and enforce measures to protect this listed plant and its habitats, such as domestic grazing restrictions during the orchid's growing and blooming period (July and August), and/or closure of sites to areas susceptible to trampling by visitors (e.g., river floaters, fishermen, and/or hunters using riparian habitats or wetlands adjacent to the river corridor) as well as avoidance of land disturbance (e.g., fill or excavation of wetlands).
- Colorado River Fishes: Water depletions in the Upper Colorado River Basin have been recognized as a major source of impact to endangered fish species. Where projects may lead to depletions of water to the Colorado river system, formal consultation is required concerning impacts to the endangered bonytail (*Gila elegans*), Colorado pike/minnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and razorback sucker (*Xyrauchen texanus*).
- The Service's Region 6 Division of Water Resources has calculated historic consumptive use of Green River basin water (see attached intra-Service memorandum) from evaporation on Refuge wetlands and other operations (e.g., impoundment.

small-scale irrigation, and river diversion practices). It is estimated that implementation of the CCP objectives will result in approximately 1,834.70 acre-feet of water per year being depleted from the Green River basin. Consequently, the average annual depletion of water from the Upper Colorado River Basin resulting from CCP operations, as described, is likely to jeopardize the continued existence of the endangered bonytail, Colorado pikeminnow, humpback chub, and razorback sucker, and will contribute to the destruction or adverse modification of their designated critical habitat.

There is no federally designated critical habitat on the action area (Seedskadee 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:

A Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) was initiated on January 22, 1988. The Recovery Program serves as the reasonable and prudent alternative to avoid jeopardy to the endangered fishes by depletions from the Upper Colorado River. Seedskadee NWR will participate in the Recovery Program in order to offset potential impacts to endangered Colorado River fishes associated with implementation of the CCP.

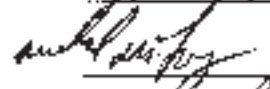
VIII. Effect determination and response requested: [* = optional]

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, black-footed ferret,
Lute ladies'-tresses orchid)

 Concurrence

likely to jeopardize the continued existence of species
and adversely modify or destroy their critical habitat
(bonytail, Colorado pikeminnow, razorback sucker, humpback chub)

 Formal Consultation

B. Proposed species/proposed critical habitat: none at this time

Determination

Response requested

no effect on proposed species/no adverse modification of proposed critical habitat (species: mountain plover)

Michael M. Long → Concurrence

Is likely to jeopardize proposed species/ adversely modify proposed critical habitat (species: NONE)

Michael M. Long Conference

C. Candidate Species:

Determination

Response requested

is likely to jeopardize candidate species (species: NONE)

Michael M. Long Conference

Carol Damberg
Carol Damberg, Refuge Manager,
Seedskadee National Wildlife Refuge

9/16/02
Date

IX. Reviewing ESO Evaluation:

A. Concurrence Michael M. Long Nonconcurrence _____

B. Formal Consultation required: Michael M. Long (for Candidate River Fishes)

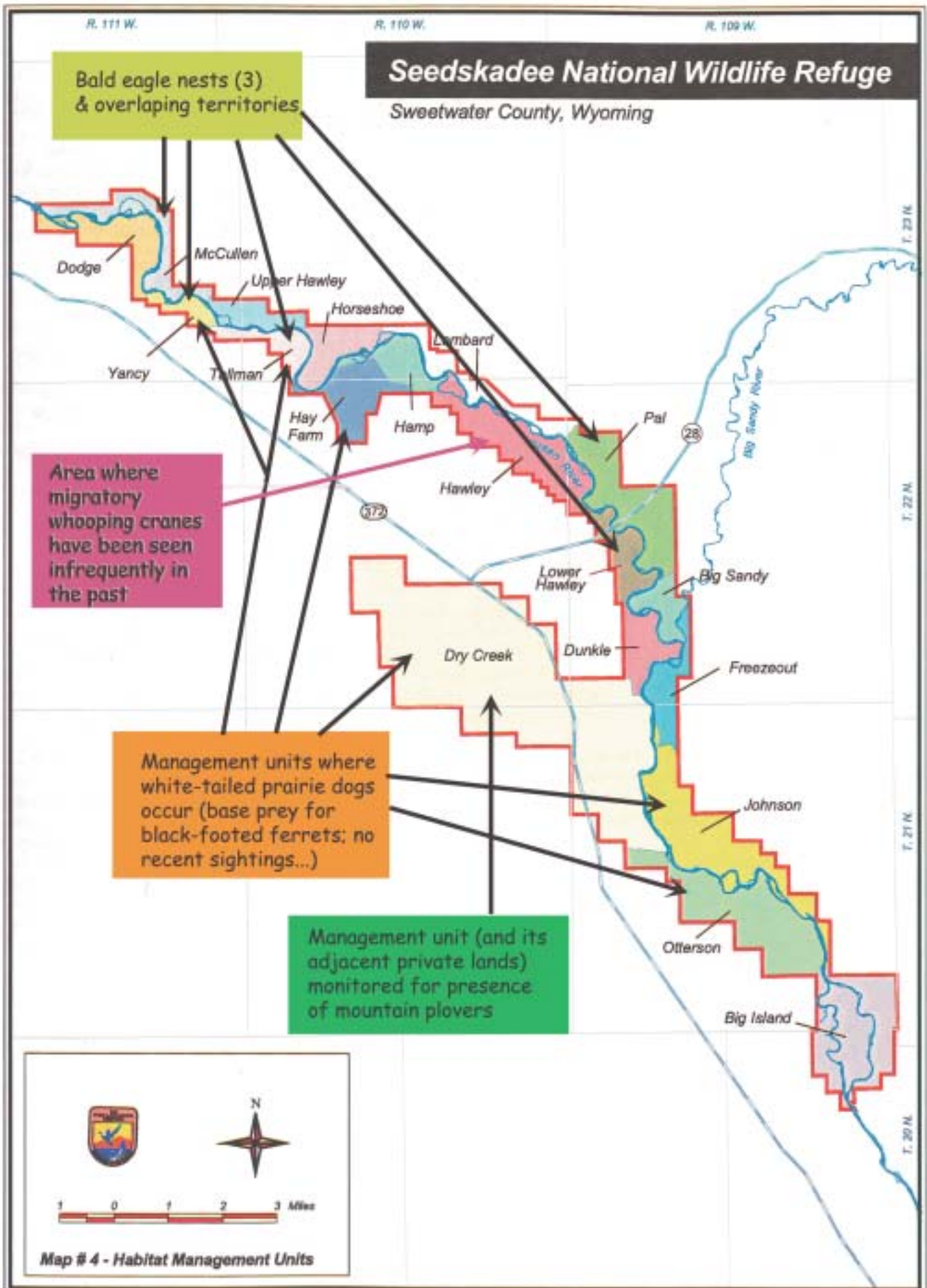
C. Conference required: _____

D. Informal conference required: _____

E. Remarks:

Michael M. Long
Michael M. Long
Wyoming Field Supervisor, U.S. Fish & Wildlife Service

9/22/02
Date





United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mountain-Plains Region

PLEASE REFER TO:

BA/WTR

Mini Stop 40159

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225-0486

STREET LOCATION:
154 Union Blvd
Lakewood, Colorado 80226-1807

AUG 16 2002

Memorandum

To: Project Leader, Seedskadee NWR, Wyoming

From: Refuge Hydrologist, Division of Water Resources, Region 6

Subject: Consumptive Use Analysis for CCP

Enclosed is a spreadsheet of calculations done to quantify the consumptive use of water in Refuge wetlands. I utilized data we had in the office, data supplied by Refuge personnel and personal communication with Ed Rodriguez to try to quantify volumes and surface areas of impoundments, as well as to try to get a feel for water use (season). I listed my assumptions on the second page of the spreadsheet. The information presented is believed to be the most accurate that we currently have. Please review this information and contact me if you have any suggestions or changes.

If you have any questions, please feel free to give me a call at (303)236-5322 X232.

Enclosure

cc: Bernardo Garcia

This is your future. Don't leave it blank. - Support the 2000 Census.

Hamp Units (Served by Hamp #1 Dept)

| Ponds | Area | Capacity | ET - ac-ft/yr | | | | | | Total ET, ac-ft |
|----------------------|-----------|----------|---------------|--------------|---------------|---------------|---------------|---------------|-----------------|
| | | | May | June | July | Aug | Sept | Oct | |
| Hamp No 1 | 1.8 | 1.25 | 15,575 | 18,732 | 19,857 | 17,252 | 11,052 | 7,182 | |
| Hamp No 2 | 7.55 | 9.23 | 4,576 | 3,777 | 5,095 | 5,400 | 1,761 | 2,457 | |
| Hamp No 3 | 1.15 | 0.87 | 8,184 | 10,256 | 12,443 | 10,532 | 6,757 | 4,948 | |
| Hamp No 4 | 2.45 | 1.25 | 17,248 | 21.55 | 20,515 | 22,245 | 14,250 | 8,245 | |
| Hamp No 5 | 25.40 | 20.17 | 179,284 | 224,244 | 250,552 | 231,175 | 148,472 | 96,124 | |
| | 34.32 | 23.67 | 317,367 | 378,256 | 419,561 | 0 | 0 | 0 | 64,924 |
| Total Hamp #1 | 58 | | 207,58 | 5,572 | 617,13 | 515,77 | 343,24 | 227,02 | 160,111 |

Hawley Units (Served by Hamp #2 Dept)

| Hawley Ponds | Area | Capacity | ET - ac-ft/yr | | | | | | Total ET, ac-ft |
|---------------|--------|----------|---------------|-----------|-----------|-----------|----------|----------|-----------------|
| | | | May | June | July | Aug | Sept | Oct | |
| Hawley Pool 1 | 51.32 | 52.15 | 307,203 | 457,516 | 517,320 | 474,585 | 258,604 | 181,569 | |
| Hawley Pool 2 | 52.17 | 40.23 | 198,724 | 279,656 | 297,032 | 267,389 | 145,714 | 107,386 | |
| Hawley Pool 3 | 3.45 | 11.34 | 66,278 | 83,16 | 92,545 | 85,508 | 54,987 | 37,727 | |
| Hawley Pool 4 | 7.95 | 11.78 | 57,744 | 84,68 | 74,5545 | 68,728 | 42,777 | 27,757 | |
| Hawley Pool 5 | 3.52 | 5.53 | 24,188 | 30,975 | 38,854 | 31,9616 | 20,4864 | 13,8256 | |
| Hawley Pool 6 | 5.51 | 6.72 | 35,944 | 49,263 | 58,7367 | 50,5098 | 32,6502 | 21,7027 | |
| Hawley Pool 7 | 14.24 | 22.72 | 104,248 | 125,712 | 149,827 | 126,2992 | 82,6768 | 57,8272 | |
| | 119.88 | 158.65 | 843,844 | 1,034,768 | 1,254,934 | 1,088,229 | 697,5857 | 457,0708 | 1,489.30 |

| Sage Brush Ponds | Area | Capacity | ET - ac-ft/yr | | | | | | Total ET, ac-ft |
|-------------------|------|----------|---------------|------|-------|-------|-------|-------|-----------------|
| | | | May | June | July | Aug | Sept | Oct | |
| Sage Brush 1 | 7 | 28 | 49,08 | 41.6 | 73.78 | 67.67 | 40.74 | 26.46 | |
| Sage Brush 2 | 6 | 26 | 42.74 | 52.8 | 67.62 | 54.48 | 34.52 | 22.22 | |
| Sage Brush 3 | 2 | 8 | 14.28 | 17.6 | 20.24 | 16.16 | 11.64 | 7.52 | |
| Cottonwood Pool 3 | 5 | 5 | 35.2 | 44 | 52.35 | 45.4 | 25.7 | 16.6 | |
| Cottonwood Pool 2 | 1 | 3 | 7.64 | 8.8 | 10.47 | 8.68 | 5.82 | 3.78 | |
| Cottonwood Pool 1 | 1 | 3 | 21.2 | 26.4 | 31.47 | 27.34 | 17.46 | 11.34 | |
| Duckie Pool 3 | 20 | 63 | 140.8 | 176 | 209.4 | 181.5 | 116.4 | 75.6 | |
| Duckie Pool 2 | 3 | 9 | 57.12 | 70.4 | 83.78 | 72.64 | 45.58 | 29.34 | |
| Duckie Pool 1 | 6 | 14 | 66.27 | 76.4 | 87.76 | 72.64 | 45.58 | 29.34 | |
| | 60 | 176 | 422.4 | 525 | 622.7 | 544.8 | 342.7 | 226.8 | 1,024.67 |

| Truckee Ponds | Area | Capacity | ET - ac-ft/yr | | | | | | Total ET, ac-ft |
|----------------|------|----------|---------------|-------|--------|--------|--------|-------|-----------------|
| | | | May | June | July | Aug | Sept | Oct | |
| Truckee Pond | 4 | 4 | 63.36 | 79.2 | 94.23 | 81.77 | 52.33 | 34.23 | |
| Pratt Pond | 22 | 22 | 168.96 | 211.2 | 251.28 | 217.47 | 139.58 | 90.72 | |
| Chickadee Pond | 7 | 7 | 46.28 | 57.6 | 67.28 | 61.32 | 40.74 | 26.46 | |
| | 40 | | 281.4 | 358 | 418.8 | 363.7 | 232.8 | 151.2 | 1,497.7 |

| Pool Unit | Area | Capacity | ET - ac-ft/yr | | | | | | Total ET, ac-ft |
|--|------|----------|---------------|------|-------|-------|-------|-------|-----------------|
| | | | May | June | July | Aug | Sept | Oct | |
| Served by Superior Dept | 70 | | 452.8 | 616 | 732.8 | 635.7 | 407.4 | 264.6 | 1,497.7 |
| Total CU from Hamp #1 and Superior Dept | | | | | | | | | 1,497.7 |

Total Consumptive Use Forced on Lake and not dependent from May/June 1,234.72

Assumptions:

1. Only Hamp Units 1-5, Hawley Pools 1-7, Sage, Cottonwood, and Dunkle units are pools; all other units are considered to be wet meadow. Wet meadow is assumed to have an net ET of 1.1 times that of open water.
2. I considered Hawley Pools 8-10 to be part of the original seven pools. The areas I had for the ten pools were very close to the surface areas of the original seven pools. These must be subimpoundments of the original seven pools, and, since I had no new capacity information for 8-10, I just used the information for 1-7.
3. The consumptive use period must be assumed to be May through October because there is no evaporation data available outside of these months. Even though water is applied in the Hawley Units in March and November, it was assumed that consumptive use was negligible.
4. The Hamp Units are allowed to dry up at the end of July because the ditch cannot divert at river flows less than 4500 cfs. therefore, ET is considered to be zero in August-October.
5. The capacities for the Sage Brush, Cottonwood and Dunkle Units are based on the surface area times the average depth (Ed Rodriguez, Personal Communication, 8/13/02)
6. Consumptive use estimate is very conservative since it is assumed that all units served by the Hamp#2 Ditch and Superior Ditch must be refilled each year. There is probably some carry over.

Appendix K. Summary of Public Involvement

Development of the final Seedskaadee NWR Comprehensive Conservation Plan (and its associated Environmental Assessment included in the draft CCP/EA) was guided by the Refuge Planning Chapter of the Fish and Wildlife Service Manual, the Service's Final Comprehensive Conservation Planning Policy, and the National Environmental Policy Act. The involvement of the public, other Federal, State and Native American Tribal agencies, and non-governmental organizations, in accordance with Service guidelines and NEPA recommendations, is viewed by the Service as vital and was sought throughout the planning process. A time line of the different kinds of meetings, public outreach efforts, and events significant to the development of this management document follows.

Issues, concerns, and opportunities were developed early through a scoping process which began on May 31, 1996, and closed October 15, 1996.

On May 31, 1996, invitations and announcements of two open houses, an explanation of Seedskaadee NWR directive and purpose, and a request for initial comments were mailed out to known interested parties. On June 6, 1996, press releases announcing the open houses were mailed to the appropriate media outlets such as KMER Radio, KRKK Radio, KUGR Radio, KSIT Radio, KUWR Radio, Sweetwater County TV, the Green River Star, the Casper Star Tribune, Rocket Miner, Kemmerer Gazette, and the Pinedale Roundup newspapers.

On June 8, 1996, an open house scoping meeting was held at the Seedskaadee NWR headquarters; questionnaires and comment sheets were handed out and verbal comments were registered. The open house was held concurrently with the Refuge's "Take a Kid Fishing" day. Thirty-three people attended. On June 10, 1996, the second open house scoping meeting was held from noon to 8:00 pm at the Sweetwater County Library in Green River, Wyoming. Eight people attended.

On June 25, 1996, questionnaires and comment sheets were mailed out to all in the CCP mailing list. A complete list of all those who were sent information on the Plan can be found in the project file. On July 1, 1996, signs were posted for the Farson Open House. The open house was held on July 17, 1996 from 7:00 pm to 9:00 pm at the Farson Community Hall. Four people attended.

On July 17, 1996, the refuge manager met with the Sweetwater County Commissioners at the Courthouse. On September 3 and 4, 1996, the staffs of the Refuges located along the Green River drainage met to develop draft visions, goals, and objectives for their Refuges. On September 16, 1996, a press release announcing the final two open houses was mailed to the appropriate media outlets.

On September 25, 1996, an open house in Rock Springs at the White Mountain Library was held from 5:00 pm to 7:00 pm; six people attended.

On October 1, 1996, a meeting was held with the Lincoln County Commissioners followed by an open house from 5:00 pm to 7:00 pm at the Lincoln County Courthouse. One person (county planner), in addition to the three commissioners, attended. On November 11, 1996, Seedskaadee NWR staff completed a set of "draft management goals and objectives;" these were then submitted to the Service's regional office for review and comments.

"Focus Group" meetings at Sweetwater County Library in Green River were held on January 9, 1997, from 7:00 pm to 9:00 pm to discuss commercial recreation use and public access. Twenty-one people attended including five permitted fishing guides, recreational fishermen, parties interested in public access, and other agency representatives.

On April 29, 1997, a workshop was conducted at the Refuge headquarters to identify potential alternative components for consideration in preparation of a CCP and EA for the Refuge. On April 30, 1997, a follow-up meeting was held with Service and Consulting Team personnel. Invitations to participate in the workshop were sent to selected resource specialists with Federal, State, and Tribal agencies involved or interested in resource management within or adjacent to the Refuge. The list included personnel from the Service, Bureau of Reclamation (Reclamation), U.S. Geological Survey, Bureau of Land Management, and the Wyoming Game and Fish Department. Those who accepted the invitation to participate were provided a notebook prior to the meeting containing the meeting's purpose, a meeting agenda, background on the planning process including the Service's planning context, and issues identified during scoping. The purpose of the meeting was to understand identified planning and NEPA issues, discuss draft CCP goals developed by the Refuge, and explore various alternative components that could achieve the goals and address identified issues.

Based on discussions in the workshop and subsequent discussion with Seedskaadee NWR staff, the issues considered significant for the EA were identified by Refuge staff for analysis. Based on the issues, the Refuge staff developed alternatives to address the issues and the goals. The issues, as they were identified during the scoping process, are described in Chapter 2.

Between May 1997 and April 1999, Bear West Consulting, the company funded by Reclamation to prepare the CCP/EA, prepared and published the first draft CCP/EA for Seedskaadee NWR. This document was circulated in the Service's Regional Office to obtain preliminary comments prior to releasing the document to the public. In October 1998, the refuge manager and assistant refuge manager departed Seedskaadee NWR and the CCP/EA process halted while a new refuge manager was hired.

In May 1999, the new refuge manager arrived and began the long process of familiarization with the Refuge and the different components of the draft CCP/EA. In July 1999, the Planning Team Leader (and Chief of the Branch of Refuge Planning) met with the new refuge manager to renew the CCP/EA process.

In September 1999, the Seedskaadee NWR CCP's Planning Team Leader departed the Planning Branch causing the CCP process to be placed temporarily on hold. In December 1999, a new Planning Team Leader was assigned to continue assisting the refuge manager in the CCP/EA process.

From January 2000 through January 2001, the preliminary draft CCP/EA was revised, trimmed down, and revamped according to comments received from the public, Regional Office personnel, the final guidelines and expectations set forth in the Service's final Planning Policy. Also playing a role was a new understanding of the complex issues surrounding the management of Seedskaadee NWR.

From March through May 2001, an Internal Review draft CCP/EA for Seedskaadee NWR was circulated among the Planning Team members and their agencies for a review period. From the comments generated during this period, the draft CCP/EA was modified and sent for printing and eventual disbursement to the public for comments.

From late October through early December 2001, the Service mailed out and solicited comments from the public during a public review period of the Draft Seedskaadee NWR CCP/EA. The Notice of Availability was posted in the Federal Register on October 31, 2001. On that same day, a news release was sent out announcing the release of draft CCP/EA, the duration and details of the public comment period, and the dates for the upcoming open houses.

On November 4, 2001, Seedskaadee NWR's refuge manager participated in a radio interview with local station KUGR (4:00 pm) which was aired throughout the day on November 15 and 16, 2001. The topic of the interview was to bring the draft CCP/EA to the attention of the neighbors of the Refuge and ensure that the three most controversial issues proposed in draft CCP - roads, camping, and commercial guided fishing, were known to the public.

On November 9, 2001, Refuge staff held an Open House at the White Mountain Library in Rock Springs. On November 12, 2001, the Refuge staff posted a news release in the Casper Star Tribune with the general description of proposed actions in the Draft CCP, the history behind the development of this management document, and an announcement that the Draft CCP was available for review. On that same afternoon and evening, the Refuge staff held an Open House at the Lincoln Count Library in Kemmerer.

On Nov. 13, 2001, a copy of the Casper Star Tribune news article appeared in the Rock Springs' Rocket Miner.

On February 7 and 19, 2002, personnel of the Refuge met with WYG&F in Green River, Wyoming to clarify certain elements of the draft CCP/EA - primarily the proposed road changes and proposed changes to the Refuge's closed area. These meetings were attended by Duane Kerr; Tom Christianson, Steve DeCecco, Robb Keith, Bill Rudd, Susan Patla, Bob Oakleaf, Steve Tessman, Reg Rothwell, and Joe Bohne of the WYG&F.

From January through March 2002, Seedskaadee NWR's refuge manager reviewed and prepared an answer to public comments; found in Appendix L. Concurrently, the refuge manager and Regional Office personnel revised and updated the draft CCP/EA into a draft final document. Also, at this time, the Refuge staff conducted two meetings at Refuge headquarters with local citizens and volunteers to review proposed road changes.

On May 1 and 2, 2002, Seedskaadee NWR's refuge manager and Division of Planning personnel held briefings with the Service's directorate on the draft Final CCP for Seedskaadee NWR, and obtained concurrence to proceed with a final review of the CCP for the Refuge.

June 2002, final internal review (including State of Wyoming and Tribes) of Final CCP for Seedskaadee NWR.

July-August 2002: Expected timing for the preparation of the final CCP (and FONSI) for Regional Director's signature and shipping to printer.

September 2002: Expected distribution of final CCP for Seedskaadee NWR.

Planning Participants

All individuals that provided comments, oral or written, are listed below. Column 2 identifies the forum in which the commentators participated or submitted comments. The forum in which the commentators participated are identified in column 2 in the following manner:

1. Project Initiation Meeting (SNWR1)
2. Planning Group Meeting (SNWR2)
3. Alternatives Development Workshop (ALT)
4. Commercial Use/Access Meeting (CU)
5. Comment Form (C)

| Name | Comment Reference ¹ |
|---|--------------------------------|
| ■ Rob Keith, Green River, WY | CU |
| ■ Bennie C. Johnson, Green River, WY | CU, C |
| ■ Dennis Watts, Green River, WY | CU |
| ■ Les Skinner, Green River, WY | CU |
| ■ Van Beacham, Kemmerer, WY | CU, C |
| ■ Ken Reed, Rock Springs, WY | CU |
| ■ Patrick Nichols, Rock Springs, WY | CU |
| ■ George Stonebreaker | CU |
| ■ Katie Legerski, Rock Springs, WY | CU |
| ■ Patti Smith, Rock Springs, WY | CU |
| ■ Duane Kerr, Green River, WY | CU |
| ■ Scott Talbott, Green River, WY | CU |
| ■ Jim Pasboy, Superior, WY | CU |
| ■ Jim Williams, Manilla, UT | CU |
| ■ Terry Dockter, Green River, WY | CU |
| ■ Carl Williams, Green River, WY | CU |
| ■ Beverly Williams, Green River, WY | CU |
| ■ Ron Remmick, Regional Fishery Supervisor, Game and Fish Department Green River, WY | CU, ALT |
| ■ Tom Brannan, Rock Springs, WY | CU |
| ■ Glen Sadler, Green River, WY | CU |
| ■ Patricia Sadler, Green River, WY | CU |
| ■ Bill Birmingham, Green River, WY | CU |
| ■ Bureau of Land Mgmt, Rock Springs, WY | C |
| ■ Thoman Ranch, Kemmerer, WY | C |
| ■ M.K. Tucker, Rock Springs, WY | C |
| ■ Bruce Woodward, Rock Springs, WY | C |
| ■ John Roberts, Kemmerer, WY | C |
| ■ Lucy Diggins, Green River, WY | C, ALT |
| ■ Tim Habenbenger, Wyoming Outfitters & Guides Assoc., Alpine, WY | C |
| ■ Mitch Nielson, Green River W | C |
| ■ Dave Vesterby, BLM, Pinedale WY | C, ALT |
| ■ Howard Hart, Green River, WY | C |
| ■ Matt and Liz David, Pinedale, WY | C |
| ■ Darrell Welch, Reclamation, Denver, CO | SNWR1, ALT, C, SNWR2 |
| ■ William Long, Jackson, WY | C |
| ■ Gary Harvey, Evanston, WY | C |
| ■ Ken Reed, City of Rock Springs, Family Recreation Center Rock Springs, WY | C |
| ■ Barry Floyd, Casper, WY | C |
| ■ Marci Fagnant, Kemmerer, WY | C |
| ■ Barney Shrank, Lakewood CO | C |
| ■ illegible | C |
| ■ Carl T. Williams, Green River WY | C |
| ■ Greg Auble, USGS Biological Resources Division, Midcontinent Ecological Science Ctr | ALT |
| ■ Ty Berry, Refuge Supervisor, MT/WY, USFWS | ALT |
| ■ Renee Dana, BLM, Rock Springs District | ALT |
| ■ Jaymee Fojtik, USFWS | ALT |
| ■ Mark Hatchel, BLM, Kemmerer Resource Area | ALT |
| ■ Sally Haverly, BLM, Green River Resource Area ... | ALT |
| ■ John Henderson, BLM, Rock Springs District | ALT |
| ■ Patricia Hamilton, BLM, Green River Res. Area | ALT |
| ■ Robb Keith, Wyoming Game and Fish Dept | ALT |
| ■ Duane Kerr, Wyoming Game and Fish Dept | ALT |
| ■ Rhoda Lewis, Regional Archaeologist, USFWS | ALT |
| ■ Mike Mischledey, BLM | ALT |

- Mike L. Scott, Midcontinent Ecological Science Ctr, USGS
- Al Simpson, Provo Area Office, Reclamation
- Dave Skates, Project Leader, USFWS
- Kevin Spence, Wyoming Game and Fish Dept
- Andy Tenney, ORP, BLM, Rock Springs District
- Anne Marie LaRosa, Seedskadee NWR Former Manager
- Tom Koerner, Seedskadee NWR Former Deputy Manager
- Adam Halverson, Seedskadee NWR
- Suzanne Beauchaine, Seedskadee NWR
- Carol Taylor, USFWS
- Shannon Heath, USFWS
- Dennis Earhart, Bear West
- Emilie Charles, Bear West
- Jan Striefel, Landmark Design

¹ Project Initiation meeting 2/19-20/97(SNWR1)
 Planning Group Meeting, 9/18-19/97 (SNWR2)
 Alternatives Development Workshop 4/29/97 (ALT)
 SNWR1 Commercial Use/Access Meeting 1/9/97 (CU)
 Comment Form (C)

Appendix L. Public Comments

Planning Issues

Issues and concerns that were included in the Draft Comprehensive Conservation Plan (CCP) were identified through discussions with planning team members, key contacts, and through the public scoping process which began in 1996. Comments were received orally at the meetings, via e-mail messages and in writing, both before, during, and after the scoping, and during the public comment period phases of the CCP process. The final 30-day comment period on the Draft CCP ended December 1, 2001.

The following issues, concerns, and comments are a compilation and summary of those expressed during the Draft CCP comment period. Comments were provided by the public, other Federal and State agencies, local and county governments, private organizations, and individuals concerned about the natural resources of SeedsKadee NWR. The section is organized by topics. Within each topic category the issues, comments, concerns, or questions are summarized. Individuals or groups that submitted comments are referenced at the end of this section. Some editorial comments were addressed by changes within the CCP document and are not addressed below.

Cokeville Meadows NWR

Comment: What about Cokeville Meadows NWR? Why is it not included in this plan?

Response: Cokeville Meadows NWR will have a separate Comprehensive Conservation Planning (CCP) document prepared. The CCP for Cokeville Meadows NWR is not planned to start until 2014. Refuge planning started at Cokeville Meadows NWR before the actual establishment of the Refuge. Refuge establishing documentation identified the approved refuge boundary, refuge purpose(s), goals, and general management direction. These initial planning documents and the development of a Conceptual Management Plan (CMP) will guide management at Cokeville Meadows NWR until the Refuge CCP is completed. The CMP will identify refuge purpose(s), interim goals, and pre-existing compatible wildlife-dependent recreational uses that the Service will allow to continue on an interim basis. Refuges functioning under CMP's also will develop step-down management plans, as appropriate.

Future Land Acquisition

Comment: Concern was expressed about the acquisition of any additional lands to SeedsKadee NWR, especially surrounding the Big Sandy River area. If the Refuge acquired lands, it may impact critical water access for over 22 BLM permittees. The Big Sandy Working Group has developed a draft grazing plan to address problems associated with the Big Sandy River. In addition, fences would cause wildlife problems and there are numerous Wyoming State school sections that may be affected.

Response: As stated in the CCP, additional land acquisitions centering around the Big Sandy River would require a separate public involvement process. The Service actively participates in the Big Sandy Working Group and is aware of the issues and progress associated with the Big Sandy Working Group grazing management plans. Even though these lands are currently owned by the Department of the Interior; Bureau of Reclamation, any future land acquisition actions would fully involve the public via a National Environmental Policy Act (NEPA) process. Grazing, access, fencing, and other issues would be addressed during this NEPA process.

Habitat Management

Comments were provided that supported the Refuge's initiative for "preserving, restoring, and enhancing" the ecological diversity and abundance of migratory and resident wildlife with emphasis on native species.

Comments were provided that supported the Refuge's objective of preserving, restoring, and enhancing the ecological diversity of indigenous flora associated with the Great Basin upland desert shrub and grassland habitats to support native wildlife found in the Green River Basin.

River Management/Rock Sills/Water Rights/Water Quality

Comment: Concern was expressed that rock sills placed in the river are unstable and may be dangerous to visitors because of the deep water pockets which are created downstream of the structures and the shifting of rocks associated with the structures. A suggestion was made that irrigation of riparian areas via ditches is more effective. Concern was expressed that the Refuge's use of water rights may impose undue hardships or delays for private water users who apply for water rights from the river.

Response: The primary purpose of constructing a rock sill across the Green River is to restore water flows into river oxbows. As a result of Fontenelle Dam and the regulation of river flows, many of the river oxbows are only flooded seasonally (spring). Restoring the flows into oxbows year-round improves growing conditions for riparian vegetation by elevating water tables which in turn increases the availability of water to riparian vegetation. In addition, restored oxbows create excellent habitat for a variety of aquatic, wetland, and riparian-dependent wildlife/fish species. The creation of deep holes below sill structures are extremely beneficial to the fisheries providing critical summer and winter habitat. Sills are constructed to allow the passage of boats. The Refuge continues to monitor sill structures and conduct maintenance on sills which have shifted as a result of river flows or ice action. Most of the sills are very stable and require minimal maintenance. Irrigation of oxbow habitats via irrigation ditches is not practical and would not achieve the management objectives achieved with rock sills. The Refuge staff is unaware of any hardships created to downstream water users as result of the Refuge using their water rights. Most of the water used by the Refuge is returned to the river after passing through oxbows or wetlands. Some water will be lost to evaporation.

Comment: A comment was received which requested additional quantitative baseline data prior to constructing additional rock sills in the Green River (for example the proposed Big Island Sill).

Response: The Service agrees that adequate quantitative information is needed prior to proceeding with any rock sill or wetland project. Specific quantitative data for each proposal were not provided in the CCP because the full analysis of each project has not been completed. Detailed quantitative data would be submitted to the U.S. Corps of Engineers (USCOE) in order to acquire an appropriate permit for a project. The proposed Big Island Sill project is currently being evaluated and detailed data has been collected and will be evaluated by the Service to determine if the project would meet objectives. A quantitative data analysis would eventually be submitted to the USCOE if the project is approved by the Service.

Comment: The issue of salinity was not addressed in the document. There is concern that the wetland impoundments are causing problems for the cottonwood trees because of the increased concentrations of salty waters.

Response: The Service agrees that water quality monitoring should be conducted in the Green River and within Refuge wetland impoundments. Modifications to include monitoring were added to the CCP's "River and Wetland Objectives." From 1986 to 1994, water conductivity was monitored annually in the Green River and within the Refuge impoundments. Conductivity values are good indicators of salinity levels. Measurements were taken before diversion to the developed wetlands, within the developed wetlands, and downstream of the outflow from the developed wetlands. The data indicated that water diversion increased conductivity slightly within the developed wetlands, but not beyond a safe and acceptable level. Most levels remained well below 600 micromhos per centimeter (umhos/cm). The data also indicated that outflow from the developed wetlands had no adverse effect on the conductivity of the Green River. The U.S. Geologic Survey (USGS) sampled water quality and invertebrates at four sites on the Green River within the Refuge Boundary in 2000. Water test results at all stations indicated a healthy water system. Conductivity values ranged from 336 to 494 umhos/cm. A USGS reference site (best case scenario) for the area tested at 345 umhos/cm. Salinity was not identified during a recent review of scientific literature as a factor contributing to the mortality of cottonwoods along western river systems.

Fencing/Livestock Management/Water Gaps

Comment: Concerns were expressed about how new fences would be constructed relative to wildlife passage needs.

Response: The comment group provided an internet site and informational contact for guidance. The Service appreciates this guidance and will utilize it for future fencing projects. The Service will coordinate with WYG&F regarding fence construction and maintenance to ensure fences are wildlife friendly.

*Website: www.sdvc.uwyo.edu/clearinghouse/fences.html
<http://www.sdvc.uwyo.edu> Informational contact: Jackson Hole Wildlife Foundation (307-739-0968) for fencing pamphlet.*

Comment: Concern was expressed that fences built for antelope standards may not be effective to keep cattle out in high stress point areas.

Response: The Service will continue to work with WYG&F to make boundary fences wildlife friendly, especially for antelope. The Service recognizes that cattle and sheep will occasionally jump fences given the right scenario and conditions. Livestock generally enter Refuge lands via cut fences, open gates, or water gaps. The Service is committed to maintaining the boundary fence to reduce livestock trespass and will continue to work with grazing permittees to reduce trespass occurrences and remove livestock as quickly as possible.

Comment: There were concerns about the use of grazing as a future management tool.

Response: Research demonstrates that livestock grazing can be effective in management of various habitats to improve conditions, for example reducing weed populations. As indicated in the CCP, the Service would only use grazing practices which are strictly controlled for the benefit of improving Refuge habitats. Other land management techniques will be considered in choosing the appropriate and most effective method to manage various habitats. The Service has recently conducted limited livestock grazing to evaluate its potential in the control of weeds. The Service will continue to explore grazing as a management tool.

Comment: The Refuge was encouraged to partner with other land management agencies and livestock permittees to reduce livestock trespass.

Response: The Refuge will continue to partner with other Federal/State land management agencies and livestock permittees to reduce livestock trespass. Livestock trespass has decreased over the past several years due to improvements to Refuge fencing and water gap structures.

Comment: Concern was expressed about the availability of clean water in water gaps for livestock and about the control of public use in water gaps.

Response: There are 17 water gaps located within the Refuge which provide livestock access to water. The construction of water gaps is complete and general maintenance is conducted as needed to keep water gaps functioning. Water gaps were designed to allow water to flow through them. Water gaps provide free flowing water which is of adequate quality for wildlife or livestock. The CCP proposes to further evaluate how the public utilizes water gaps for recreation and also design parking areas to minimize disturbance to watering livestock. The Service will maintain signs in water gaps informing visitors of the purpose of water gaps.

Fire Management

Comment: Concerns were expressed that the elimination of livestock grazing leads to increased fuels and therefore greater fire potential. Concern was expressed that in the past 2 to 3 years there have been more fires on the Refuge than in the past 100 years.

Response: In the past 2 years, there have been three natural wildfires (lightening strikes) and one man-made wildfire on the Refuge. Because of the severe drought conditions, the number and intensity of fires has increased throughout the west regardless if lands were grazed by livestock. Many areas which were consistently grazed for many years (BLM and USFS lands) also burned in the last 2 years because of the severe drought. Grazing will reduce understory fine fire fuels and could help decrease the intensity of some fires. Grazing, however, can also reduce the overall quality of habitat for some wildlife species depending on how it is managed. Grazing of Refuge habitats for management purposes (i.e. fire fuel reduction) may be utilized in the future. Annual grazing to significantly reduce understory riparian vegetation conflicts with Refuge management objectives. Grazing reduces the amount and density of vegetation available for wildlife to use for forage, nesting, and cover. During multi-year droughts it is especially important to protect forage and cover on Refuge lands because surrounding lands may only provide minimal forage due to the combination of drought stress and livestock grazing. The Service will continue to explore grazing as a management tool in riparian and upland habitats, as appropriate.

Weed Management

Comment: Concern was expressed about the extent of perennial pepperweed on the Refuge. Some individuals believe that intensive early spring grazing by sheep or goats is the best method to control this species.

Response: The Service is working extensively with the University of Wyoming and Sweetwater County Weed and Pest to address weed issues on the Refuge. Livestock grazing is a tool which is being evaluated along with chemical and mechanical controls in various combinations. Grazing, under certain conditions, can biologically suppress perennial pepperweed if native vegetation is available to recolonize the area. Current research, in other states, has had mixed results about the effectiveness of grazing. Perennial pepperweed reproduces by seed and also by creeping underground stems. Grazing will suppress the above ground biomass but will not kill the below ground tubers. Grazing also results in the consumption of native grasses, forbs, and shrubs, in addition to the target weed species, which may not be acceptable for reaching Refuge objectives. The Service will continue to evaluate grazing as a potential control technique. The most effective control is currently chemical control in combination with mowing (Beck 1999, Renz and DiTomazio 1999). Over the past 6 years the Service, in coordination with Sweetwater County Weed and Pest, has significantly reduced the weed population on several thousand acres using a combination of mowing, burning, and chemicals. The CCP states that the Refuge will continue to evaluate various control methods and partner with various agencies to improve weed management methods. New technology (Burch Wetblade Mower), currently being tested on the Refuge by the University of Wyoming, is showing great potential.

Wildlife Management

Big Game

Comment: A recommendation was made to work in partnership with other groups and agencies to restore historical migration routes of elk, where feasible.

Response: The Refuge added a strategy under the objective for "Other Indigenous Wildlife Species" which indicates the Refuge will support efforts to enhance or restore historic migration routes for migratory big game species like antelope, mule deer, and elk. Very few elk have been observed in the vicinity of the Refuge since it was established in 1965. The restoration of some historical elk migration routes may not be feasible due to the extensive amounts of fence, road, and urban home construction throughout their migratory route(s).

Predator Management

Comment: Statements were received that predator trapping is ineffective as evidence by increasing numbers of predators (skunks, raccoons, foxes, etc.). In the past, the Refuge allowed harvest of predator species. Arguments were made that hunters need reasonable access to permit harvest of species and that closing roads has created a predator problem on the Refuge.

Response: The Service is aware that populations of red fox, raccoon, and striped skunk exist on the Refuge, especially near riparian and wetland habitat types. The Service is also aware of the impacts predators have on a variety of wildlife species. The Service has allowed hunting of skunk, raccoon, and red fox in accordance with State and Refuge Regulations. Trapping of these species has been permitted under special authorization by the Refuge. The Service strictly regulates trapping operations to ensure visitor safety and to reduce the take of other non-target wildlife species. The trapping program used by the Refuge has been effective in reducing predator numbers as evidenced by the increase in waterfowl nest success in areas where trapping has occurred (see CCP Section on Predator Management and Nest Success). The Service objective has been to reduce predator numbers to levels which permit the Service to meet other wildlife objectives (i.e. production of ducks, geese, swans, etc). Hunters who wish to pursue predator species have full access to all portions of the Refuge except in areas designated as, "closed to all hunting." Reasonable access by roads was provided and access by foot was permitted throughout the Refuge. Reducing the fragmentation of Refuge habitats by roads will improve conditions for wildlife by improving the quality of habitat. Roads create easy travel corridors for predators and may actually increase predation in some habitats by facilitating access. The Service disagrees that reducing road access will result in a direct increase in predator populations. The Refuge is unaware of any studies which shows a direct correlation between road densities and the success of predator hunters.

Comment: Allowing hunting and control of some native species (such as predators of ground-nesting birds and beaver) for the limited benefit of other species works against the underlying ideals of the Refuge System.

Response: Collectively, the National Wildlife Refuge System mission, goals, and the specific Refuge purpose(s) define our duty for the administration and management of any unit of the System (see CCP Introduction & Background). The Refuge purpose(s) forms the foundation for developing goals and objectives for units during CCP preparation, and provide the basis for determining the appropriateness and compatibility of existing and proposed uses on Refuges. Refuge studies indicate that managing predator populations can significantly benefit ground-nesting birds (see CCP Section on Predator Management and Nest Success). Trapping and hunting have been used as management tools extensively throughout the Refuge System to manage lands and wildlife populations. In the past, Seedskafee NWR has had approved predator and beaver trapping management plans compatible with Refuge purposes. These plans were developed to assist the Refuge in meeting objectives for production of ground-nesting birds (waterfowl, geese, swans, rails, etc.) and restoration of riparian habitats. In certain specific cases, management of predator and beaver populations may not conflict with the purpose of the Refuge or the mission of the Refuge System. Conversely, these management actions have responded to past range expansions by certain predator species and to changes in river flows that have reduced natural cottonwood regeneration. Non-lethal methods of controlling predators and beaver populations have been explored and used in the past on the Refuge. If justified by nest success studies, the Refuge staff may continue to explore and utilize various non-lethal techniques in the future, as appropriate.

Threatened and Endangered Species (T&E)

Comment: The CCP states that monitoring for T&E species would occur on a regular basis - regular should be defined. Surveys for Utes ladies tresses should occur no farther than 5 years apart, instead of 5 to 10 years.

Response: Specific objectives are stated for each T&E species which may occur on the Refuge. Strategies for each objective specifically indicate the monitoring frequency and habitat protection efforts proposed by the Service (Management Direction Chapter). The Utes ladies tresses is a species which has never been documented on the Refuge or within western Wyoming. The Service disagrees that surveying for this species is required every 5 years. If major changes occur in river flow management, additional and more frequent surveys may be warranted.

Swan Management

Comment: There was objection to creating a wintering closed area or seasonal closure for trumpeter swans and wintering waterfowl. There was a request to justify this need for a closure given the Refuge has met its current objective of 20 to 40 wintering swans and there is no current closure.

Response: The trumpeter swan is a species of special concern for the USFWS and also for the State of Wyoming (State). The Refuge has been identified by the USFWS and the State as a breeding and wintering area for Trumpeter Swans. The current wintering objective of 20 to 40 swans has been sustained on the Refuge/Green River for the past several years. The actual wintering carrying capacity for trumpeter swans and waterfowl has not been determined for the Refuge and additional birds may be supported within the Refuge. The number of wintering swans on the Green River will vary depending on the severity of the winter and availability of forage.

The basis for establishing a new closed area (in lieu of the existing one) is not specific to trumpeter swans. The intent of creating a new closed area is to provide an area of low disturbance where swans, waterfowl, and other wildlife may feed and rest during the energy demanding winter months. There are currently two types of closed areas on the Refuge (Map 6). The current Refuge "closed area system" encompasses wetland impoundments which are generally drained or frozen by mid-October and therefore provide no resting or feeding habitat for wintering water birds. The open-water river habitat becomes the primary area where waterfowl and swans can rest and feed during the winter. There are no sections of the river which are encompassed by the current closed areas.

The CCP proposes to explore the potential establishment of a new closed area via a separate public process. This could establish a closed area to include a segment of the river which, in most years, would remain partially open or contain significant pockets of open water. This process would attempt to address the need for the Refuge to provide a sanctuary area to provide open water, forage, and low disturbance through winter months for a variety of wintering wildlife species.

Justification for the change in closed areas is to provide a quality habitat area which is low in disturbance for wintering wildlife, especially water birds and raptors. The Refuge has acquired preliminary data which indicates birds using the river during winter months are very sensitive to disturbance from vehicles and people. Waterfowl and raptors often flush from the river corridor at the first site of a vehicle. Creating a new closed area system, which encompasses a portion of the river, would create a secure area which provides feeding and resting areas that are currently lacking. General observations from Refuge staff, local hunters, and anglers indicate an increase in hunting and fishing pressure on the Refuge. Given the general trend in recreational use of the Refuge and within the State (WYGF 2001 - A Quiet Crisis), it is reasonable to assume that hunting and angling pressure will continue to increase. Proactive measures to secure and protect habitat and wildlife during critical periods of the year is justifiable within the context of the Refuge and the mission of the National Wildlife Refuge System.

Comment: A comment was received which indicated that a major objective of the swan restoration program (Trumpeter Swan Implementation Plan) is to establish a predominately migratory rather than sedentary flock of swans. Because the river may freeze up more in low flow years or very cold years, it may not be biologically appropriate to encourage larger concentrations of swans or waterfowl to winter within the Refuge.

Response: The primary purpose of the Refuge and the NWRs is to provide for the needs of wildlife. The Refuge's goal is not to short-stop the migration of swans or any other waterfowl. Eventually, waterfowl and swans need to winter at some location. Seedskaadee NWR provides one such quality location. Seedskaadee NWR is a natural site for the Service and State to target as a wintering area for swans and other waterfowl. Providing wintering habitat for some water birds is biologically appropriate, regardless of the number of waterfowl and swans utilizing the Refuge. Continued monitoring of wintering populations in coordination with the Wyoming Game & Fish will determine if population levels reach unacceptable levels before or after a new closed area is established. If established, a closed area on the Refuge could be changed or re-opened in the future.

The amount of ice forming on the River will vary between years depending on winter temperatures and the amount of water released by Fontenelle Dam. Based on information gathered by the Refuge via conversations with various long-time residents, the River usually does not freeze above the Refuge headquarters, unless river flows are extremely low.

Comment: Concern was expressed that Seedskaadee is lacking substantial agricultural food resources nearby for maintaining wintering swan populations.

Response: The Refuge does not feel this is biologically important to birds wintering within the Refuge. The Green River provides aquatic forage, which explains why the River has been identified by swans and waterfowl as an acceptable wintering location. If forage were not available, the birds would likely not remain on the Refuge.

Comment: At the Flyway level, production and migration are the most important functions sustained by the refuge for migratory waterfowl. Managing portions of the refuge as winter terminus may benefit a handful of cold-tolerant species such as goldeneyes, mergansers, mallards, geese, and some trumpeter swans. However, dependable winter habitat is also available to these species down range.

Response: At a flyway level, the Service agrees that migration is the most important function sustained by the Refuge for migratory waterfowl. Production of waterfowl at the Refuge does not significantly contribute to the Flyway population, but may be very important relative to State and local populations. The ability to winter larger populations of waterfowl may be possible with a change in the current closed area system. Providing areas where waterfowl can rest and feed may improve hunting opportunities by encouraging birds to remain in the area over the hunt season. Presently, hunting pressure throughout the hunt season is so intense and widespread that only limited numbers of waterfowl remain in the area.

Production of trumpeter swans on the Refuge is important at the Flyway and State level. Providing wintering habitat on the Refuge for swans is a goal of the Refuge and Service. The amount of dependable winter habitat for trumpeter swans located further south of the Refuge is still being evaluated. If there is an abundance of suitable wintering habitat south of Flaming Gorge Reservoir, then such areas need to be identified and protected to expand the overall winter distribution of swans.

Roads/Access

Comment: Why is the Service closing roads on the Refuge? What is the reason behind each road closure?

Response: The decisions regarding opening and closing roads on Seedskadee NWR are driven by the mission of the National Wildlife Refuge System as directed by Congress and by the specific purposes of Seedskadee NWR. All 540+ national wildlife refuges in the System, including Seedskadee NWR, are managed first and foremost for protection of wildlife species and their habitats. Human uses are secondary to wildlife and habitat management objectives. Human uses are only allowed when they are compatible with, and don't interfere with, wildlife and habitat management objectives. More details regarding the mission of the System and Seedskadee NWR can be found in the Introduction/Background sections of this CCP document.

Vehicle use is one of the largest contributors to wildlife disturbance and habitat damage on Seedskadee NWR. Most of the existing roads on the Refuge are concentrated in or adjacent to the same areas that wildlife are dependent on, such as the river and associated riparian zone. Disturbance from vehicles in these areas is especially extreme during the fall and winter because hunting seasons are open, Refuge marshes that are closed to hunting are frozen and do not provide a sanctuary area for many migratory birds, and energy demands are the highest for wildlife. Because of the degree of disturbance to wildlife from vehicle use, the road system that has evolved over time on land tracts that are now part of Seedskadee NWR is in direct conflict with the mission and purposes of the Refuge and the Refuge System. In addition, many members of the general public strive to find locations on the Refuge where they can hunt, fish, observe wildlife, or otherwise enjoy Refuge resources without disturbance from vehicles. The Refuge does recognize, however, that responsible and controlled vehicle use is a reasonable and legitimate way to access the Refuge to enjoy the variety of activities that are allowed on the Refuge.

To minimize wildlife disturbance and habitat damage, yet still provide access for the public to Refuge resources, various road system alternatives were formulated for the draft CCP. While for some these represent a change from some of the traditional vehicle routes and access points on the Refuge, we believe it still affords the public, including disabled people, with the ability to enjoy most of the same traditional Refuge uses, albeit sometimes in different locations. The entire Refuge remains open to foot travel. Under the Refuge's preferred road alternative, the vast majority of the Green River is less than a half mile from any road via foot, with only a few exceptions. Under the preferred alternative, the farthest anyone would have to walk from a designated road to reach the Green River is about one mile. Refuge staff consulted with the National Center on Accessibility while developing road alternatives to ensure all proposals were consistent with the Americans with Disabilities Act guidelines.

General criteria that were used to develop a Refuge road system that met the needs described above include the following: (1) remove some roads from the rivers edge to reduce disturbance to wildlife (for example, waterfowl will flush when they see a vehicle); (2) if roads are immediately adjacent to both sides of the river, remove a road from at least one side of the river to minimize disturbance to wildlife; (3) create larger blocks of wildlife habitat associated with the riparian zone that do not have roads transecting them; (4) create areas for members of the public to enjoy Refuge resources without disturbance from vehicles; (5) provide a road system that is easy to understand and follow by the public (the current matrix of roads, particularly south of Highway 28, is confusing to follow); (6) provide a road system that is safe for the public (some roads follow the edge of cliffs or are in very soft soils vehicles can get stuck in); (7) provide a road system that is not subject to excessive erosion (for example, erosive roads along the river's edge that slough into the river and force vehicles to create new tracks over standing vegetation) or extreme rutting in wet conditions; (8) provide a road system that minimizes the opportunity for off-road violations (repeated off-road violations every year require additional staff time to monitor, repair, and patrol); (9) reduce the potential to introduce weed seeds into new areas on the refuge; (10) and reduce the likelihood of wildfires resulting from vehicles or other human activities.

Because of existing roads and other improvements on Seedskadee NWR north of Highway 28, there were fewer opportunities to alter roads in this region. However, much of the area south of Highway 28 does not have improvements and provides a unique opportunity to enhance the area to benefit wildlife through road management. Changes in the preferred alternative from the draft to the final CCP were the result of constructive, specific comments from the public.

In 1996, the Refuge completed and made available a 'Travel Map' that identified roads open for vehicle use. However, this was never fully implemented on the ground by posting all the closed roads. In addition, many signs that were posted were stolen or vandalized. As a result, there has been some confusion regarding the number of roads closed through the CCP process. Many roads that have been used since 1996 have technically not been open to vehicle travel. The Refuge will update this Travel Map and post all closed roads as soon as possible after the final CCP is published.

The following table is a summary of the road closures that will take place when the CCP is finalized. A brief summary of the reasons for each closure is included. The summary includes roads closed during the 1996 administrative closures that were never posted in the field but will be posted when the CCP is finalized. Please refer to Map A to identify roads being discussed.

Table: Road Closures and Justifications

| Road Number | Action | Justification |
|-------------|---|---|
| 1 | Close access road in the Refuge on the north side of the Green River from the Refuge boundary to McCullen Bluff. | <ol style="list-style-type: none"> 1) Roads currently exist on both sides of the river increasing disturbance to wildlife. 2) An alternative BLM road exists that parallels the Refuge's north boundary fence that provides reasonable foot access within ¼ mile of the river. 3) There is access to this area south of the river from the Dodge Bottoms road. 4) Closure will provide a block of relatively undisturbed habitat. Much of the road is immediately adjacent to the river or the riparian zone which results in significant disturbance to wildlife. 5) Provides an area where visitors can enjoy Refuge resources without vehicle disturbance. |
| 2 | Seasonal road closure from November 15th to March 15th of approximately 5 miles of road on the east side of the river starting approximately 1 mile north of Highway 28. | <ol style="list-style-type: none"> 1) Much of the road is immediately adjacent to the river or the riparian zone which results in significant vehicle disturbance to wildlife. The seasonal closure would eliminate vehicle disturbance to wildlife during critical wintering period when all other sanctuary areas (marshes) are frozen and no other sanctuary areas exist on or off the Refuge. 2) Big game hunts, including the late season doe deer hunt, are concluded by mid-November. 3) Impacts to anglers during this period would be minimal. 4) This provides a seasonal block of relatively undisturbed habitat. 5) Area remains open to foot traffic. |
| 3 | Close existing road that loops through the riparian forest. However, allow vehicle access on the north side to the 'gravel pit' and one-way (non-loop) access on the south side to the confluence of the Big Sandy and the Green Rivers. | <ol style="list-style-type: none"> 1) Eliminate loop road to lessen disturbance to wildlife on the river and in a significant riparian habitat block. 2) Much of the loop road is in poor condition due to the soils and is therefore prone to continual widening and degradation, particularly in wet weather. 3) Reduces likelihood of continued off-road vehicle violations and resulting habitat damage in the area. 4) Access to the confluence area can also be obtained by following a BLM road on the east side of the Big Sandy or from the west side of the Green River from the Refuge Auto Tour Route. 5) Provides block of relatively undisturbed habitat. 6) Area remains open to foot traffic. 7) Provides an area where visitors can enjoy Refuge resources without vehicle disturbance. |
| 4 | <ol style="list-style-type: none"> 1) Open up new road in upland area that follows the historic Oregon Trail from approximately one mile above the 6-mile hill boat ramp northerly approximately 3 miles to the Dunkle Ranch area. 2) Close all roads between the Dunkle Ranch area south to the junction with the new road on the Oregon Trail. 3) Close 2 additional spur roads that drive through wash north of 6-mile boat ramp. | <ol style="list-style-type: none"> 1) New road will maintain a through route for vehicles and an opportunity to travel on parts of the historic trail. 2) Closure of roads will reduce disturbance to wildlife in wetland units and on the Green River. 3) Closure of roads will reduce erosion along the Green River and damage to vegetation as road sloughs into the river. 4) Roads to be closed are very susceptible to vehicle damage due to soil types. Vehicles often get stuck when road is wet, especially in the vicinity of Shute Creek. 5) Provides block of relatively undisturbed habitat. 6) Area remains open to foot traffic. 7) Provides an area where visitors can enjoy Refuge resources without vehicle disturbance. |
| 5 | <ol style="list-style-type: none"> 1) Road will terminate at the river bend ½ mile downstream of Johnson Ranch. 2) Burned over (2000) area in vicinity of Telephone Island will remain closed to vehicles. 3) Spur roads will be closed. | <ol style="list-style-type: none"> 1) Closure of road to Johnson Ranch will reduce erosion along the Green River and damage to vegetation as road sloughs into the river. 2) Continued closure of Telephone Island area will allow the area to continue to recover from wildfire and may provide cottonwood regeneration research site. 3) Closure of Telephone Island area will provide large block of relatively undisturbed habitat. 4) Closures to Johnson Ranch and Telephone Island area will reduce disturbance to wildlife on the Green River. 5) Spur road closures will reduce damage to vegetation and reduce disturbance to wildlife. 6) Area remains open to foot traffic. 7) Provides an area where visitors can enjoy Refuge resources without vehicle disturbance. |

| Road Number | Action | Justification |
|-------------|--|--|
| 6 | The road will remain open from 6-mile hill boat ramp south to Palmer crossing (about 3/4 mile). The road from County Highway 4 (Big Island Bridge road) north to Shell Ranch (about 1.5 miles) will remain open. All roads between these two roads will be closed. | <ol style="list-style-type: none"> 1) Current roads are in extremely poor condition and difficult for the public to follow. 2) Provides a large block of habitat not disturbed by vehicles in conjunction with habitat on the east side of the river. 3) Area remains open to foot traffic. 4) Provides an area where visitors can enjoy Refuge resources without vehicle disturbance. |
| 7 | <ol style="list-style-type: none"> 1) Open the road that travels from County Road 8 (OCI road) north along the river through the south boundary of Refuge that is currently closed at the Refuge boundary. 2) Close western north-south through road but leave parallel road open. 3) Close all spur loop roads on the west side of Big Island that travel to and follow the rivers edge. | <ol style="list-style-type: none"> 1) Re-establishes public access and through route from County Road 8 north to County Road 4. 2) Eliminates one of two parallel roads to minimize habitat disturbance. 3) Spur road closures will reduce damage to vegetation and reduce disturbance to wildlife. 4) Area remains open to foot traffic. |

Comment: There was support for the Refuge mandate to “provide opportunities for compatible wildlife-dependent recreation while maintaining the primitive, uncrowded nature of the area.”

Comment: There was support for the Refuge objective to “provide a variety of quality river fishing opportunities and hunting opportunities on portions of the Refuge.”

Comment: Concern was expressed that senior citizens are fenced out of favorite fishing and camping areas.

Response: The purpose of the fencing is to keep livestock off the Refuge. The only way the Refuge could keep livestock from grazing and trampling Refuge habitat was to fence its boundary. The preferred alternative maintains 28 Refuge access points and over approximately 50 miles of roads that are open to the public. Camping is not permitted on the Refuge regardless of visitor age (see justification CCP Appendix D Compatibility Determination for Camping). Fences were not erected to exclude visitors from fishing areas. The entire River is open to fishing through the Refuge. Visitors may access fishing locations by designated roads, foot, or boat. Individuals who are unable to walk long distances may fish at locations which are closer to designated Refuge roads. The primary purpose of the Refuge is to provide quality habitat for wildlife, and where compatible, provide for hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation experiences. The Refuge cannot accommodate the special requests of every user group/individual which uses the Refuge and still meet Refuge objectives for wildlife. Providing a road to every favorite fishing spot is not practical nor compatible with the purposes of the Refuge. However, the Service is very aware of the special needs of individuals who are physically challenged and will continue to explore potential opportunities to provide opportunities for these individuals.

Comment: To be a good guardian, the Refuge needs to consider all aspects of management, including the people.

Response: SeedsKadee provides a wide variety of recreational opportunities for visitors and will seek to provide quality opportunities in the future which remain compatible with the needs of wildlife. Visitors recreating on any national wildlife refuge must remember that the Refuge System is the only national network of public lands dedicated to fish, wildlife, and plant conservation. The Mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United State for the benefit of present and future generations of Americans. Providing recreational opportunities is also a primary focus of Refuges but only when they are compatible with the needs of wildlife. The management of recreational uses and visitor access is necessary not only to protect wildlife and habitat but also to provide a variety of quality recreational experiences.

Comment: The Service has closed off the refuge to a majority of the public (bank fisherman) and the Refuge wants only commercial guides and birders. Concern was expressed that the Refuge receives money from allowing commercial guides and birders on the Refuge.

Response: The preferred alternative proposed a reduction in the amount of commercial guide use. The Refuge does not benefit economically from allowing commercial guiding or birders. The local communities benefit economically from visitors which require hotel accommodations, fishing supplies, gas, food, etc. The Refuge continues to permit some commercial guiding to provide opportunities for visitors who prefer to fish the Refuge with a guide. The commercial guides also provide potential recreational opportunities for people with disabilities. In the preferred alternative, the Refuge acknowledges the need to regulate commercial guide use relative to the needs of wildlife and other visitor uses.

Comment: What good is re-seeding two-track roads? Several roads have been closed but the refuge has not attempted to re-vegetate these two-tracks - Why not?

Response: Re-seeding or re-vegetating two-track roads will improve habitats by converting bare ground to desirable native vegetation and will also improve the visual aesthetics of the area by reducing obvious land scars. Although two-track roads are two strips of bare ground, the cumulative acreage of area which is stripped of vegetation by a two-track road is significant. Future restoration of closed roads will enhance wildlife habitat quality by reducing fragmentation, providing additional cover, increasing forage, reducing the potential for weed infestations, and decreasing predator travel corridors.

Some closed two-track roads will be allowed to naturally re-vegetate over time. Many roads, that have been closed have already started the process of re-vegetating naturally. Other two-track roads which are closed may be ripped and seeded. The Refuge must receive a cultural resource clearance on every road section it plans to rip and seed because of the numerous historical trails which traverse the Refuge. A cultural resource survey was recently completed on the Refuge (2000) to indicate which roads are considered contributing segments to historical trails. The cultural resource survey will enable the Refuge to pursue future road restoration efforts and avoid important trail segments. The future ripping and re-seeding of some roads will be completed over many years as time and money permit. Simple elimination of traffic on some roads will facilitate and may enable full re-vegetation.

Comment: Refuge gates and fences have been cut or removed at traditional well-worn two-track roads. More specifically a road located in the southern portion of the Refuge was gated and locked. The Refuge should not have closed this road and instead put in a cattle guard or at least erect a sign indicating the road is a dead end road. More local input should have been received on road closures.

Response: The Refuge has decided to open the Road referenced in this comment letter based on public input. Within the next couple of years, a cattle guard will be installed and the gate will be removed to improve access. In the interim, a sign will be posted to inform the public of current conditions and future proposed changes. The Refuge will post "No Outlet" or "Dead End Road in X miles" at all other roads which dead end within the Refuge.

Specific constructive public comments were received regarding the proposed preferred road system (Draft CCP Alternative 2). As a result of these comments, some roads proposed for closure were re-opened and other roads modified to better accommodate wildlife and public access needs (See Map B). See Map 9 for the final road system which will be implemented on the Refuge.

Comment: Will additional roads be improved?

Response: The CCP plans to improve a segment of the loop road between Upper and Lower Dodge Bottoms. Additional gravel will be added to this segment to stabilize the road. There are several roads which have already been improved and are depicted on the Refuge roads map as "auto tour" or "improved." The Refuge staff plans to maintain only the improved roads and the auto tour route. Additional road base and mag water treatments may be applied to improved roads to reduce maintenance requirements. Improved roads will be graded several times a year as needed. The two-track roads depicted as "non-maintenance roads" will remain as is, except for minor maintenance when absolutely necessary.

Comment: Concern was expressed that too many roads will remain open on the Refuge in relation to the size of the Refuge.

Response: The CCP designated 49 miles of roads as open for public travel. The Refuge is seeking to find a balance between recreational vehicle access demands, wildlife requirements, and the need to provide the public with areas where vehicles are not allowed, e.g., areas only open to foot travel. Reducing roads in certain portions of the Refuge will create areas which are less disturbed by vehicles, less fragmented, and visually more aesthetic. The Refuge recognizes that some visitors enjoy going into areas where vehicles are not allowed. Areas where roads are reduced and disturbance is decreased may improve the quality of a visitors hunting or fishing experience or increase opportunities for wildlife observation/photography. Fewer roads in a area directly benefit wildlife by reducing human disturbance and habitat fragmentation. The CCP provides a road plan based on current use levels, wildlife needs, and recreational demands. In the future, additional roads may be closed to protect habitat or opened to provide for certain recreational opportunities.

Comment: Why has access been restricted in livestock access lanes (water gaps)? Why can't drift boats be launched from certain water gaps?

Response: The purpose of a water gap is to provide livestock, which graze adjacent lands, access to water. Many of the water gaps fulfill a legal agreement between the Refuge and the Rock Springs Grazing Association. The physical design of a water gap is not conducive to launching boats from trailers because of the rock structures which were placed in the River. The strategic placement of large rocks in a U-shape formation prevents cattle trespass onto Refuge lands and, since their completion in 2001, create a barrier that prevents launching of boats. While some water gaps were used for boat launches before 2000, the intention of the Refuge was to close the water gaps to boat launching after all of the formal boat ramps were completed. All Refuge boat ramps were completed in 2000 and the water gaps have been closed to launching boats. Launching boats from trailers is now permitted only at the four designated boat launches on the Refuge.

Visitors may still use livestock access lanes to access the River for some recreation. However, water gaps are subject to all Refuge regulations. They cannot be used to exercise dogs, camp, or picnic, in order to reduce livestock and visitor use conflicts. The Refuge seeks to balance the use in water gaps between visitors and ranchers needs. Frequent problems occurring in water gaps involve dogs off-leash near livestock, camping, and parking vehicles in areas that block livestock access to water. The Refuge requests visitors to park vehicles near water gap fences to reduce physical barriers between livestock and water. Future plans are to designate parking areas near water gaps which will better facilitate use of water gaps by visitors and livestock.

Disabilities

Comment: Road closures are the single most discriminating act against the handicapped in America today. What actions will be taken in the future for access for handicap? Concern was expressed that citizens with disabilities are discriminated against. Closure of roads limits older peoples ability to use lands set-aside as "public use."

Response: The current facilities which are fully accessible include the Refuge office, the new Refuge visitor and education center, and the Lombard Ferry Trail. An additional interpretative trail and outdoor rest room is proposed in the CCP. Both would be fully accessible. In the CCP, the Refuge staff also proposes to work with local community members to explore the potential development of special recreational opportunities for people with disabilities (i.e. special hunts, fishing events, etc.) and provide public use plans which will incorporate the needs of people with disabilities. Refuge staff consulted with the National Center on Accessibility while developing road alternatives to ensure all proposals were consistent with the Americans with Disabilities Act guidelines.

The Refuge recognizes the needs of people with disabilities, but cannot provide opportunities for every user group in all locations. The proposed road plan provides reasonable access to Refuge resources and activities for people with disabilities. However, it does represent a change from accessing all the same locations by road that people may be used to. National wildlife refuge lands are set-aside to provide for the needs of "wildlife first" and where compatible, provide for public recreational uses. Seedskaadee provides for a variety of recreational uses but recognizes the need to manage uses to maintain quality habitat for wildlife and provide for a quality visitor experience. The Refuge is seeking to find a balance between the needs of wildlife and demands from different recreational users. The roads that will be closed as a result of this Plan will close access to some areas for visitors who are dependent on vehicles for traveling. However, these same activities can still be done on the Refuge, albeit in different locations. For all roads to remain open to allow access for persons with disabilities is not practical or compatible with Refuge resource objectives. Over 49 miles of roads will remain open in the CCP road plan.

Recreation

Camping

Comment: An individual commented that it was not fair to close all traditional camping sites along the river from below Fontenelle to the city of Green River. The result of eliminating campground sites on the Refuge has resulted in undue resource stress and competition in the existing livestock water access lanes or on adjacent BLM lands. The overall ecosystem involving lands outside of the Refuge is being adversely affected by this action.

Response: Camping is only restricted on Refuge lands which begin 7 miles south of Fontenelle Dam and extend 37 miles to the southern tip of Big Island. Three developed campgrounds are located between Fontenelle Dam and the north Refuge boundary. Primitive camping is permitted on all BLM lands surrounding the Refuge. Camping is not permitted within livestock water access lanes (water gaps) on the Refuge. The Service will continue to monitor water access lanes and improve signing to reduce conflicts between user groups. The Refuge has not been approached by the BLM regarding the increased impacts to the surrounding BLM landscape as a result of the Refuge prohibition of camping. If adverse impacts have been documented by the BLM, then future monitoring and communication by both agencies is encouraged to reduce future impacts.

Comment: A comment was received that camping is no longer allowed, something which has been enjoyed for generations - the commentor would like us to rethink the camping policy.

Response: See below response regarding the national policy on determining appropriate uses on Refuges.

Comment: A request was made for the Refuge to reconsider having a campground or a boat-in campsite on the Refuge using a permit or pilot fee system. Camping on surrounding BLM lands is not practical because it is not accessible or convenient for the users. Because the Refuge is so long, the visitor cannot fully enjoy the fishing and wildlife opportunities without being rushed to be out of the areas by night time. An argument could be made that people floating the river are observing wildlife and/or fishing and these activities are wildlife-dependent. Impact analysis should consider what effects encouraging camping on BLM and private land will have to these lands.

Response: National Policy provides Refuge Managers with procedures for determining when uses other than the six priority wildlife-dependent recreational uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation) are appropriate or not appropriate on a unit of the National Wildlife Refuge System. Service policy requires a screening process or "appropriate use" test, which is a decision process refuge managers use to systematically decide which uses are appropriate on a Refuge. Some recreational activities, while enjoyable and wholesome, are not dependent on the presence of fish and wildlife, nor dependent on the expectation of encountering fish and wildlife. Camping is a use which is enjoyable but not dependent on the presence of fish and wildlife. Camping is an activity which is often disruptive or harmful to fish, wildlife or plants, and may interfere with the use and enjoyment of a refuge by others engaged in wildlife-dependent recreation. In addition, camping is a use which would require additional budget and staff to administer; would not be easy to control, is not consistent with refuge goals and objectives, and is a use which can be accommodated on other nearby public lands. Camping is more appropriately conducted within designated BLM campgrounds located just north of the Refuge or on adjacent BLM lands, which are lands not specifically dedicated for wildlife conservation. For additional justification see Appendix D of the CCP - Compatibility Determinations.

The Refuge currently manages one fee program. This requires extensive staff time to administer. Another fee program is not feasible and not desirable for permitting a use which is not considered appropriate or compatible with the purpose, mission, or goals of the Refuge. Camping on BLM lands surrounding the Refuge may or may not be convenient or assessable depending on the visitor. The proximity of the Refuge to camp sites and lodging facilities provides visitors with easy and reasonable day trips to the Refuge. A day float on the Refuge is considered a compatible use on the Refuge because it facilitates several wildlife-dependent uses such as fishing and wildlife observation. A visitor to the Refuge does not have to float the river to enjoy wildlife, hunt, and/or fish. However, floating the River provides a visitor with a different type of fishing, hunting, or observation experience. A visitor does not have to float consecutive days and camp on the Refuge to enjoy fishing, hunting, or wildlife observation opportunities. The Refuge recognizes that camping may increase on BLM lands in the future as a result of increased visitation to the Refuge and the Green River area. If additional impacts occur on BLM lands as a result of future demands, the Refuge and BLM should work together to reduce such impacts.

Fishing

Comment: A comment was made that fishing was much better historically.

Response: The Wyoming Game and Fish (WYG&F) is the agency responsible for managing the fisheries in coordination with the Refuge. Concerns about the Green River fisheries should be directed to the WYG&F. The Refuge has worked in cooperation with the WYG&F to improve the fisheries via in-stream improvements, stocking programs, and changes in regulations. Unpublished data (WYG&F) from anglers and electro-shocking indicates that fishing has improved over the past 10 to 15 years.

Commercial River Guide Permits

Comment: To not allow a river guide to transfer his/her permit or to obtain any more than a one-year "special use permit" seems unfair. How might this restriction on outfitting affect adjacent property values? Why are commercial outfitters restricted on use and not the general public?

Response: The Refuge has drafted a "Commercial Outfitting For Sport Fishing Plan" which outlines the rationale for the current restrictions. The legal restrictions regarding transfer of permits is a nationwide policy. The issuance of a one-year permit is to facilitate Refuge regulation and control of activities by commercial outfitters. Many citizens would like to see all commercial river permits denied while others would like to see more permits issued. The number of outfitters currently permitted by the Refuge is based on a variety of factors including impacts to wildlife and habitat, demand for non-commercial (guided) fishing, and fishery habitat and populations. Most importantly, Refuge staff must evaluate the impacts of all fishing and other recreational uses on wildlife and habitat to ensure Refuge objectives are met. The Green River is a narrow corridor which provides tremendous wildlife habitat and recreational opportunities. Excessive use of the River by unlimited users could easily diminish the wildlife values and the recreational experience. The Refuge is not aware that restrictions on commercial outfitting would negatively affect adjacent landowner property values. Based on land values along the Upper Green River; the protection of the fishery and wildlife resources would likely increase land values.

Hunting

Comment: Concern was expressed about the potential for closing the waterfowl season on the Refuge on December 1 if other practical alternatives could not be implemented.

Response: The intent of the Refuge is to eventually provide an area of very low disturbance for wintering wildlife. The preferred method of achieving this objective would be to evaluate the existing closed area system and make changes to this system to better accommodate the needs of wintering wildlife. The Refuge has the authority to restrict the species of wildlife hunted on the Refuge and to modify season dates. Closing the waterfowl hunt season on December 1 would only partially meet the Refuge's objective to provide a low disturbance area because other recreational users, besides duck hunters, also create disturbance. The mention of the early season closure was to make the public aware that this is a plausible action if no other alternative is feasible. The potential modification of the current Refuge closed area system may be a better solution and is the preferred direction the Service would seek to meet Refuge objectives.

Comment: To reduce disturbance to wintering trumpeter swans, it was suggested that the Refuge educate hunters and provide buffer areas around swans.

Response: The Service currently requests visitors to maintain a distance of > 400 yards from trumpeter swans to reduce disturbance. This voluntary request is written in Refuge brochures. The effectiveness of this voluntary distance restriction is questionable based on observations by Refuge officers and staff. The Refuge staff has also posted signs throughout the Refuge informing visitors that trumpeter swans occur on the Refuge. The CCP calls for the Service to provide additional informational signs to increase public awareness, knowledge, and appreciation for this species. Providing additional signs and information may help facilitate the protection of this species.

Comment: A comment was made that hunters are not the only users that disturb swans.

Response: The Service agrees. However, waterfowl hunters are likely the primary disturbance factor during the late winter months when fishing and wildlife viewing pressures diminish.

Comment: Proposing additional restrictions on hunting and fishing are unjustifiable. The principal impetus of the restrictions is to eliminate disturbance to wintering swans. Neither the EA nor the CCP provide a biological foundation to justify the need for expanded restrictions. The objective for the wintering swans (20 to 40 swans) on the Refuge has been achieved and sustained, and does not require additional restrictions. Commentor supports the concept of moving the closed areas around.

Response: This comment was in reference to the CCP's proposal to explore the modification of the current closed area system to accommodate the needs of wintering wildlife. The future creation of a new closed area in lieu of the existing closed area as proposed in the CCP is to better accommodate the needs of all wintering wildlife. Trumpeter swans would be just one of the benefactors, along with numerous other water birds, raptors, and other species. The current closed area system does not include any River habitat which is the primary habitat used by wintering birds when backwater wetlands are drained and frozen. The Service has gathered preliminary data which indicates that disturbance is very high for birds on the River between October 1 to January 15 (duck hunt season/fishing). General observations from local hunters and Refuge staff also indicate that hunting and fishing pressure are increasing on the Refuge. This is somewhat corroborated by the recent Wyoming Game and Fish publication "Wildlife in Crisis" that says "between 1995-1999 non-resident fish licences increased 64 percent and between 1996-1999 non-resident small game licences increased 63 percent." Seedskaadee's proximity to Utah and Colorado has made it a destination location for many out-of-state anglers and hunters. Changes in the existing closed area system may improve hunting opportunities if existing areas are opened to hunting and the new closed zones (which would include river areas) entice more birds to remain in the area throughout the winter hunt period. The future establishment of a new closed area system would also better meet the needs of wintering wildlife. The objective of wintering 20 to 40 trumpeter swans was established on the Refuge's historical winter count data. The actual number of wintering swans which may be sustained has not been determined and the Refuge may be able to support more swans than the stated objective. Future monitoring and research are required to determine the desirable wintering carrying capacity for swans and waterfowl. In the interim, the current swan use levels of 20 to 40 were selected because the Refuge has been able to sustain these populations over the past 4 years. Currently, the Service is not necessarily discussing further use restrictions, but rather a modification to existing restrictions to improve conditions for wintering wildlife and recreationists. These future changes are proposed based on preliminary disturbance data and the increase in winter recreational activities.

Comment: Concern was expressed that the restrictions for hunting grouse, snipe, rail, and dove proposed in alternative 3 are in direct conflict with Congressional direction regarding the National Wildlife Refuge System Improvement Act (NWRISA).

Response: The NWRISA supports hunting where compatible with the purpose of the Refuge and mission of the Service. The Act does not say that all hunting opportunities will be supported on all Refuges. The Service supports hunting of abundant species which are important to the local hunting public or assist in management of Refuge resources (habitats and populations). Hunting of mule deer, moose, antelope, and waterfowl are important towards meeting population and habitat management objectives either locally or nationally. Populations of all these big game species are abundant and can sustain current hunting pressures. Cottontail rabbit hunting is a popular local pursuit which is sustainable. Cottontail rabbits are not a species in decline. Hunting of racoon, skunk, and fox has been conducted as a means to reduce predators which negatively impact numerous other species. These species are also very abundant. Alternative 3 suggested the elimination of hunting for snipe, rail, dove, and sage grouse because hunting of these species is not necessary to manage Refuge habitats or maintain certain desired population levels. Hunting of these species is currently allowed to provide recreational hunting. Hunting of sage grouse continues to be a popular sport, but current concerns over declining populations and decreasing habitat make the closure of a sage grouse season very justifiable on a national wildlife refuge. Sage grouse are a species of concern for the Federal Government and State. The same argument can be made for mourning dove hunting. Mourning dove populations are in decline. The take of these species is not necessary to improve habitats or to manage populations. The population status of snipe and rail are basically unknown locally, and little information is available nationally. Identification of these species is different and there is concern other marsh birds may be harvested by accident. There are no local biological data which support why the Refuge should permit take of these species. Refuge Officers have contacted zero snipe or rail hunters on the Refuge in the past 3 years. Eliminating hunting of grouse, snipe, rail, and dove on the Refuge would, therefore, not have a negative impact on local hunting opportunities. Opportunities for hunting grouse, snipe, rail, and dove would still be available on surrounding public lands. Many refuges do not permit the take of these species.

Comment: Native wildlife and their habitats should take precedent over recreational opportunities. Therefore, hunting of waterfowl should be completely eliminated.

Response: Hunting is recognized as one of the priority public uses on national wildlife refuges when it is found to be compatible with the purpose(s) of the Refuge. The National Wildlife Refuge System Improvement Act of 1997 directs the Service to consider hunting as a priority public use if that use is compatible with the purpose of the Refuge. The Service has determined that the hunting of waterfowl, big game, and some upland game species is compatible with the purposes of the Refuge and Refuge System. Continental waterfowl populations are generally healthy and can sustain a certain level of recreational hunting. The Service recognizes that hunting of waterfowl on Seedskadee NWR provides an important recreational opportunity for many local waterfowl hunters. Future hunting and recreational use plans will strive to provide adequate protection within the Refuge to provide for the needs of waterfowl and still provide quality hunting opportunities.

Comment: The EA does not specifically address prairie dog shooting. The EA must specifically state that no prairie dog shooting will be allowed in Seedskadee NWR (SNWR).

Response: The EA states which species are currently open for hunting. It is not necessary to list all species which are closed to hunting. Prairie dog hunting is not allowed on SNWR and the CCP does not propose to change hunting with regards to this species.

Priority Public Uses

Comment: The Congressional finding that “hunting, fishing, and other priority wildlife-dependent uses are generally compatible uses of national wildlife refuges” was not acknowledged in the document.

Response: On pages 13 and 84 of the draft CCP these uses are fully acknowledged. Some additional text was added on page 84 of the draft.

Comment: A request was made for the Service to acknowledge Congressional direction for the National Wildlife Refuge System Improvement Act (NWRISA), which found that hunting, fishing, and other priority, wildlife-dependent uses are generally compatible uses of the national wildlife refuges.

Response: The NWRISA indicates these uses have been found to be appropriate uses of Refuges and shall receive priority consideration in Refuge planning and management. These six appropriate uses will be allowed on any Refuge where they are found to be compatible with the purpose and mission of the Refuge and Refuge System.

Public Use Figures

Comment: Public use figures are not statistically verifiable; how were numbers derived? The CCP stated that only 36.3 percent of all visitors are anglers - gross underestimate. Future numbers must be based on sound scientific methodology. Many visitors partake in more than one activity - how is it accounted for?

Response: The Service agrees that the numbers reflected in the Public Use estimates may be inaccurate. Data was gathered from historical annual narrative reports and recent numbers were derived from general observations and local use trends. There is no "scientific method" currently used to estimate numbers. The Service has improved its public use reporting forms to try and account for visitors which partake in multiple activities but the "science" is still being developed. In the near future, the Service would like to install traffic counters and other monitoring devices to provide a more accurate reflection of public use. The comments received regarding public use figures were very helpful and will be considered when deriving future public use estimates.

Public Facilities

Comment: A suggestion was made to provide rest rooms at the Highway 28 Lombard Site, at all boat ramps, and possibly other key locations.

Comment: Why provide a toilet at Upper Dodge Bottoms versus Lombard Ferry? A toilet should be installed at the Lombard Ferry Site because of the interpretative area and proximity to Highway 28. Suggest a single vault toilet.

Response: The Service will consider the installation of a rest room at the Highway 28 Lombard Site because of its proximity to Highway 28. This site is one of the most frequently visited sites on the Refuge. The number of rest rooms on the Refuge will remain limited to reduce maintenance needs and to maintain the primitive nature of the area. Additional signing and brochure information will direct visitors to indoor facilities and may request that visitors utilize indoor facilities or practice the "leave-no-trace" philosophy.

Cultural Resources

Comment: Concern was expressed because the plan did not mention all the cultural resource sites which would be protected or restored. What are the plans for the Big Island Bridge and does the Refuge own the bridge?

Response: The Refuge plans to develop a step-down management plan which would detail the location of historical sites on the Refuge and what future protection and restoration measures would be taken to preserve these features. The primary emphasis for all sites on the Refuge is to protect structures from fire and vandalism. Additional measures may involve interpretation of sites, stabilization, general protection, or restoration. The Refuge will continue to partner with interested parties to protect and restore important cultural resources. The Big Island Bridge and the associated right-of-way are owned by the Refuge. The immediate future plans are to maintain the structure and stabilize the walkway by repairing broken boards. The bridge is closed to vehicle traffic but open to pedestrian traffic.

Water Jurisdiction

Comment: Concern was expressed about the Service's ability to regulate all uses upon the surface waters of the Green River; believe this is in conflict with State Water Law. There was disagreement with the Service's interpretation regarding its authority to regulate public uses upon the waters of the Green River. Authority to regulate boating, floating, hunting, or fishing on the waters of the Green River properly rests with the State. The case laws referenced (in the CCP) have not been applied in Wyoming. Issues regarding jurisdiction on national wildlife refuges are currently before the U.S. 10th Circuit Court.

Comment: What authority do we have to restrict the number of users and access on and near the River?

Response: There are many uses by the public of the Green River within the boundaries of Seedskaadee National Wildlife Refuge. These include boating, floating, hunting, fishing, wildlife observation, and others. The actual and potential impacts from these activities on Refuge lands can have major ramifications on the Fish and Wildlife Service's ability to manage Refuge lands as Congress directs. We stand by our previous statements in the CCP on Refuge River Jurisdiction. Future court decisions may help further clarify this complex issue. However, we again wish to emphasize that the Refuge's first priority is to work with appropriate departments within the State of Wyoming to meet Refuge management goals and objectives.

Comment: Concern was expressed that the Service would "establish with USBR" a "prescriptive flow regime for the Green River through the Refuge." All water uses within the Refuge must be consistent with and accomplished under Wyoming Water Law and valid permits for the Seedskaadee Project.

Response: The Service has funded several riparian and riverine studies which indicate that developing a prescriptive flow regime on the Green River may greatly enhance habitat for wildlife and fish. The Service will continue to explore this concept as additional data is gathered and will eventually conduct future meetings to discuss concepts with regulatory agencies and interested parties. The Service recognizes that any future proposals would need approval and support from Wyoming State Engineer's office, Bureau of Reclamation, Wyoming Game and Fish and other vested interest groups.

Comment: The discussion of the area's history does not mention use of the Green River for transportation of furs and goods by canoe, raft, barge, or other conveyances, or for floating timber and ties. Such commerce and transportation have relevance to the actual navigability of the River and should be discussed.

Response: Historically, the Green River was almost undoubtedly used for the transportation of a variety of goods that may have included items such as furs and timbers. Any reference material pertinent to this issue that readers can share with the Refuge would be a welcome addition to the Refuge's library and historic files. In all practicality, this type of historic commerce would be a reflection of past navigability of the Green River. In the legal sense, the Supreme Court of Wyoming concluded in a 1961 decision (Platte River Boating Supreme Court Decision) that there are no navigable water bodies in the State.

CCP Planning

Comment: All of the Service's policies for implementing the National Wildlife Refuge System Improvement Act (NWRISIA) have not been adopted in final form. These policies will serve as the principal guidance for CCP's and other Refuge management activities. There was a question whether the Seedskadee CCP should be released for public review prior to the completion and adoption of these policies.

Response: The National Wildlife Refuge System Improvement Act (NWRISIA) states that the "Secretary shall prepare a CCP within 15 years after the date of enactment of the NWRISIA of 1997. Upon completion of a CCP for a refuge, the Secretary shall manage the refuge in a manner consistent with the plan and shall revise the plan at any time if the Secretary determines that conditions that affect the refuge or planning unit have changed significantly." The recently developed CCP does not conflict with current draft policies. If future policy changes occur, the CCP would be amended to reflect those changes. The most important policy has been completed, which is the CCP Planning Policy. Within the CCP Planning Policy it specifically states that the Service will use the best available information to complete the CCP document at the time it is produced.

Comment: Concern was expressed that the CCP review period was too short.

Response: The Refuge Planning Policy (Fish and Wildlife Service Manual Part 602 Chapters 1, 3, and 4) requires a minimum of a 30-day review period for the public draft CCP. If an extension of the review time were requested the Service would have extended the review period. An extension of time was not requested and therefore the period of review remained at 30-days. Thirty days is the standard review period provided for most CCP's.

Wilderness Designation

Comment: There was a question if any sections of the Refuge could be designated as Wilderness because the River is hydrologically altered, the Refuge is very narrow, and there are many visual impacts due to roads and oil and gas wells.

Response: An area of Wilderness is defined to mean an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which; 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 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition and 4) may also contain ecological, geological or other features of scientific, educational, scenic, or historical value (16 U.S.C. 1131). The Service must complete an evaluation to make a final determination. There are tracts which may be suitable, despite recent impacts.

Wild & Scenic River Designation

Comment: A comment was received that the Green River running through the Refuge had already been evaluated for potential designation as a Wild & Scenic River in the Green River Resource Area Management Plan (GRRAMP) (BLM 1996).

Response: The GRRAMP only evaluated sections of the Green River for which the BLM had jurisdiction (2.85 miles total). The section evaluated by the BLM was determined as eligible, but was not considered suitable, for designation because of the lack of their jurisdiction. The GRRAMP indicated the BLM would be willing to participate in future cooperative studies with the BOR, USFWS, and other landowners to determine the eligibility and suitability of the Green River (Green River Area Management Plan Volume 2 of 2 1996 pg. 568-69).

Funding

Comment: It is unclear how future funding tables in section 5.1 will support management strategies like browse transects and funding for big game flights.

Response: Projects within Table 5.1 which support a seasonal biological technician and a full-time ecologist would facilitate collection of browse transect data and provide staff to direct the Refuge biological monitoring programs. Aerial flight funds could be provided from writing grants or from base funding. Additional funding may also be available from the Refuge Operations Needs (RONS) program (Table 5.2). The RONS projects database is constantly changing and is upgraded annually to reflect the most recent needs of the Refuge.

Enabling Legislation

Comment: In defining the purpose of Seedskadee NWR, the CCP cites a provision of the Colorado River Storage Project Act (CRSPA), which authorizes acquisition of facilities to mitigate losses of wildlife. It should be clarified whether there is a specific connection between the purpose of Seedskadee NWR and habitats that were impacted by Fontenelle Reservoir, or whether the Refuge was created to generically mitigate habitat impacted within the Colorado River Basin?

Response: Public Law 85-797 from August 28, 1958, specifically authorized the Secretary of the Interior to acquire lands for the U.S. in the Seedskadee Reclamation Project. The CRSPA specifically authorized the Seedskadee Project which was considered a “participating Project.” Section 8 of the CRSPA (1956) states: “In connection with the development of the Colorado River Storage project and of the participating projects, the Secretary is authorized and directed to investigate, plan, construct, operate, and maintain: 1) public recreational facilities on lands withdrawn or acquired for the development of said project or of said participating projects, to conserve the scenery, the natural, historic, and archaeological objects, and the wildlife on said lands, and to provide for public use and enjoyment of the same and of the water areas created by these projects by such means as are consistent with primary purposes of said projects; and 2) facilities to mitigate losses of, and improve conditions for, the propagation of fish and wildlife.” The Seedskadee Project Definite Plan Report 1959 - Page 9 states: “The Seedskadee project will provide for the storage and regulation of the flows of the Green River and use of the water for irrigation, fish and wildlife, and recreational purposes The remaining 32,000 acre-feet of the project water supply will be provided for the potential Seedskadee National Wildlife Refuge that will be developed and operated by the Fish and Wildlife Service for the benefit of wildlife. Recreational facilities and measures for the preservation of fish also will be provided in connection with the project Features of the Seedskadee project will include the Fontenelle Dam and Reservoir along with basic recreational facilities on the Green River, the Seedskadee National Wildlife Refuge,”

The purpose of Seedskadee Refuge is directly linked to Fontenelle Reservoir as the Reservoir and the Refuge were both established as a result of the Seedskadee Project. Based on conversations with the BOR, Seedskadee NWR was also to be mitigation for other projects associated with the CRSPA, which included Flaming Gorge Reservoir.

Refuge Purpose

Comment: What was the original purpose of the Refuge - waterfowl?

Response: The purpose of the Refuge has not changed since it was established in 1965 and was defined by the enabling legislation (see Refuge Purpose Section). The early master plan for the Refuge (1967) had a greater emphasis on the development of wetlands throughout the Refuge which was dependent on the full development of the Seedskadee Irrigation Project. The Seedskadee Irrigation Project was never completed because it was not economically or logistically feasible to implement, and subsequently, the early Refuge Management Plan (1967) was not fully implemented. For example, the Dry Creek Upland unit was originally supposed to receive irrigation return water, transforming the habitat from upland to wetland. This project was never completed because the Seedskadee irrigation project was never completed. The management of the Refuge has always focused on protection of habitat types for native species, including upland and wetland species. There have been changes to habitat management programs on the Refuge because of changes in the Seedskadee Project and also because of Congressional modifications in Refuge legislation, which guide management for all Refuges. This legislation has directed Refuges to evaluate habitats relative to local, regional, and national landscape needs. Healthy riparian and wetland habitats have become rare in Wyoming and their protection is now a priority. Quality upland sagebrush steppe habitat is also a unique habitat which is beginning to show signs of trouble. The current habitat objectives focus on preserving, restoring, and enhancing the Green River riparian corridor and associated uplands as habitat for migratory birds and other indigenous wildlife. Existing wetland habitats will be maintained and enhanced in the future, benefitting waterfowl and a variety of other wetland-dependent species.

List of Public Comments - Draft CCP Seedskadee: December 2001

Written

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Defenders of Wildlife, Washington, D.C - Q
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