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	Huntable 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
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 reseeding 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	Fish and 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 cartilagineous 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 and 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.

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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, A1.3, A2.1, A2.4, A2.5, B2.1, B.2.2, B.2.3	Improve water level management to enhance wetland impoundments.		$49,000		
00002	C1.1, C 1.2, 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 Interpretative 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, B2, B3, B4, C1, C2, C3, C4, C5	Replace 1980 auto car tractor truck	$140,000
00002	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace deteriorating 1991 chevy 3/4-ton pick up truck	$40,000
00003	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace over-used 1991 4x4 Chevy extended cab truck	$40,000
00004	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace worn-out 1981 International 6-yard dump truck	$120,000
00005	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace deteriorated 4x2 Dodge pick up truck	$40,000
00006	A1.3, A2.1, B1.1, C1.1, C2.1, C3.1	Replace worn-out John Deere 850 tractor, crawler	$230,000
00007	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace 1981 John Deere 550 tractor crawler (dozer)	$150,000
00008	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, 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' blade	$200,000
00010	A1.3, 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	A1.3, 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, B2, B3, B4, C1, C2, C3, C4, C5	Replace 6 hand held radios	$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, B2, B3, B4, C1, C2, C3, C4, C5	Replace worn-out all terrain vehicles (ATVs)	$18,000
01001	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace 4x4 Chevy Blazer	$38,000
01002	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace 4x4 Chevy Suburban	$45,000
01003	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace Dodge Ram 4x4 V8-3800 Magnum Fire Truck	$65,000
01004	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace 1999 4x4 Silverado Pickup Truck	$40,000
01005	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace 1999 4x4 Silverado Pickup Truck	$40,000

01006	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace 1999 4x4 Chevy Extended Cab Pickup with Portable Fuel Tank	$45,000
01007	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace 1999 4x4 Ford SUP Chassis 162 Super Duty Maintenance Truck - Diesel	$50,000
01008	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, C5	Replace 2000 12 cubic yard Dump Truck	$118,000
01009	A1, A2, B1, B2, B3, B4, C1, C2, C3, C4, 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 (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: ". . . 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 project in order to ". . . conserve the scenery, the natural, historic, and archaeologic 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 . . . 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."

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 Seedskadee 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 Seedskadee 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 Seedskadee 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 Seedskadee 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 Seedskadee 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 Seedskadee 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 Seedskadee 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 Seedskadee 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 Seedskadee 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

Seedskadee 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 are minimal (estimate less then 50 hunters). 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 with 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.

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 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 will benefit ground-nesting species such as waterfowl, geese, swans, grouse, cranes, etc. 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 Seedskadee 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 Seedskadee 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 Seedskadee 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 then 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 Seedskadee 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 Seedskadee NWR.
- Herders will immediately exit Seedskadee NWR after watering sheep.
- Herders will keep sheep moving across Seedskadee 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 Seedskadee 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 Seedskadee 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 then 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 Seedskadee 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 Seedskadee 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.

Signatures:

_____

Project Leader Date

Concurrence:

_____

Regional Chief, NWRS Date

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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 Sta. 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, bay, 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 Sta. 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(16U.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)-e).

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	*Buteo jamaicensis*
Ferruginous Hawk	*Buteo regalis*
Rough-legged Hawk	*Buteo lagopus*
Golden Eagle	*Aquila chrysaetos*
Falcons and Caracaras	
American Kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Peregrine Falcon	*Falco peregrinus*
Prairie Falcon	*Falco mexicanus*
Gallinaceous Birds	
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	*Columba livia*	Introduced
Mourning Dove	*Zenaida macroura*	

Cuckoos and Anis

Yellow-billed Cuckoo	*Coccyzus americanus*

Typical Owls

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

Nightjars

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

Swifts

White-throated Swift	*Aeronautes saxatalis*

Hummingbirds

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

Kingfishers

Belted Kingfisher	*Ceryle alcyon*

Woodpeckers

Lewis' Woodpecker	*Melanerpes lewis*
Red-headed Woodpecker	*Melanerpes erythrocephalus*
Yellow-bellied Sapsucker	*Sphyrapicus varius*
Red-naped Sapsucker	*Sphyrapicus nuchalis*
Downy Woodpecker	*Picoides pubescens*
Hairy Woodpecker	*Picoides villosus*
Northern Flicker	*Colaptes auratus*

Tyrant Flycatchers

Olive-sided Flycatcher	*Contopus cooperi*
Western Wood-Pewee	*Contopus sordidulus*
Willow Flycatcher	*Empidonax traillii*
Least Flycatcher	*Empidonax minimus*
Hammond's Flycatcher	*Empidonax hammondii*
Gray Flycatcher	*Empidonax wrightii*
Dusky Flycatcher	*Empidonax oberholseri*
Cordilleran Flycatcher	*Empidonax occidentalis*
Say's Phoebe	*Sayornis saya*
Western Kingbird	*Tyrannus verticalis*
Eastern Kingbird	*Tyrannus tyrannus*

Shrikes

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

Vireos

Plumbeous Vireo	*Vireo plumbeus*
Warbling Vireo	*Vireo gilvus*
Red-eyed Vireo	*Vireo olivaceus*

Crows, Jays, and Magpies

Blue Jay	*Cyanocitta cristata*
Clark's Nutcracker	*Nucifraga columbiana*
Black-billed Magpie	*Pica hudsonia*
American Crow	*Corvus brachyrhynchos*
Common Raven	*Corvus corax*

Larks

Horned Lark	*Eremophila alpestris*

Swallows

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

Titmice and Chickadees

Black-capped Chickadee	*Poecile atricapilla*
Mountain Chickadee	*Poecile gambeli*

Nuthatches

Red-breasted Nuthatch	*Sitta canadensis*
White-breasted Nuthatch	*Sitta carolinensis*

Creepers

Brown Creeper	*Certhia americana*

Wrens

Rock Wren	*Salpinctes obsoletus*
Bewick's Wren	*Thryomanes bewickii*
House Wren	*Troglodytes aedon*
Marsh Wren	*Cistothorus palustris*

Kinglets

Ruby-crowned Kinglet	*Regulus calendula*

Old World Warblers

Blue-gray Gnatcatcher	*Polioptila caerulea*

Thrushes

Mountain Bluebird	*Sialia currucoides*
Townsend's Solitaire	*Myadestes townsendi*
Veery	*Catharus fuscescens*
Swainson's Thrush	*Catharus ustulatus*
Hermit Thrush	*Catharus guttatus*
American Robin	*Turdus migratorius*

Mimic Thrushes

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

Starlings
- European Starling — *Sturnus vulgaris*

Wagtails and Pipits
- American (Water) Pipit — *Anthus rubescens*

Waxwings
- Bohemian Waxwing — *Bombycilla garrulus*
- Cedar Waxwing — *Bombycilla cedrorum*

Wood Warblers
- Tennessee Warbler — *Vermivora peregrina*
- Orange-crowned Warbler — *Vermivora celata*
- Nashville Warbler — *Vermivora ruficapilla*
- Virginia's Warbler — *Vermivora virginiae*
- Yellow Warbler — *Dendroica petechia*
- Chestnut-sided Warbler — *Dendroica pensylvanica*
- Magnolia Warbler — *Dendroica magnolia*
- Yellow-rumped Warbler — *Dendroica coronata*
- Pine Warbler — *Dendroica pinus*
- American Redstart — *Setophaga ruticilla*
- Northern Waterthrush — *Seiurus noveboracensis*
- MacGillivray's Warbler — *Oporornis tolmiei*
- Common Yellowthroat — *Geothlypis trichas*
- Wilson's Warbler — *Wilsonia pusilla*
- Yellow-breasted Chat — *Icteria virens*

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 — *Surnella 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	*Lemmiscus 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	*Lyns 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	*Eumeces multivirgatus*
Northern Sagebrush Lizard	*Sceloporus graciosus*
Northern Plateau Lizard	*Sceloporus undulatus*
Eastern Short-Horned Lizard	*Phrynosoma douglassi*
Eastern Yellowbelly Racer	*Coluber constrictor*
Great Basin Gopher Snake	*Pituophis melanoleucas*
Wandering Garter Snake	*Thamnophis elegans*
Western Plains Garter Snake	*Thamnophis radix subspeci. haydenies*

Amphibians

Tiger Salamander	*Ambystoma tigrinum*
Great Basin Spadefoot	*Scaphiopus intermontanus*
Northern Leopard Frog	*Rana pipiens*
Boreal Chorus Frog	*Pseudacris triseriata*

Fish

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

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

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

SCIENTIFIC NAME	COMMON NAME	FAMILY	TYPE
TREES			
*Populus angustifolia James.	Narrowleaf cottonwood	SALICACEAE	NP
SHRUBS			
*Artemisia frigida Willd.	Fringed sagebrush	ASTERACEAE	NP
*Artemisia nova A. Nels.	Black sagebrush	ASTERACEAE	NP
*Artemisia spinescens Eaton	Bud sagebrush	ASTERACEAE	NP
*Artemisia tridentata Nutt.	Big Sagebrush	ASTERACEAE	NP
*Atriplex confertifolia (Torrey & Frem.) Wats.	Shadscale	CHENOPODIACEAE	NP
*Atriplex gardneri (Moq.) Dietr.	Gardner saltbush (former Nuttall)	CHENOPODIACEAE	NP
Betula occidentalis Hook.	Water birch	BETULACEAE	NP
Chrysothamnus linifolius Greene	Green/Douglas rabbitbrush	ASTERACEAE	NP
*Chrysothamnus nauseosus (Pallas ex Pursh) Britt.	Gray/Rubber rabbitbrush	ASTERACEAE	NP
*Cornus sericea L. (former = C. stolonifera)	Red-osier dogwood	CORNACEAE	NP
*Elaeagnus commutata Bernh. Ex Rydb.	Silverberry/wolf willow	ELAEAGNACEAE	?
Elaeagnus angustifolia L.	Russian olive	ELAEACEACEAE	IP
Eriogonum brevicaule Nutt.	Umbrella plant	POLYGONACEAE	??
*Grayia spinosa (Hook.) Moq.	Spiny hop-sage	CHENOPODIACEAE	NP
Gutierrezia sarothrae (Pursh) Britt. & Rusby	Snakeweed	ASTERACEAE	NP
*Leptodactylon pungens (Torrey) Nutt.	Granite prickly gilia	POLEMONIACEAE	NP
Lycium barbarum L.	Matrimony vine	SOLANACEAE	IP
Opuntia Spp?	Prickly pear cactus	CACTACEAE	NP
*Pediocactus simpsonii (Engelm.) Britt. & Rose	Pincushion cactus	CACTACEAE	NP
*Rhus trilobata Nutt.	Skunkbush/fragrant sumac	ANACARDIACEAE	NP
*Ribes aureum Pursh	Wax currant, golden currant	GROSSULARIACEAE	NP
[1]*Ribes oxyacanthoides L. var. setosum Lindl. Dorn	Missouri/Redshoot gooseberry	GROSSULARIACEAE	NP
*Rosa woodsii Lindl.	Woods' rose	ROSACEAE	NP
*Salix bebbiana Sarg.	Bebb willow	SALICACEAE	NP
*Salix exigua Nutt.	Coyote willow	SALICACEAE	NP
Salix lasiandra Benth. var. caudate (Nutt.) Sudw.	Whiplash willow	SALICACEAE	NP
*Sarcobatus vermiculatus (Hook.) Torr.	Black greasewood	CHENOPODIACEAE	NP
*Sheperdia argentea (Pursh) Nutt.	Silver buffaloberry	ELAEAGNACEAE	NP
Tamarix ramosissima Ledeb.	Salt cedar	TAMARICACEAE	IP
*Tetradymia canescens DC.	Gray horsebrush	ASTERACEAE	NP
*Tetradymia spinosa H.&A.	Cottonthorn horsebrush	ASTERACEAE	NP
FORBS			
Abronia fragrans Nutt.ex Hook.	Snowball sand verbena	NYCTAGINACEAE	?
[2]Abronia micrantha Torrey	Sandpuffs	NYCTAGINACEAE	?A
* Acroptilon repens L. = Centaurea repens (L.) De Candolle	Russian knapweed	ASTERACEAE	IP
Agoseris glauca (Pursh) Raf.	Pale agoseris	ASTERACEAE	?P
*Allium textile Nels. & Macbr.	Wild onion	LILIACEAE	NP

Antennaria parvifolia Nutt.	Littleleaf pussytoes	ASTERACEAE	?P
*Arabis holboellii Hornem.	Holboell rockcress	BRASSICACEAE	?B-P
*Arenaria hookeri Nutt.	Hooker sandwort	CARYOPHYLLACEAE	?
*Artemisia dracunculus L.	Tarragon sagewort	ASTERACEAE	NP
*Artemisia ludoviciana Nutt.	Louisiana wormwood/sagewort	ASTERACEAE	NP
*Asclepias speciosa Torrey	Showy milkweed	ASCLEPIADACEAE	NP
[3]*Aster chilensis Nees refer to A. ascendens Lindl.	Pacific aster	ASTERACEAE	?
*Astragalus agrestis Dougl.ex G. Don	Purple/Field milkvetch	FABIACEAE	?P
*Astragalus argophyllus Nutt.	Silver-leafed Milkvetch	FABIACEAE	?P
*Astragalus canadensis L.	Canada/Short-toothed milkvetch	FABIACEAE	?P
*Astragalus chamaeleuce Gray	Milkvetch	FABIACEAE	?P
[4]*Astragalus convallarius Greene (diversifolius, Dorn) Lesser	Rushy milkvetch/Timber poisonvetch	FABIACEAE	?P
*Astragalus geyeri Gray	Geyer's Milkvetch	FABIACEAE	?P
*Astragalus pubentissimus T&G.	Green River milkvetch	FABIACEAE	?P
*Astragalus purshii Dougl. Ex. Hook.	Wooly pod milkvetch/Purshes locoweed	FABIACEAE	?P
*Astragalus spatulatus Sheld.	Draba/Tufted milkvetch	FABIACEAE	?P
*Astragalus tenellus Pursh.	Loose flower milkvetch	FABIACEAE	?P
*Calochortus nuttallii T&G	Nuttall's mariposa lily	LILIACEAE	NP
Camissonia minor (A. Nels.) Raven	Evening primrose family	ONAGRACEAE	?
*Camissonia scapoidea (T.&G.) Raven	Naked stemmed evening primrose	ONAGRACEAE	?
Cardaria draba (L.) Desv.	Hoary cress	BRASSICACEAE	IP
*Cardaria pubescens (Meyer) Jarmol.	Longstalk whitetop	BRASSICACEAE	IP
*Carduus nutans L.	Musk thistle	ASTERACEAE	IA-B
*Castilleja augustifolia (Nutt.) G. Don (former chromosa A. Nels.)	Desert paintbrush	SCROPHULARIACEAE	NP
*Centaurea muculosa Lam.	Spotted knapweed	ASTERACEAE	IB-P
*Chenopodium glaucum L.	Oakleaf goosefoot	CHENOPODIACEAE	?A
Chenopodium leptophyllum (Moq.) Nutt. ex Wats.	Slimleaf goosefoot	CHENOPODIACEAE	?A
*Cicuta maculata (in Dorn) [old? Douglasii (DC.) Coult. & Rose]	Water hemlock	APIACEAE	NP
Cirsium arvense (L.) Scop.	Canada thistle	ASTERACEAE	IP
[5]*Cirsium foliosum (Hook.) DC. [C. scariosum Nutt.]	Elk thistle	ASTERACEAE	NP
*Cirsium vulgare (Savi) Tenore	Bull thistle	ASTERACEAE	IB
*Cleome lutea Hook.	Yellow beeplant	CAPPARACEAE	NA
Comandra sp. [C. umellata (L.)??]	Bastard Toadflax	SANTALACEAE	??
Convolvulus arvensis L.	Field bindweed	CONVOLVULACEAE	IP
*Cordylanthus ramosus Nutt. Ex Benth.	Bushy birdbeak	SCROPHULARIACEAE	??
*Crepis runcinata (James) T.&G.	Dandelion hawksbeard	ASTERACEAE	?P
*Cryptantha flavoculata (A. Nels.) Payson	Roughseed cryptantha	BORAGINACEAE	NB-P
*Cryptantha sericea (Gray) Payson	Cryptantha	BORAGINACEAE	NB-P
*Cymopterus acaulis (Pursh) Raf.	Biscuit root	APIACEAE	NP
*Cymopterus longipes Wats.	Biscuit root	APIACEAE	NP
*Descurainia pinnata (Walt.) Britt	Pinnate tansy-mustard	BRASSICACEAE	NA
*Descurainia sophia (L.)Webb ex Prantl	Flixweed tansy-mustard	BRASSICACEAE	IA
*Erigeron glabellus Nutt.	Smooth fleabane	ASTERACEAE	??

*Erigeron pumilus Nutt. Low fleabane ASTERACEAE ??

*Eriogonum cernuum Nutt. Nodding eriogonum POLYGONACEAE ?A-B

*Eriogonum ovalifolium Nutt. Cushion eriogonum POLYGONACEAE ??

Euphorbia brachycera Engelm. var. robusta (Engelm.) Dorn Rocky Mountain spurge EUPHORBIACEAE ?P

Euphorbia glyptosperma Engelm. Ridgeseed spurge EUPHORBIACEAE ?A

*Gaura coccinea Nutt. ex Pursh Scarlet gaura ONAGRACEAE NP

*Gilia leptomeriaGray Gilia POLEMONIACEAE NA

Glaux maritima L. Sea-milkwort PRIMULACEAE ??

*Glycyrrhiza lepidota Pursh American licorice FABACEAE NP

*Grindelia squarrosa (Pursh) Dunal Curlycup gumweed ASTERACEAE NB-P

Gypsophila paniculata L. Babysbreath CARYOPHYLLACEAE IP

*Halimolobos virgata (Nutt.) Schulz Halimolobos BRASSICACEAE ??

*Halogeton glomeratus (Bieb.) Meyer Common halogeton CHENOPODIACEAE IA

*Haplopappus acaulis (Nutt.) Gray Stemless goldenweed ASTERACEAE ?P

*Haplopappus lanceolatus (Hook.) T.&G. Lanceleaf goldenweed ASTERACEAE ?P

[6]*Haplopappus nuttallii T. & G. [Former Machaeranthera grindelioides Nutt. Shinners] Nuttall goldenweed ASTERACEAE ??

*Helenium autumnale L. Common sneezeweed ASTERACEAE ?P

*Hippuris vulgaris L. Common marestail HIPPURIDACEAE NP

*Hymenopappus filifolius Hook. Fineleaf hymenopappus ASTERACEAE ?P

*Hyoscyamus niger L. Black henbane SOLANACEAE IA-B

[7]*Ipomopsis congesta (Hook.) Grant [former = Gilia congesta Hook.] Common ball-head gilia POLEMONIACEAE ??

*Iris missouriensis Nutt. Rocky Mountain iris IRIDACEAE NP

*Iva axillaries Pursh Poverty weed ASTERACEAE NP

Kochia scoparia (L.) Schrad. Kochia CHENOPODIACEAE IA

Lactuca serriola L. Prickly lettuce ASTERACEAE ?NA-B

Lappula occidentalis (S. Wats.) Greene Western sticktight BORAGINACEAE NA

*Lepidium latifolium L. Tall whitetop, pepperweed BRASSICACEAE IP

Lepidium perfoliatum L. Clasping pepperweed BRASSICACEAE IA

*Lepodactylon pungens (Torr.) Nutt. Lepodactylon POLEMONIACEAE ??

*Lesquerella alpina (Nutt.) Wats. Bladderpod BRASSICACEAE ??

*Lesquerella ludoviciana (Nutt.) Wats. Bladderpod BRASSICACEAE ??

*Lithospermum incisum Lehm. Narrow-leaf gromwell BORAGINACEAE NP

[8]*Lupinus argenteus Pursh. [= L. caudatus} Silvery lupine FABIACEAE NP

*Lupinus pusillus Pursh. Rusty lupine FABIACEAE NA

*Lygodesmia grandiflora (Nutt.) T.& G. Skeletonweed ASTERACEAE ?P

*Machaeranthera canescens (Pursh) Gray Purple aster ASTERACEAE ?P

[9]*Maianthemum stellatum (L.) Link Starry solomon plume LILIACEAE N?

*Malcolmia africana (L.) R.Br. Malcolmia BRASSICACEAE ?A

*Medicago sativa L. Alfalfa FABIACEAE IP

*Melilotus albus Medic. White sweet-clover FABACEAE IA-B

*Melilotus officinalis (L.) Pallas Yellow sweet-clover FABACEAE IA-B

*Mentha arvensis L. Field mint LAMIACEAE NP

*Mirabilis linearis (Pursh) Heimerl	Narrowleaf umbrella wort	NYTAGINACEAE	?P
Monolepis nuttalliana (Schultes) Greene	Poverty-weed	CHENOPODIACEAE	NA
*Nama densum Lemmon	Leafy/Matted nama	HYDROPHYLLACEAE	?A
*Oenothera caespitosa Nutt.	Tufted evening primrose	ONAGRACEAE	N?
[10]*Oenothera hookeri T. & G.??	Hooker evening primrose	ONAGRACEAE	N?
[11]*Oenothera pallida Lindl.	Hairycalyx evening primrose	ONAGRACEAE	N?
Oenothera villosa Thunb.	Evening-primrose	ONAGRACEAE	NB
*Orobanche fasciculate Nutt.	Tufted broomrape	OROBANCHACEAE	N?
*Oxytropis deflexa (Pallas) DC.	Drop-pod locoweed	FABIACEAE	NP
*Oxytropis riparia Litv.	River oxytrope	FABIACEAE	NP
*Oxytropis sericea Nutt. ex T. & G.	Silky crazyweed	FABIACEAE	NP
*Penstemon arenicola A. Nels.	Sand penstemon; beardtongue	SCROPHULARIACEAE	NP
Penstemon eriantherus Pursh	Crested penstemon	SCROPHULARIACEAE	NP
*Penstemon fremontii T. & G. ex Gray	Fremont penstemon	SCROPHULARIACEAE	NP
*Phlox hoodii Richardson	Hood's phlox	POLEMONIACEAE	NP
*Physaria acutifolia Rydb.	Twinpod/Bladderpod	BRASSICACEAE	NP
*Physostegia parviflora Nutt. Ex Gray	False dragonhead	LAMIACEAE	??
*Plantago eriopoda Torr.	Saline/Redwood plaintain	PLANTAGINACEAE	NP
*Plantago major L.	Broadleaf plantain	PLANTAGINACEAE	IP
*Polygonum aviculare L.	Prostrate knotweed	POLYGONACEAE	IA
*Potentilla anserina L.	Common silverweed	ROSACEAE	NP
*Potentilla hippiana Lehm.	Wooly potentilla	ROSACEAE	NP
[12]*Psoralidium lanceolatum (Pursh) Rydb	Lemon scurf pea	FABIACEAE	?P
*Ranunculus cymbalaria Pursh	Marsh/Seaside buttercup	RANUNCULACEAE	NP
Rorippa curvipes Greene	Cress	BRASSICACEAE	??
*Rorippa sinuate (Nutt.) A.S. Hitch.	Spreading yellow cress	BRASSICACEAE	??
*Rumex crispus L.	Curly dock	POLYGONACEAE	NP
*Rumex hymenosepalus Torrey	Dock	POLYGONACEAE	??
*Rumex maritimus L. [var. fueginus (Phil) Dusen]	Dock	POLYGONACEAE	??
*Salicornia rubra A. Nels.	Rocky Mountain glasswort	CHENOPODIACEAE	
[13]Salsola iberica Sennen	Russian thistle	CHENOPODIACEAE	IA
[14]*Schoenocrambe linifolia (Nutt.) Greene	Plains/Basin mustard	BRASSICACEAE	?P
*Senecio hydrophilus Nutt.	Groundsel	ASTERACEAE	NP
*Sisyrinchium spp.	Blue-eyed grass	IRIDACEAE	NP
*Solanum rostratum Dun.	Buffalobur	SOLANACEAE	NA
*Solidago missouriensis Nutt.	Missouri goldenrod	ASTERACEAE	NP
*Sonchus arvensis L.ssp. uliginosus (Bieb.) Nyman	Marsh sow-thistle	ASTERACEAE	IP
*Sonchus asper L. Hill	Spiny sowthistle	ASTERACEAE	IA
*Sphaeralcea coccinea (Nutt.) Rydb.	Scarlet globemallow	MALVACEAE	NP
*Sphaeromeria argentea Nutt.	False sagebrush	ASTERACEAE	?P
*Sphaerophysa salsula (Pall.) DC.	Swainsonpea	FABIACEAE	IP
*Taraxacum officinale Weber in Wiggers	Common dandelion	ASTERACEAE	IP
*Tiquilia nuttallii(Hook.) Richardson	Tiquilia	BORAGINACEAE	?A

*Townsendia incana Nutt. Hoary townsendia ASTERACEAE ??

*Trifolium andinum Nutt. Nuttal clover FABACEAE ??

Triglochin maritimum L. var. elatum (Nutt) Gray Maritime arrowgrass JUNCAGINACEAE NP

*Typha latifolia L. Common cattail TYPHACEAE NP

Valeriana edulis Nutt. ex T. & G. Edible valeriana VALERIANACEAE ?P

Verbena bracteata Lag. & Rodr. Prostrate vervain VERBENACEAE ?A-P

*Veronica anagallis-aquatica L. Water Speedwell SCROPHULARIACEAE ??

Vicia americana American vetch FABACEAE ?P

*Xanthium strumarium L. Common cocklebur ASTERACEAE NA

FERN ALLIES

*Equisetum laevigatum A. Br. Smooth scouringrush/horsetail EQUISETACEAE NP

GRASSES

*Agropyron cristatum (L.) Gaertn. Crested wheatgrass POACEAE IP

*Agropyron spicatum (Pursh) Scribn. & Sm.= Elymus spicatus (Pursh) Gould Bluebunch wheatgrass POACEAE NP

*Agropyron trachycaulum x Hordeum jubatum hybrid

*Agrostis stolonifera L. Redtop, Bentgrass POACEAE IP

Alopecurus aequalis Sobol. Shortawn foxtail POACEAE NP

Alopecurus arundinaceus Poiret Creeping foxtail (Garrison is a cultivar) POACEAE IP

*Alopecurus pratensis L. Meadow foxtail POACEAE IP

*Beckmannia syzigachne (Steudel) Fern. American sloughgrass POACEAE NA

*Bromus inermis Leyss. Smooth brome POACEAE IP

Bromus tectorum L. Cheatgrass brome POACEAE IA

[15]*Calamagrostis stricta (Timm) Koeler Northern reedgrass POACEAE NP

*Deschampsia cespitosa (L.) Beauv. Tufted hairgrass POACEAE NP

*Distichlis spicata (L.) Greene Inland saltgrass POACEAE NP

*Elymus cinereus Scribn. & Merr. Great Basin wildrye POACEAE NP

* Elymus hispidus (Opiz) Melderis = Agropyron intermedium (Host.)Beauv. Intermediate wheatgrass POACEAE IP

*Elymus repens (L.) Gould =Agropyron repens (L.) Beauv. Quackgrass POACEAE IP

Elymus smithii (Rydb.) Gould= Agropyron smithii Rydb. Western wheatgrass POACEAE NP

[16]E lymus trachycaulus (Link) Gould ex Shinners var. andinus (Scribn. & Sm.) Dorn = Agropyron subsecundum.
Bearded wheatgrass POACEAE ?P

Elymus trachycaulus (Link) Gould ex Shinners var. trachycaulus = Agropyron trachycaulum (Link) Malte
Slender wheatgrass POACEAE ?P

*Festuca pratensis Huds. = F. elatior L. Meadow fescue POACEAE IP

*Hilaria jamesii (Torr.) Benth Galleta POACEAE ??

*Hordeum jubatum L. Foxtail barley POACEAE NP

Muhlenbergia asperifolia (Nees & Mey. Ex Trin) Parodi Scratchgrass POACEAE NP

*Muhlenbergia richardsonis (Trin.) Rydb. Mat Muhly POACEAE NP

*Oryzopsis hymenoides (R. & S.) Riker ex Piper Indian ricegrass POACEAE NP

Phalaris arundinacea L. Reed canarygrass POACEAE IP

Phleum pratense L. Timothy POACEAE IP

Phragmites australis (Cav.) Trin. Ex Steudel Common Reed POACEAE IP

Poa juncifolia Scribn. Alkali bluegrass POACEAE NP

Poa nevadensis Vasey ex Scribn.	Nevada bluegrass	POACEAE	NP
Poa pratensis L.	Kentucky bluegrass	POACEAE	IP
*Sitanion hystrix (Nutt.) J.G. Smith	Bottlebrush squirreltail	POACEAE	
*Spartina gracilis Trin.	Alkali cordgrass	POACEAE	
*Sporobolus airoides (Torrey) Torrey	Alkali sacaton	POACEAE	NP
*Stipa comata Trin. & Rupr.	Needle and thread grass	POACEAE	NP
SEDGES			
*Carex douglasii Boott	Douglas sedge	CYPERACEAE	
*Carex lanuginose Michx.	Wooly sedge	CYPERACEAE	
*Carex nebrascensis Dewey	Nebraska sedge	CYPERACEAE	
*Carex praegracilis Boott	Silver sedge	CYPERACEAE	
*Carex rostrata Stokes	Beaked sedge	CYPERACEAE	
*Carex simulata Mack.	Short-beaked sedge	CYPERACEAE	
*Eleocharis palustris (L.) R.&S.	Common spikerush	CYPERACEAE	NP
*Scirpus acutus Muhl. ex Bigelow	Tule bulrush	CYPERACEAE	NP
*Scirpus pungens Vahl.	Common threesquare	CYPERACEAE	NP
RUSHES			
Juncus balticus Willd.	Wiregrass	JUNCACEAE	NP

WEED SPECIMENS IN HERBARIUM – NOT FOUNDON REFUGE (YET)

*Euphorbia esula L.	Leafy spurge	EUPHORBIACEAE	IP
*Centaurea solstitialis L.	Yellow starthistle	ASTERACEAE	IP
*Hypericum perforatum L.	St. John's-wort	HYPERICACEAE	IP
*Lythrum salicaria	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 oxyacanthoides L. var. setosum Lindl. Dorn Missouri/Redshoot gooseberry
Ribes setosum specimen in herbarium. Dorn lists Ribes oxyacanthoides L. var. setosum Lindl. Dorn.

[2]Abronia micrantha Torrey Sandpuffs
Tripterocalyx micranthus listed in "Plants of Seedskadee 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 –
Specimum 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. trichocalyz Nutt. ex T. & G.)

[12]* Psoralidium lanceolatum (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.]

[16]E 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 Michauz 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 plaintain 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 canium L. ssp. Majis (Vasey) C. L. Hichc.

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List was complied 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 shrubb 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
  Stan McKee, 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
  Bernie Weingardt , 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 and Wildlife Service
  Dr. Ruth Shea Pocatello, ID; Lee Carlson, Golden, CO; Mike Long, Cheyenne, WY; Shannon Heath, Helena, MT; Salt Lake City, UT; Lander, WY; Pocatello, ID; 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 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
  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

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
- 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
- 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

Businesses

- Bear West Consulting, Salt Lake City, UT
- 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
- Great Outdoor Shop, Rex Poulson, Pinedale, WY
- Great Divide Flyfishers, Steve Hayes, Rawlins, WY
- Highland Desert Flies, Bennie Johnson, Green River, WY
- 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, Bill Birmingham, Green River, WY

Organizations

- Animal Protection Inst., Chris Tapouchis, Sacramento, CA
- Association of Flyfishers, Larry Watson, Bozeman, MT
- Audubon Council of Wyoming, Cheyenne, WY
- Audubon Society, Gretchen Muller, Washington, D.C.
- Big Sandy Group, Rock Springs, WY
- Central Wyoming Outfitters Assoc, Chris Peterson, Casper, WY
- Creative Fishing Adventures, Manila, UT
- 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, Lander, 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, David Neary and Ben Pierce, Lander, WY; 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, Sundance, WY
- Wyoming Native Plant Society, Phillip White, Laramie, WY
- Wyoming Trout Unlimited, Donald Lilley, Green River, 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
- Wyoming Woolgrowers Assoc, Casper, WY

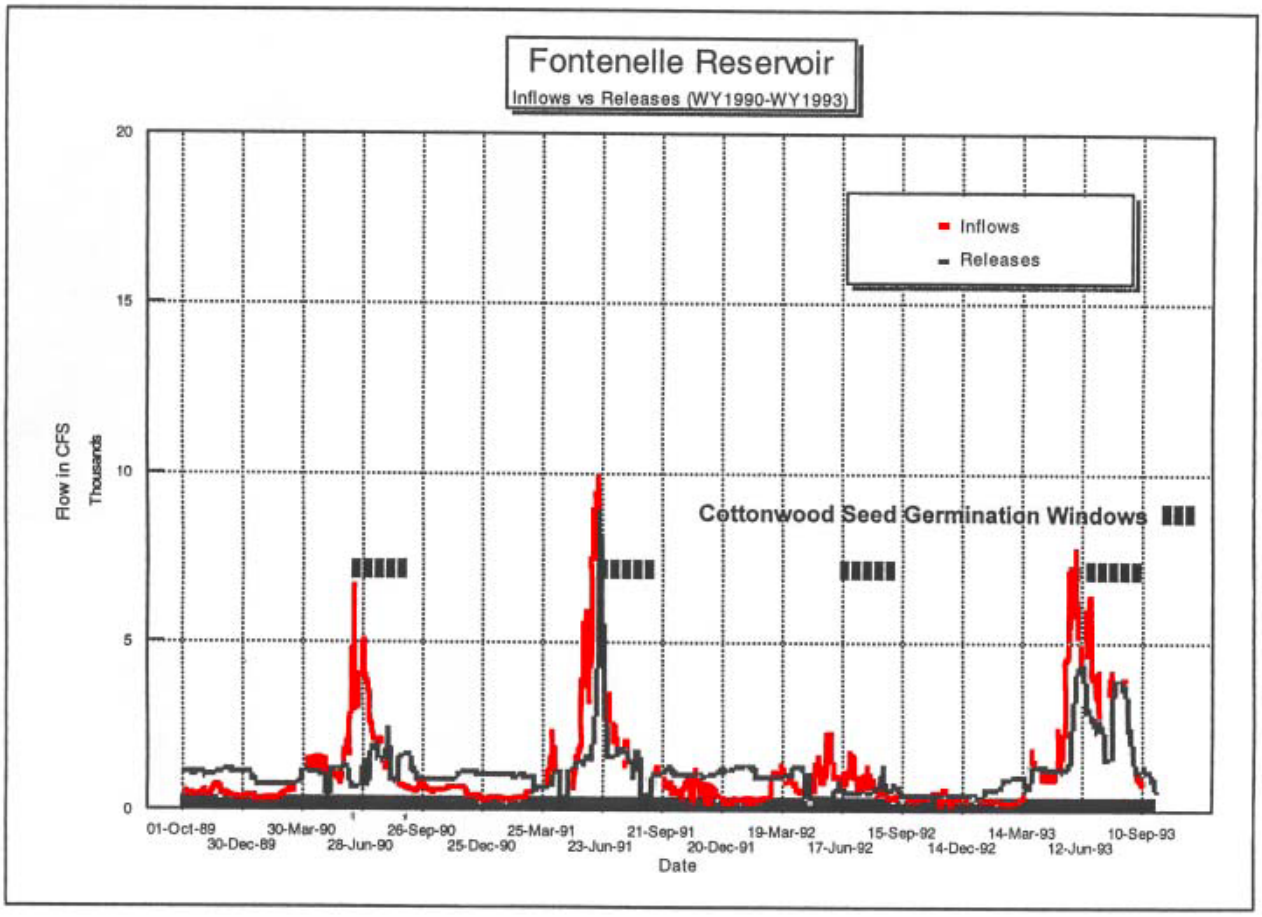
Schools/Universities

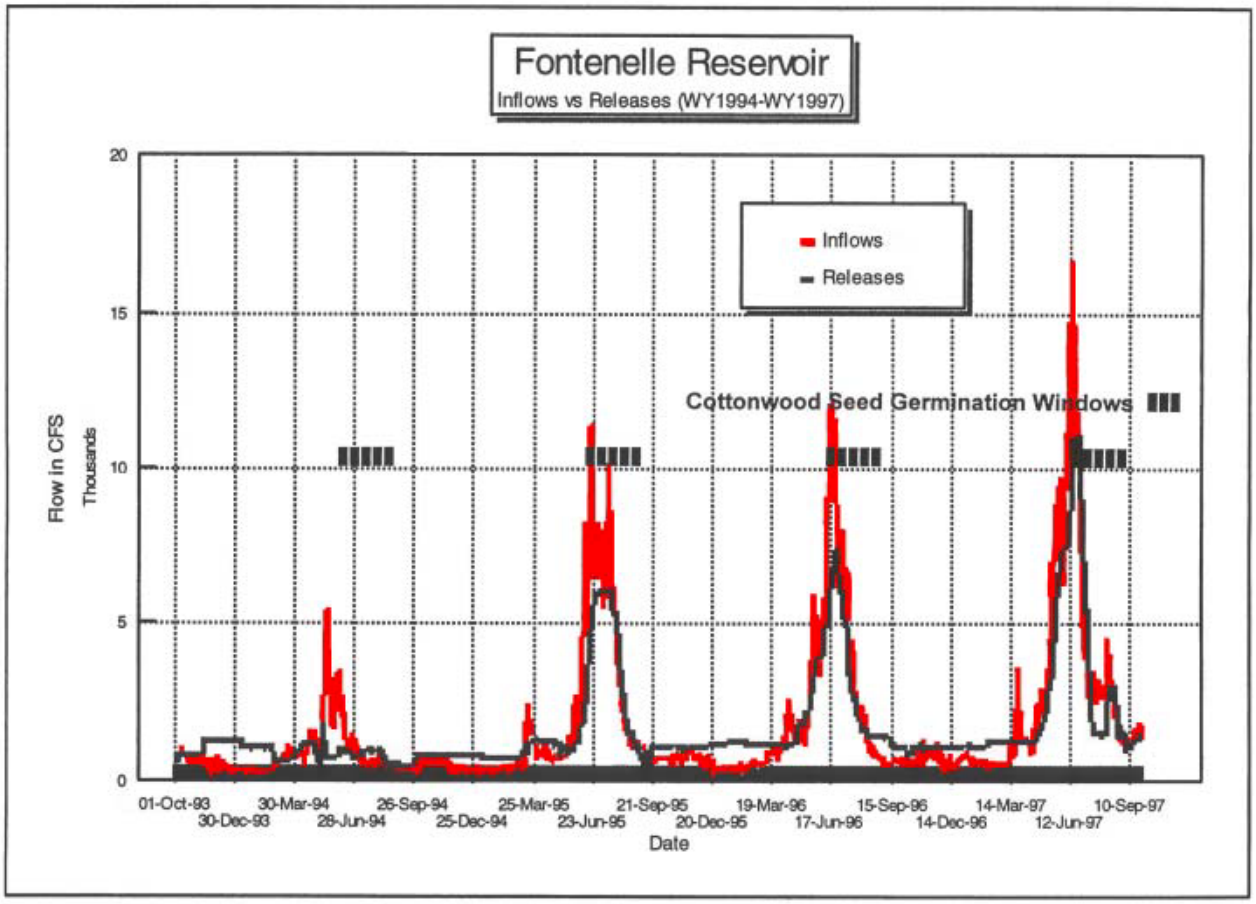
- Northwestern University, Prof. Paul Friesema, Evanston, IL
- Western WY Community College, Green River, WY
- Western WY Community College, Rock Springs, WY
- Colorado State University, Dept. of Fishery and Wildlife Biology, Ken Wilson, Ft. Collins, CO
- Utah State University, Rich Etchberger, Vernal,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

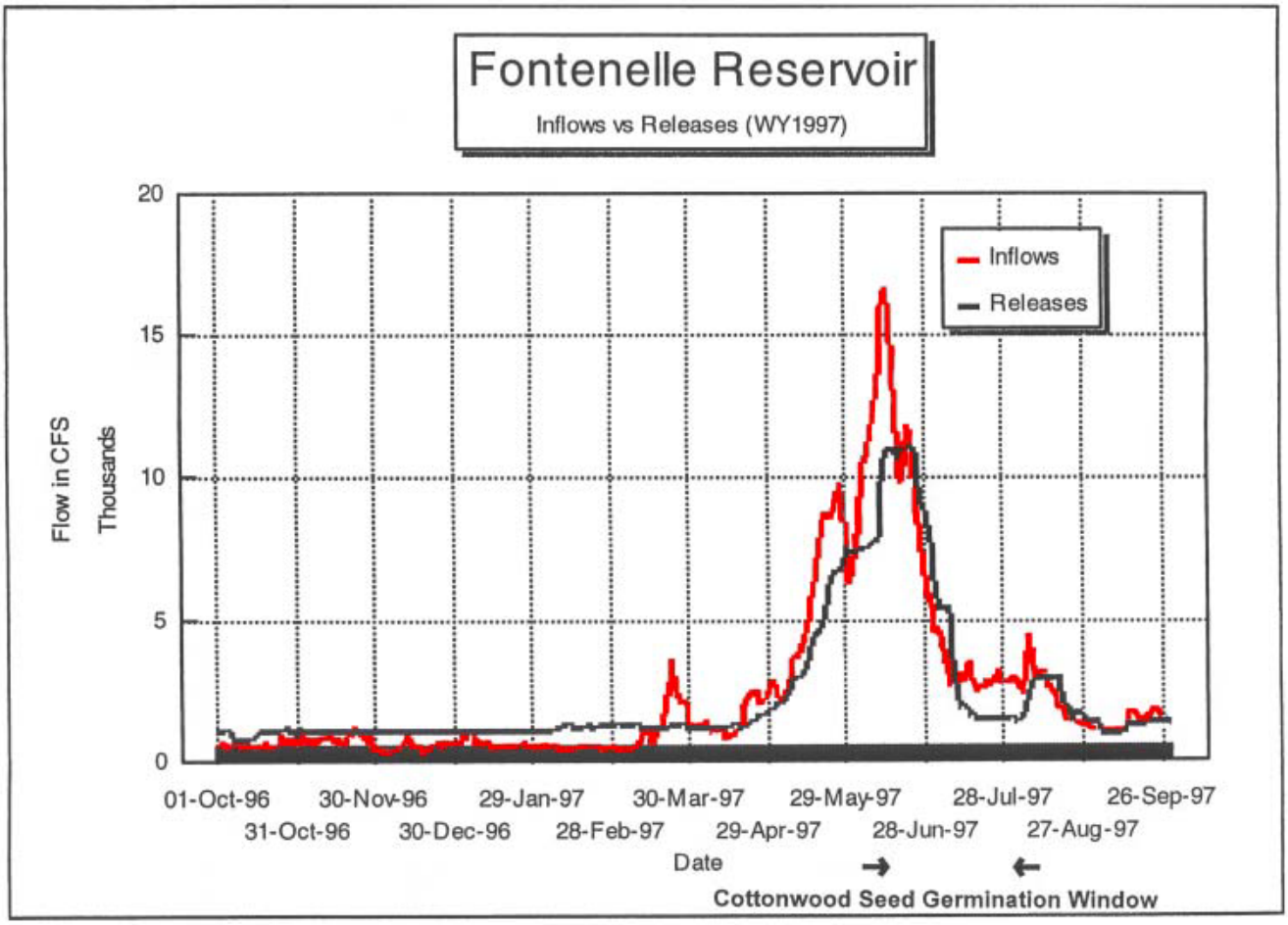
Individuals

Bob Barwick
Mary Beery
Eric Berg
Dale Blakley
Ed Boese
Jim Brady
Tom Brehim
Tim Buman
Allan Burton
Lamont Clark
Barry Cook
Craig Crompton
Bill Cummings
Terry Dockter
Fred Eales
Mike Ebert
John Faccio
John Freeman
Nick Gillio
Kurt Haeker
Doug Hamel
Chris Harbin
Joseph Harris Sr.
Howard Hart
Jimmy Helmick
John Howard
Carlos Johnsen
Polly Karshner
Dave Kawvlok
John McDonnell
Larry Means
Darrel Melvin
Steve Mines
Robert Moore
Frederick Muller, M.D.
Hal Nash
Patrick Newell
Dan and Kristina Parson
Bruce Peterson
Vance Peterson
Vernon Phinney
Norm Piner
Kevin Quitberg
Ken Reed
Ted Remus
Pat Robbins
David Roose
Maria Ryan
Ed Sabourin
Matt Salitrik
Tara Salitrik
Dan Schmill
Les Skinneer
George Slonebraker
Dr. David Sowada
Dick and Mary Thoman
Brad Thoren
Kathleen Tucker
Bill Weeks
Carl Williams
H. Ray Williams
Bruce Woodward
JoAnn Zakatruk

Appendix H. Hydrographs of Green River






Fontenelle Reservoir
Inflows vs Releases (WY1997)
Inflows
Releases
Flow in CFS
Thousands
20
15
10
5
0
01-Oct-96
31-Oct-96
30-Nov-96
30-Dec-96
29-Jan-97
28-Feb-97
30-Mar-97
29-Apr-97
29-May-97
28-Jun-97
28-Jul-97
27-Aug-97
26-Sep-97
Date
Cottonwood Seed Germination Window

Appendix I. List of Preparers

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

U.S. Fish and Wildlife Service

Refuge Staff

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

Region 6 Regional Office

- Michael Spratt, Chief, Division of Refuge Planning, USFWS, R6
- Ty Berry, former Chief , Technical Services, Refuges and Wildlife, R6
- Jaymee Fojtik, GIS Specialist, Division of Refuge Planning, R6
- Shannon Heath, Outdoor Recreation Planner, EVS, USFWS, 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, USFWS, R6
- Cheryl Williss, Chief, Division of Water Resources, USFWS, 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 Seedskadee 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.

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

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. Section 7

Intra-Service Section 7 Consultation has been initiated with the Cheyenne Field Station and will be completed prior to final approval of the Plan.