BEAR RIVER MIGRATORY BIRD REFUGE

COMPREHENSIVE MANAGEMENT PLAN

Bear River Migratory Bird Refuge
COMPREHENSIVE MANAGEMENT PLAN APPROVAL
U.S. FISH AND WILDLIFE SERVICE, REGION 6

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INTRODUCTION

PLANNING PROCESS

The Bear River Migratory Bird Refuge Comprehensive Management Plan is guided by the established purposes of the Refuge, the goals of the National Wildlife Refuge System, Fish and Wildlife Service compatibility standards, and other Service policies, plans, and laws directly related to refuge management. This plan establishes the vision, goals, objectives, management guidelines and strategies, and monitoring and evaluation for the Refuge.

This plan will be used to prepare step down management plans, performance standards and budgets which describe specific actions to be taken by the Refuge. Management or operational planning will be conducted annually and specific management actions adjusted based on monitoring results, fiscal constraints, and policy changes. The effects of major management actions will be documented to provide information to future managers and managers of other refuges as to the effects of managements actions. The following operational plans will identify the specific actions to be taken to achieve Refuge objectives within the next 15 years: water management, grassland management, hunting, predator management, fire management, integrated pest management, swan management, and fishery management.

Public involvement was obtained through two public meetings and comment periods while writing the Environmental Assessment entitled Restoration and Enhancement of the Refuge. A Hunt Plan EA was written which provided numerous opportunities for written and verbal comments.

DESCRIPTION OF THE AREA

The Refuge was established in 1928 and encompasses most of the valley floor between the Wellsville Range on the east to the Promontory Range on the west. The Refuge is in Box Elder County, Utah on the north end of the Great Salt Lake at the mouth of the Bear River, immediately west of Brigham City (see vicinity map, page 4). The Refuge presently contains 65,000 acres, but land purchases as approved by the 1991 Environmental Assessment are presently underway and will increase the size of the Refuge to 103,200 acres. This increase will consist of 16,891 acres in fee title and 21,309 acres protected under easement agreements. These wetlands will provide excellent waterbird habitat.

The Bear River delta has long been considered one of the most valuable waterbird and wetland areas in the state. Migratory waterfowl, shorebirds, and other waterbirds, as well as resident wildlife depend on the Refuge as a production, feeding, resting/wintering, or staging area. The Refuge serves a vital role in the Bear River delta ecosystem by protecting, developing, and managing over 41,000 acres of wetlands. Various other privately and state-managed marshes surrounding the Refuge further enhance wetland habitats and wildlife values. Habitat quality on the Refuge directly affects wildlife use and production throughout the delta, and vise versa.

Topography is flat, with a gradient fall of approximately one foot per mile to the south. Refuge lands are part of the floor of ancient Lake Bonneville. Maximum natural elevation on the Refuge occurs in the northwest corner where knolls raise to an elevation of about 4,215 feet above sea level. Most of the Refuge is near the 4,202-foot level. Mounds, or knolls are common in the northwest portion of the Refuge.

The climate is typified by moderate spring and fall seasons, short, cold winters, and hot, dry summers. Temperature extremes vary from minus 20° to 103°F. Humidity is generally low.

Annual precipitation at the west end of the Refuge is approximately 12.2 inches, while the average at the eastern end is 19.4 inches. Snowfall is generally light on the Refuge, averaging 35 inches. Winds are moderate with strong gusty winds present during summer thunderstorms. The average growing season is 160 days. Snowfall in the surrounding mountains is the source of the Bear River which provides the water not only for the Refuge but for the agricultural operations in the surrounding valleys.

WILDLIFE

The Refuge and surrounding areas are used by large numbers of shorebirds, ducks, geese, swans, ibis, and numerous other species of birds. It has long been recognized as an area of prime importance to the nation's waterbirds and in 1991 was designated, along with other Great Salt Lake marshes, as a Western Hemispheric Shorebird Reserve.

Burrowing Owl

One endangered species, the peregrine falcon and one threatened species, the bald eagle, use the Refuge. Extremely rare sightings of single whooping cranes (endangered) have occurred during migration, but the Refuge generally does not support suitable habitat for this species. The Refuge may become important for the trumpeter swan, as its range expands in the future.

Two hundred six species of birds regularly visit the Refuge. Sixty-two nest here and another 15 species of accidental or extremely rare occurrence have been recorded. Many mammals common just outside the Refuge are rare in the marshlands habitat, with 31 species using the Refuge. The most prominent mammal species include muskrat, red fox, badger, striped skunk and various rodents. Only five species of reptiles and amphibians have been documented on the Refuge. The fishery associated with the Refuge is warm water with low numbers of game fish.

LEGAL RESPONSIBILITIES

The Refuge was created by Presidential Proclamation, Public Law 304 of the 70th Congress as "a suitable Refuge and feeding, and breeding grounds for migratory wildfowl." The establishment of the Refuge was approved by the State of Utah.

Several Public Land Orders withdrew public lands for inclusion in the Refuge. The orders withdrew these lands from all forms of appropriation under public land laws, including mineral laws. However, mineral leasing laws pertaining to drilling are applicable if known geological resources, such as oil and gas exist.

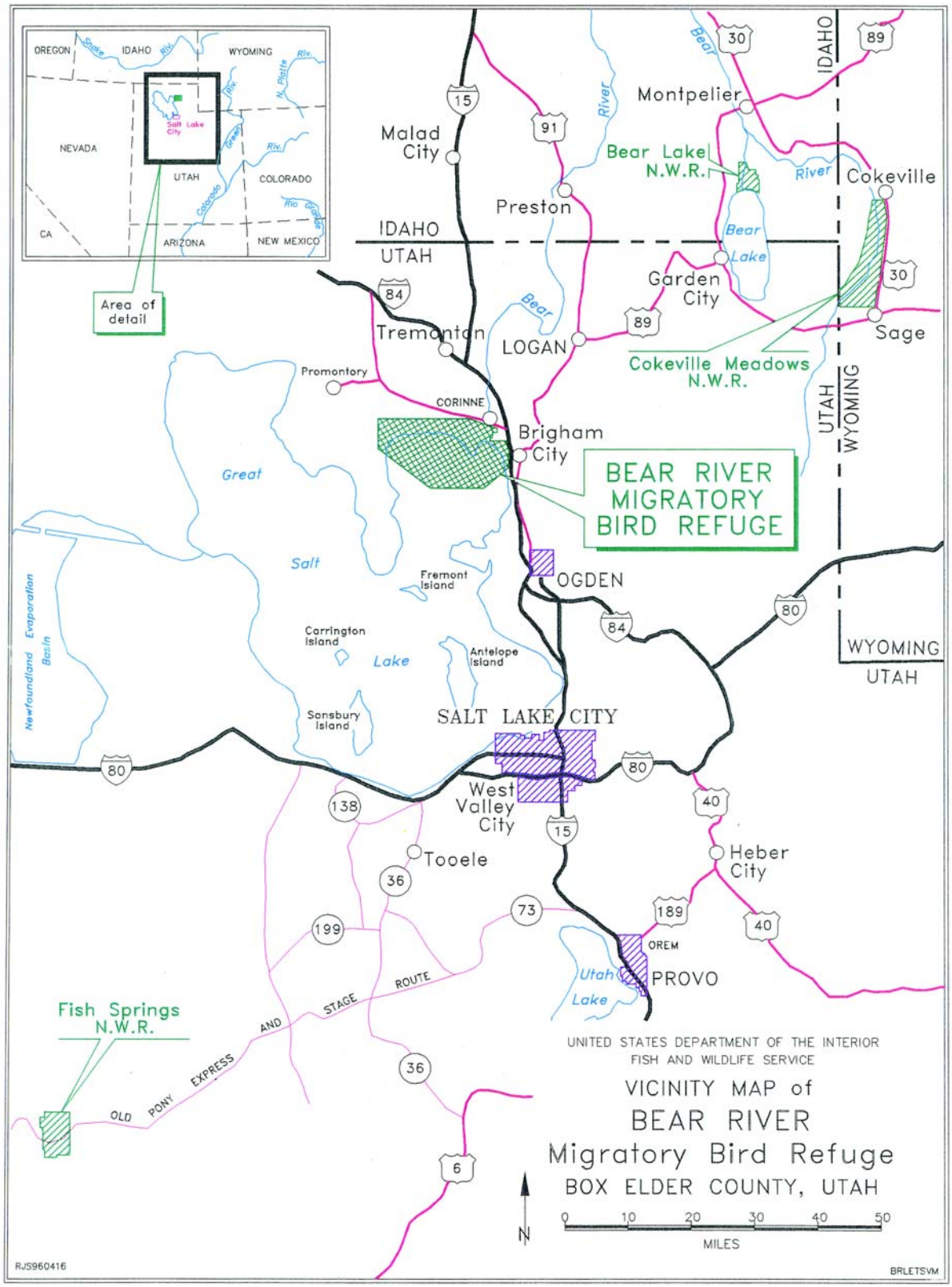
The Refuge is guided by a number of laws, which include the Migratory Bird Treaty Act of 1918, the National Wildlife Refuge System Administration Act of 1966, the Fish and Wildlife Act of 1956, the Endangered Species Act of 1973, the Refuge Recreation Act of 1962, and the National Historic Preservation Act of 1966 (Appendix A).

The Greasewood Knolls Research Natural Area is registered as a saltbrush-greasewood community, and was managed to maintain the area in this condition. Much of the vegetation was destroyed by the flooding of the Great Salt Lake from 1983 through 1987. Therefore the Greasewood Knolls Research Natural Area is being disestablished because it no longer serves the purposes for which it was originally established.

The Utah Division of State History lists 43 archeological sites on the Refuge. Twenty-seven of these sites have been described and five sites have been excavated. The lower Bear River area is listed on the National Register of Historic Places, due to cultural remains.

Use of water and protection of water rights is necessary for all management. Water rights claims for the Bear River are currently being adjudicated by the State of Utah. Refuge claims are being negotiated.

There are outstanding easements for power lines, roads, telephone lines and natural gas pipelines. The Service owns a 150 foot right-of-way for Whistler Canal from the Bear River Silt Land Company. If land purchases are completed the Service will purchase the land upon which this easement is listed. There are no outstanding mineral reservations on any of the Refuge lands.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Promontory
CORINNE
Brigham City
BEAR RIVER MIGRATORY BIRD REFUGE
Great Salt Lake
Fremont Island
Carrington Island
Antelope Island
Sansbury Island
Newfoundland Evaporation Basin
OGDEN
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West Valley City
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VISION, GOALS, OBJECTIVES

Willet

VISION

The Refuge will be a key portion of a healthy Bear River delta, containing a broad diversity of plants and animals. Management programs will be coordinated with other agencies and private landholders in the vicinity and throughout the flyway. The area will serve as an important link in migrations for at least 209 species of birds as well as being a production area for at least 62 species. Habitat diversity will provide a stable, productive and flexible resource.

Wetland habitats will have a legally secure water supply from the Bear River. Summer flows will be augmented through upstream storage or water exchange agreements to provide optimum wetland conditions. Water management facilities make for more efficient use of water, bypassing high flows, maintaining desired food and cover plants, and providing optimum diversity.

Grassland habitats will be healthy and diverse, sustaining a variety of both migratory and resident birds as well as other wildlife.

Research and environmental education opportunities will be provided. A visitor/educational center will assist with interpreting the values of wildlands and wildlife to over 200,000 visitors annually. Opportunities for outstanding aesthetics, hunting, fishing, and other compatible uses will be provided.

GOALS AND OBJECTIVES

Refuge goals and objectives ensure that activities and programs are responsive to Refuge purposes and consistent with the mission and goals of the Refuge System (Appendix B). Wildlife species depend on specific habitats for various functions at specific times of the year (Appendices C and D). Objectives are to provide a spatial and temporal distribution of habitats to maintain feeding, breeding, and resting for all species using the Refuge (Appendix E). These objectives will be accomplished within the 15-year life span of the plan. The exact time of accomplishment will depend on the availability of funds, Service directives, and staff levels.

HABITAT MANAGEMENT GOAL

The primary habitat management goal for the Refuge is to provide the life requirements of native migratory birds. Mammals and non-migratory birds will also benefit from more habitat.

HABITAT MANAGEMENT OBJECTIVES

UPLANDS

Provide 1,700 acres of uplands containing three categories of vegetative structure. The first category is coarse structured vegetation. A mix of tall grasses provide an overstory, while short grasses, sedges, and forbs provide an understory. The second vegetative category is fine structured with a height of 6 to 12 inches. The third vegetative category consists of sparsely vegetated low-growing grasses and forbs interspersed with seasonally flooded mudflats. All three habitat types are interspersed with emergent marsh and open water.

Discussion: Dabbling ducks and ring-necked pheasants benefit from the cover provided by the coarse structured vegetation. The fine structured vegetation will benefit white-faced ibis and a variety of shorebirds. Shorebirds and nesting plovers are the primary beneficiaries of the sparsely vegetated areas. Mice, voles and other small mammals use grasslands and forbs in various stages of succession.

Ringed Neck Pheasant

DRY MUDFLATS

Provide 6,400 acres of bare soil areas with no standing water although small amounts of temporary sheet water may be present after snow melt or rain.

Discussion: These areas provide security from predators for resting birds and desired nesting sites for snowy plovers and other shorebirds. Snowy plovers nest and feed on large expanses of remote, undisturbed mudflats with nearby water areas. Eagles also use these areas for resting.

WET MUDFLATS

Provide 28,800 acres of shallow water areas interspersed with exposed soils. These areas will receive up to 2 inches of surface water during high river flows or heavy precipitation. In addition to bare soils, zones of saltgrass flats and/or salicornia will be found on the mudflats.

Ring-necked Duck

Discussion: Black terns nest on wet mudflats during late June and July in some years. White-faced ibis feed and stage on the mudflats. Waterfowl utilize these areas early in the spring when they receive runoff waters. Salicornia provides a valuable food source in early spring and late fall, and insects are important foods during the warm weather months. Some shorebird nesting occurs. Primary use is by shorebirds as well as migrating and resting waterfowl.

Management will be aimed at maintaining a mix of bare mud and low growing vegetation. Naturally occurring high river flows flood the mudflats during springtime and thus maintain bare mud and sparse vegetation.

WET MEADOWS

Provide 7,700 acres of well vegetated soils consisting of mixed grasses, forbs, sedges and rushes with water flows, up to 1 inch deep, covering the area several times during the growing season.

Discussion: Dense vegetation provides excellent nesting cover for dabbling ducks and raptors. Abundant food is provided by invertebrates, rodents, and vegetative growth. Excellent quality nesting cover is provided from the dense growths of vegetation primarily for dabbling ducks and raptors. Other bird use includes; feeding ibis, shorebirds, and a variety of passerines.

SHALLOW EMERGENT MARSHES

Provide 8,000 acres of marshlands with 4 to 8 inches of standing water throughout the growing season, predominantly containing alkali bulrush.

Discussion: High populations of insects and seed from alkali bulrush provide food. These areas are used predominately by dabbling ducks during migrations and feeding. Long billed shorebirds also make extensive use of the area for feeding.

MID-DEPTH EMERGENT MARSHES

Provide 6,000 acres of marshes covered with 6 to 12 inches of standing water with 50 percent interspersion of emergent vegetation consisting of a mix of alkali bulrush in shallower areas and hardstem bulrush and sago pondweed in the deeper zones.

Discussion: Winter cover is provided for resident birds in thick stands of emergent vegetation. Food supplies for birds include high populations of insects and seed from bulrush. These marshes function as brood habitat for waterfowl, and support a wide variety of waterbirds throughout the year. Waterbirds, grebes, coots, and passerines nest in these marshes. Winter cover is provided for resident birds in thick stands of emergent vegetation.

Horned Grebe

DEEP EMERGENT MARSHES

Provide 1,800 acres of marshes covered with 6 to 24 inches of water predominately vegetated with dense stands of hardstem bulrush interspersed with open water containing sago pondweed.

Discussion: Primary use is by diving ducks, especially redheads, for nesting and brood rearing. Ibis, herons, egrets, and other waterbirds nest here. Winter cover is provided for resident birds in thick stands of emergent vegetation.

Double-crested Cormorant

SHALLOW SUBMERGENT MARSHES

Provide 8,500 acres of marshes covered with 4 to 16 inches of water containing predominately sago pondweed.

Discussion: Huge supplies of sago attract all waterfowl species, swans, pelicans, cormorants, grebes and a wide variety of waterbirds for feeding and resting. These marshes are particularly important during spring and fall migrations for a wide variety of waterfowl and during August for molting pintails.

DEEP SUBMERGENT MARSHES

Provide 3,500 acres of marshes with 18 to 36 inches of water with sago pondweed but little emergent vegetation.

Discussion: Fish populations survive in these marshes since the water is deeper. Species that are most attracted to the increased depth of water include swans, molting geese, diving ducks, cormorants, grebes, and pelicans. Fish also provide an important source of food for wintering bald eagles.

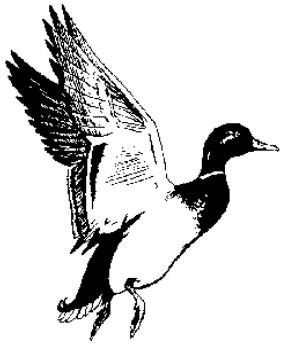
OPEN CHANNELS

Provide 550 acres of meandering natural waterways carved out by flowing water from the Bear River and constructed canals and borrow areas adjacent to dikes.

Discussion: These areas represent a small acreage, yet are used extensively by a variety of birds. The open channels contain running water and remain ice free throughout all or most of the winter months. The abundance of fish and open water attracts wintering bald eagles and other raptors. Throughout the other seasons, fish eating waterbirds such as pelicans frequent these areas. Wintering waterfowl use the open channels exclusively.

PUBLIC USE AND EDUCATION GOAL

Provide opportunities for the public, of all abilities, to observe, appreciate, and understand wildlife and people's role in the environment, compatible with Refuge purposes.



PUBLIC USE AND EDUCATION OBJECTIVES

EDUCATION

Provide opportunities for the public to become informed about the Service and the natural world through a visitors center and educational outreach program.

Discussion: Utah's most densely populated area, the Wasatch Front, is within a one hour drive to the Refuge. This allows a large number of Utah residents access to the Refuge. Interstate 15 runs along the eastern side of the Refuge, providing a large supply of impulse tourists who are seeking to visit points of interest throughout the West.

CONSUMPTIVE WILDLIFE USES

Provide consumptive use programs for hunting, fishing, and trapping that are compatible with other objectives.

Discussion: Hunting of waterfowl and pheasants has been a traditional form of wildlife dependent recreation since the Refuge was established. Throughout the decades, the public hunting opportunities were considered to be among the finest. Demand for hunting opportunity remains high and has been growing annually as recovery from the flood progresses. Purchase of lands for Refuge expansion has enabled additional lands to be opened to hunting.

NON-CONSUMPTIVE WILDLIFE USES

Provide auto tour routes, nature trails, and environmental educational areas that are compatible with other uses.

Discussion: See Education discussion above.

CULTURAL RESOURCES GOAL

Protect and interpret archaeological, historical, and other cultural resources.

Discussion: Fourty-three archaeological sites of Fremont Indian graves are listed with the Utah Division of State History. Native Americans and the public are showing increasing interest in protecting cultural items. Such protection is also mandated by the National Historic Preservation Act, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act (Appendix A). In addition, the Bear River Delta has a rich history of settlement, which should be utilized in interpretive programs.

MANAGEMENT GUIDELINES AND STRATEGIES

GUIDELINES

Objectives will be accomplished by managing selected habitats found on the Refuge in the fee title area. The habitats within the easement area will be managed by the landowner and the Refuge will probably have limited influence in the management with the exception of those items covered in the agreement. Habitat acreages are shown in Appendix E. Fish and wildlife requirements met by each landscape are shown in Appendix D.

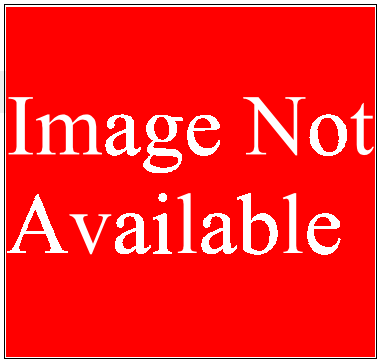
Habitats have been categorized into 10 types: upland, dry mudflat, wet mudflat, wet meadow, shallow emergent marsh, mid-depth emergent marsh, deep emergent marsh, shallow submergent marsh, deep submergent marsh, and open channels.

The Refuge will use socially, ecologically, and economically sound management practices which benefit wildlife and habitat. All management will strive for biological diversity and ecosystem health.

Legal responsibilities, Department of the Interior Policy, Service Policy, and System Policy are the basis for the following guidelines.

THREATENED & ENDANGERED SPECIES

The protection, enhancement, and recovery of endangered and/or threatened species will receive priority consideration in evaluating any management actions. Actions that would harm any of the federally or state-listed species or their habitat will be avoided. Biological consultation procedures will be followed if there is any doubt as to the possible effects of any action on these species. Conflicts between endangered species and other wildlife management or public use programs will be resolved in favor of endangered species.



Bald Eagle

MIGRATORY BIRDS

Waterfowl management will be guided primarily by the provisions of the North American Waterfowl Management Plan. Pacific Flyway plans, Regional plans, and the Refuge Waterbird Plan will also be consulted. All waterfowl management will be balanced with other migratory bird management practices.

Predators will be controlled when their population levels adversely impact migratoy bird populations. Predators such as skunks, raccoons, red fox, ravens, and gulls will be limited in favor of expanding waterfowl and other migratory bird production and use.

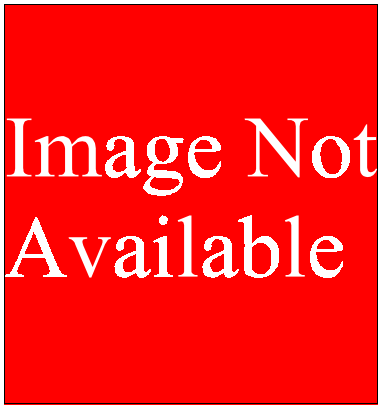
The management of other migratory birds will be guided by the Regional nongame bird plan and biodiversity strategies. As always the guiding principle will be to maintain diverse and healthy ecosystems which provide the life requirements for migratory birds and other plants and animals.

RESIDENT FISH AND WILDLIFE

Emphasis will be placed on maintaining a natural diversity of native wildlife species and their habitats.

Congress, in the Refuge Recreation Act, has recognized the authority of the states and territories to manage resident fish and wildlife. Therefore the special interest of the State of Utah in the management of resident animals is recognized and considered in actions for those species.

Fishery management will be limited to control of rough fish species. Fishing will be allowed on the main Bear River channel upstream from the old headquarters area and on the Reeders Overflow channel a distance of 1.5 miles downstream from the road crossing. Fishing will not be allowed downsteam from the main water control structures (bridges) at the old headquarters site.



Short-eared Owl

PUBLIC USE AND EDUCATION

All public use activities will be compatible with the Refuge's purposes, goals, objectives, and in strict conformance with applicable Federal and State statutes. Public use programs will foster activities directly associated with the utilization, observation, interpretation, and/or understanding of fish and wildlife populations, their habitats, and conservation values. Public use programs will promote the concept of a healthy Great Salt Lake ecosystem and biodiversity.

Public use programs, including hunting and fishing, will be developed to minimize impacts on wildlife resources while providing a quality experience.

Public use development will incorporate "Minimum Public Use Standards" and meet the "Uniform Federal Accessibility Standards."

Off-site public use will include environmental education programs coordinated with other Federal, State, and local agencies, educational institutions, conservation organizations, and private landowners and their representative organizations.

CULTURAL RESOURCES

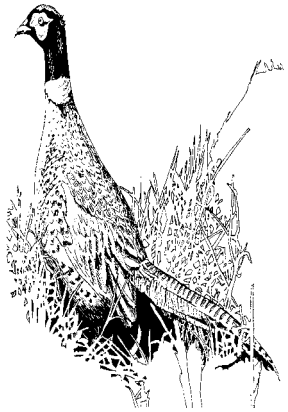
Consideration will be given to cultural resources before undertaking actions, such as construction, land use, resource management, and land acquisition or disposal. When developments are planned, the area will be surveyed to identify the location of cultural resources that need to be protected.

If a site, listed or eligible for listing, in the National Register must be altered or demolished, the State Historic Preservation Officer will be consulted and steps will be taken to record the site according to the standards established by the Secretary of the Interior.

STRATEGIES

HABITAT MANAGEMENT

UPLAND



As these agricultural lands are acquired in the expansion proposal, they will be placed into permanent cover. This cover will be a mixture of grasses and legumes to provide upland nesting habitat for dabbling duck species, upland game birds and a variety of other migratory and resident birds.

Upland nesting cover for dabbling duck species has been limited in the past, and held production at lower levels than might otherwise have been achieved. This habitat will need occasional treatment to maintain plant vigor. Haying, grazing, or burning will be utilized as tools for management of this landscape.

Grasslands within the easement areas are managed by the landowner, not by the Refuge. Technical assistance regarding grassland management will be provided by the Refuge staff when possible.

DRY MUDFLATS

Areas below spillways or on water courses will be contour furrowed to spread the shallow water across a broad area and at the same time create small raised contours. These raised contours provide habitat for salt grass as well as spread water. Several small dikes located near the south boundary will impound several inches of water. These dikes will contain no water control structures and the excess water will spill around the ends. Salt cedar may expand on both the contour furrows and small diked areas, requiring control measures to-limit the spread.

WET MUDFLATS

Management will be aimed at maintaining a mix of bare mud and low growing vegetation. Naturally occurring high river flows flood the mudflats during springtime and thus maintain bare mud and sparse vegetation. Should excessive vegetation build up, prescribed burning or planned grazing could be used to reduce it.

WET MEADOW

Management may prove to be rather difficult, as the annual flooding of this habitat to irrigate the grass creates ideal conditions for the invasion of salt cedar. Once grass cover is established, salt cedar will have a hard time becoming established. Periodic burning or grazing will be necessary to maintain this habitat.

Killdeer

SHALLOW, MID-DEPTH, AND DEEP EMERGENT MARSH

Proper water depth is important to ensure that emergent plant species thrive. This will require lower water levels in the late spring to allow the plants to begin growth and then increasing the water levels as plant growth progresses. Once waterfowl nesting is initiated, water levels must be stabilized to avoid flooding nests. This is important brood cover for waterfowl and other water birds.

Ample water is generally available through the spring to early summer period to maintain marsh levels. Some units may be drawn down in late spring in order to maintain other units at more optimum levels through the water scarce summer months.

These marshes should have about 50 to 60 percent emergent vegetation to open water. To maintain this ratio, burning, mowing and/or grazing may be used as a tool when vegetation becomes too dense.

SHALLOW AND DEEP SUBMERGENT MARSH, AND OPEN CHANNELS

Management techniques are to maintain water levels and restrict the introduction of large carp. Carp tend to create turbidity which reduces light penetration and restricts growth of submerged aquatics. Reduced aquatics restrict the amount of invertebrates present. The challenge will be to manage the units based on predicted summer river flows which are usually low. Approximately one third of the units will remain dry each year due to lack of water and also to reduce carp infestations.

POPULATION MANAGEMENT

THREATENED AND ENDANGERED SPECIES

Two species presently occur on the Refuge. Their status is summarized below:

Species	Status	Frequency on Refuge
Bald Eagle	Threatened	Common, 300/Yr.
Per. Falcon	Endangered	Resident, 5/Yr.

In line with the mandate to protect and enhance habitat for and the status of each of these species, the following strategies have been developed.

Bald Eagle	No active management currently needed other than monitoring numbers and Refuge areas used.
Peregrine Falcon	Continue monitoring numbers and managing habitat for prey species. Maintaining and enhancing wetland habitats assures a food source for peregrines. An active hack site is located on the Bear River Club, an easement area, where one pair have raised chicks for the last three years.

MIGRATORY BIRDS

Waterfowl management will be directed toward six areas: (1) habitat for molting waterfowl and swans; (2) disease free habitat (botulism); (3) nesting habitat for diving duck species; (4) nesting habitat for dabbling duck species; and (5) feeding areas for waterfowl, and (6) reestablishing the migratory corridor of trumpeter swans.

Newly designed facilities on the Refuge will continue to provide the large open bodies of water preferred by molting waterfowl and swans. Some units are designed to provide deep water habitat where emergent vegetation will not grow. This habitat will provide large amounts of submerged aquatic food in the form of sago pondweed, a preferred food source for many wildlife species. Inlet water control structures will be screened to prevent the introduction of large carp which degrade habitat.

While considerable research has been done on identifying those things which are conducive to botulism outbreaks, additional research is needed to identify management tools for preventing or reducing outbreaks. The Refuge will support research in this area. Water quality and quantity in late summer appears to be a major influence on the outbreaks. New Refuge water facility designs will alleviate some of the past problems. Birds killed by botulism will be picked up immediately to prevent the spread of bacteria. The botulism contingency plan, prepared during 1991, will be followed during outbreaks.

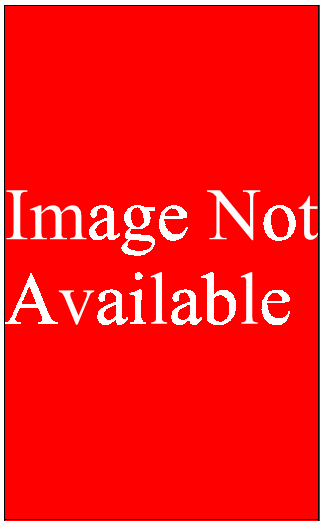
Water management will be used to encourage growth of emergent vegetation in the mid-depth water units. Vegetation consists primarily of hardstem and alkali bulrush and provides the nesting habitat for diving duck species. An interspersion of vegetation and open water will provide this habitat. Water depths in these areas will be raised slowly as the growing season progresses to encourage plant growth and provide brood habitat for many species. Inlet water control structures will be screened to prevent the introduction of large carp into the habitat.

Insufficient acreage of upland nesting habitat for dabbling duck species has historically been a problem. This deficiency will be corrected through acquisition and management of upland habitat. Acquired upland habitat currently in cropland will be planted into nesting cover consisting of a mixture of grasses and legumes. The large blocks of nesting cover will reduce predation rates which is extremely high on the relatively narrow dike slopes. New water management facilities will prevent the flooding of early nesting species as water facilities will allow for the by-pass of high spring flows.

In cooperation with the State of Utah and the Pacific Flyway Council, the Refuge will serve as a translocation site for migrating trumpeter swans. Activities aimed at moving trumpeter swans onto the Refuge will be done under an approved and coordinated plan.

Fish-eating, Water, and Shorebirds

The marshes of the Great Salt Lake have been designated as a "Western Hemispheric Shorebird Reserve" indicating its importance to this group of birds. Many species of marsh and water birds utilize the Refuge in great numbers. Important consideration must be given to these species, since the Refuge is known for their use throughout the world. Species occurrence will be monitored to establish baseline information and detect changes in various ecological communities of the Refuge which would adversely affect this group. Water depths will be held at appropriate levels to ensure that these birds have access to food resources in the substrate. Undisturbed, open areas devoid of emergent vegetation will be maintained for staging.



American Bittern

Public Use Management

Interpretation

The Refuge visitor center is the focal point for interpretation. Vehicular approach, parking areas and building design are still in the planning stages. When completed, the facility will contain an exhibit area,

Canada Geese

elevated viewing area, and auditorium/theater for program presentations. Outside, in the adjacent marshes, will be auto tour routes, and nature trails utilizing boardwalks through the marsh. An environmental education center will be available for group use.

The existing auto tour route around Unit 2 will be upgraded with interpretive signs, installation of a kiosk at the old headquarters site, a pavilion, and restrooms.

RECREATION

Wildlife observation, hunting, fishing, and photography are the most popular recreational pursuits on the Refuge. Wildlife observation will be aided by improving the old auto tour route as well as creating new auto tour routes and nature trails.

LAND ACQUISITION

Acquisition of up to 16,891 acres of privately owned land will provide a site for the educational center/headquarters complex and associated public visitation as well as grassland and wetland habitats to meet the needs of migratory and resident birds. Protection of 21,309 acres of additional river delta wetlands will be accomplished through wetland easements. These lands will remain in private ownership, however provisions of the easement will ensure that water supplies into the wetlands are not diverted to other uses.

Land acquisition activities are ongoing and from willing sellers only. Therefore, land purchases will extend for a number of years into the future and proceed as opportunities arise.

COMPATIBILITY DETERMINATIONS

Uses will be reviewed annually according to Fish and Wildlife Service guidelines. Compatibility determinations will be issued from that review. Incompatible uses will be modified or ended. No uses will be allowed unless determined to be compatible.

WILDERNESS REVIEW

A wilderness study area covering 39,936 acres of former lake bed was evaluated during the 1960's for designation as wilderness. It was concluded that the area did not meet the criteria to be officially designated as wilderness. The area was deemed unsuitable in providing an acceptable form of pedestrian recreation, and rocket motor testing by the Thiokol Corporation interrupted the solitude. Wetland developments, needed to meet Refuge objectives, required use of equipment to construct dikes, water control structures and contour furrows. Therefore, wilderness classification would prevent carrying out development plans.

STAFFING AND FUNDING

Refer to Appendix G for current, minimum and full objective funding and staffing. An organizational chart is displayed in Appendix H. Finally, a list of Refuge Operating Needs projects is presented in Appendix I.

Bonaparte's Gull

MONITORING AND EVALUATION

MONITORING

Maintaining habitat quality and quantity are the means of accomplishing Refuge objectives. Monitoring will focus on measuring vegetation diversity and abundance, water quality and quantity, abundance of protein resources such as invertebrates and rodents, and wildlife response to management practices. Progress toward Refuge goals and objectives will be evaluated based on the following monitoring activities. Completion of annual surveys is dependant on staff availability, funding, and logistical restraints such as weather conditions.

WILDLIFE POPULATIONS

The Refuge is only a small piece of the entire Great Salt Lake Ecosystem. Therefore wildlife population monitoring must be coordinated with other State and private land managers. Large scale eagle, goose, duck, swan, and shorebird surveys are conducted in coordination with the Utah Division of Wildlife Resources. Point Reye's Bird Observatory, the National Audubon Society, Utah Division of Wildlife Resources, and the National Wildlife Federation participate on a variety of nongame surveys. Utah State University closely participates in several monitoring and research projects. Expertise and resources from other Federal agencies are frequently utilized.

Several standardized surveys are used to monitor all bird populations on the Refuge. The Weekly Bird Use Survey estimates the numbers of all birds observed on a weekly basis. This data is compiled to determine seasonal and annual use relative to a variety of habitat conditions. Aerial surveys are used on a limited basis to monitor large flocks of staging birds, and birds using otherwise inaccessible parts of the Refuge. The National Audubon Society Christmas Bird Count is traditionally conducted yearly proving an opportunity for public participation. Unusual, first of the year, and other noteworthy sightings are recorded by all staff on a continuous basis.

HABITAT

VEGETATION

Standardized transects, photographic points, aquatic vegetation sampling, nest site vegetation characteristics, and other vegetation surveys will be conducted as part of ongoing wildlife research (e.g. constant effort mist-netting).

WATER

Quantity and quality of water, including flows, depth, chemistry, and temperature, will be monitored continuously using data loggers and a variety of sensors. Data is maintained and analyzed in a central computer system.

WEATHER

Continuous weather data will be collected on the east and west sides of the Refuge using remote weather stations with data loggers.

THREATENED AND ENDANGERED SPECIES

Bald Eagle: Mid-winter Eagle Survey; Raptor Survey

Peregrine Falcon: Raptor Survey

CANDIDATE SPECIES

White-faced Ibis : Documentation of colony locations and size

Black Tern: Documentation of nest site locations and characteristics

Burrowing Owl: Raptor Survey; Document nest site locations and characteristics

Ferruginous Hawk: Raptor Survey; Small Mammal Prey Base Survey

MIGRATORY BIRDS - (ALL SPP. SURVEY BY WEEKLY BIRD USE SURVEY)

Shorebirds: Pacific Flyway Project; Snowy Plover Survey; American Avocet/Black-necked Stilt Production Survey

Dabbling Ducks: Mid-Winter Waterfowl Survey; Brood Count; Upland Netting Survey; Waterfowl Banding

Diving Ducks: Over-water Nesting Survey; Brood Counts; Mid-Winter Waterfowl Survey

Black-necked Stilt

Swans: Bi-weekly aerial surveys; weekly ground surveys of tundra and trumpeters (more frequently when needed)

Geese: Canada Goose Banding; Brood Counts; Mid-Winter Waterfowl Survey

Passerines: Constant Effort Mist Netting; Point Counts; Nest Monitoring

Fish-eating Birds: Colonial Nesting Surveys; Western Grebe Survey

Waterbirds: Colonial Nesting Survey

Raptors: Raptor Survey, Small Mammal Prey Base Survey

RESIDENT FISH AND WILDLIFE

Mammals: Muskrat House Count; Scent Stations; Track Survey; Den Survey; Dummy Nest Study; Night Lighting Survey; Predator Observation Survey; Small Mammal Prey Base Survey

Reptiles and Amphibians: Periodic presence and absence data collected

Fish: No surveys conducted

Invertebrates: Substrate and water column sampling, and a variety of funnel and light traps used to monitor adults and larvae.

PUBLIC USE

Public Use: A periodic survey of selected uses including those associated with fish and wildlife harvest or requiring "Special Use Permits".

Fish and Wildlife Harvest: Participation rates and harvest rates will be surveyed annually.

CULTURAL RESOURCES

Cultural resources: Annual report of activities affecting or affected by historical or archaeological resources.

EVALUATION

Results obtained from monitoring are used to evaluate the effectiveness of specific management to achieve goals and objectives. Step down management plans will be revised based on these evaluations.

APPENDICES

APPENDIX A - LEGISLATION

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

MIGRATORY BIRD TREATY ACT (1918)
Designates the protection of migratory birds as a Federal responsibility. This act enables the setting of seasons, and other regulations including the closing of areas, Federal or non-Federal to the hunting of migratory bird.

MIGRATORY BIRD CONSERVATION ACT (1929)
Establishes procedures for acquisition by purchase, rental, or gift of areas approved by the Migratory Bird Conservation Commission.

MIGRATORY BIRD HUNTING AND CONSERVATION STAMP ACT (1934)
Authorized the opening of part of a refuge to waterfowl hunting.

FISH AND WILDLIFE ACT (1956)
Established a comprehensive national fish and wildlife policy and broadened the authority for acquisition and development of refuges.

FISH AND WILDLIFE COORDINATION ACT (1958)
Allows the Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes.

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

LAND AND WATER CONSERVATION FUND ACT (1965)
Uses the receipts from the sale of surplus Federal land, outer continental shelf oil and gas sales, and other sources for land acquisition under several authorities.

NATIONAL WILDLIFE REFUGE SYSTEM ADMINISTRATION ACT (1966)
Defines the National Wildlife Refuge System and authorizes the Secretary to permit any use of a refuge provided such use is compatible with the major purposes for which the refuge was established.

NATIONAL HISTORIC PRESERVATION ACT (1966) AS AMENDED
Establishes as policy that the Federal Government is to provide leadership in the preservation of the nation's prehistoric and historic resources.

ARCHITECTURAL ENVIRONMENTAL BARRIERS ACT (1968)
Requires federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

NATIONAL ENVIRONMENTAL POLICY ACT (1969)
Requires the disclosure of the environmental impacts of any major Federal action significantly affecting the quality of the human environment.

ENDANGERED SPECIES ACT (1973)
Requires all Federal agencies to carry out programs for the conservation of endangered and threatened species.

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

ARCHEOLOGICAL AND HISTORIC PRESERVATION ACT (1974)
Directs the preservation of historic and archaeological data in Federal construction projects.

CLEAN WATER ACT (1977)
Requires consultation with the Corps of Engineers (4004 permits) for major wetland modifications.

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

AMERICAN INDIAN RELIGIOUS FREEDOM ACT (1978)
Directs agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve Native American religious cultural rights and practices

ARCHAEOLOGICAL RESOURCES PROTECTION ACT (1979) AS AMENDED
Protects materials of archaeological interest from unauthorized removal or destruction and requires Federal managers to develop plans and schedules to locate archaeological resources

EMERGENCY WETLANDS RESOURCES ACT (1986)
The purpose of the Act is *To promote the conservation of migratory waterfowl and to offset or prevent the serious loss of wetlands by the acquisition of wetlands and other essential habitat, and for other purposes.*

FEDERAL NOXIOUS WEED ACT (1990)
Requires the use of integrated managementt systems to control or contain undesirable plant species; and an interdisciplinary approach with the cooperation of other Federal and state agencies.

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT (1990)
Requires Federal agencies and museums to inventory, determine ownership of, and repatriate cultural items under their control or possession.

AMERICANS WITH DISABILITIES ACT (1992)
Prohibits discrimination in public accomodations and services.

MANAGEMENT AND GENERAL PUBLIC USE OF THE NATIONAL WILDLIFE REFUGE SYSTEM - EXECUTIVE ORDER 12996 (1996)
Defines the mission, purpose, and priority public uses of the National Wildlife Refuge System. It also presents four principles to guide management of the system.

APPENDIX B - EXECUTIVE ORDER 12996

MANAGEMENT AND GENERAL PUBLIC USE OF
THE NATIONAL WILDLIFE REFUGE SYSTEM

By the authority vested in me as President by the Constitution and the laws of the United States of America, and in furtherance of the purposes of the Fish and Wildlife Act of 1956 (16 U.S.C. 742a), the Fish and Wildlife Coordination Act (16 U.S.C. 661), the National Wildlife Refuge System Administration Act (16 U.S.C. 668dd), the Refuge Recreation Act (16 U.S.C. 460k), the Endangered Species Act of 1973 (16 U.S.C. 1531), the Emergency Wetlands Resources Act (16 U.S.C. 3901), the National Environmental Policy Act (42 U.S.C. 4321), and other pertinent statutes, and in order to conserve fish and wildlife and their habitat, it is ordered as follows:

Section 1. The Mission of the National Wildlife Refuge System. The mission of the National Wildlife Refuge System ("Refuge System") is to preserve a national network of lands and waters for the conservation and management of fish, wildlife, and plant resources of the United States for the benefit of present and future generations.

Sec. 2. Guiding Principles. To help ensure a bright future for its treasured national heritage. I hereby affirm the following four guiding principles for management and general public use of the Refuge System:

(a) Public Use. The Refuge System provides important opportunities for compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

(b) Habitat. Fish and wildlife will not prosper without high-quality habitat, and without fish and wildlife, traditional uses of refuges cannot be sustained. The Refuge System will continue to conserve and enhance the quality and diversity of fish and wildlife habitat within refuges.

(c) Partnerships. America's sportsmen and women were the first partners who insisted on protecting valuable wildlife habitat within wildlife refuges. Conservation partnerships with other Federal agencies, State agencies, Tribes, organizations, industry, and the general public can make significant contributions to the growth and management of the Refuge System.

(d) Public Involvement. The public should be given a full and open opportunity to participate in decisions regarding acquisition and management of our National Wildlife Refuges.

Sec. 3. Directives to the Secretary of the Interior.
To the extent consistent with existing laws and interagency agreements, the Secretary of the Interior, in carrying out his trustee and stewardship responsibilities for the Refuge System is directed to:

(a) recognize compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation as priority general public uses of the Refuge System through which the American public can develop an appreciation for fish and wildlife;

(b) provide expanded opportunities for these priority public uses within the Refuge System when they are compatible and consistent with sound principles of fish and wildlife management, and are otherwise in the public interest;

(c) ensure that such priority public uses receive enhanced attention in planning and management within the Refuge System;

(d) provide increased opportunities for families to experience wildlife-dependent recreation, particularly opportunities for parents and their children to safely engage in traditional outdoor activities, such as fishing and hunting;

(e) ensure that the biological integrity and environmental health of the Refuge System is maintained for the benefit of present and future generations of Americans;

(f) continue, consistent with existing laws and interagency agreements, authorized or permitted uses of units of the Refuge System by other Federal agencies, including those necessary to facilitate military preparedness;

(g) plan and direct the continued growth of the Refuge System in a manner that is best designed to accomplish the mission of the Refuge System, to contribute to the conservation of the ecosystems of the United States, and to increase support for the Refuge System and participation from conservation partners and the public;

(h) ensure timely and effective cooperation and collaboration with Federal agencies and State fish and wildlife agencies during the course of acquiring and managing National Wildlife Refuges;

(i) ensure appropriate public involvement opportunities will be provided in conjunction with refuge planning and management activities; and

(j) identify, prior to acquisition, existing compatible wildlife-dependent uses of new refuge lands that shall be permitted to continue on an interim basis pending completion of comprehensive planning.

Sec. 4 Judicial Review. This order does not create any right or benefit, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any person.

WILLIAM J. CLINTON

THE WHITE HOUSE,
March 25, 1996

APPENDIX C - WILDLIFE USE BY HABITAT TYPE

Species or Group	Dry Mudflat	Wet Mudflat	Wet Meadow	Shallow Emergent	Mid-Depth Emergent	Deep Emergent	Shallow Submergent	Deep Submergent	Open Channel
		0-2"	4-8"	6-12"	6-24"	6-24"	4-16"	18-36"	
Bald Eagle		Resting						Feeding	Feeding
Per.Falcon		Feeding	Feeding	Feeding	Feeding	Feeding	Feeding	Feeding	Feeding
W.F.Ibis		Feeding	Feeding	Feeding		Nesting			
Sn.Plover	Nesting	Feeding							
Tun.Swan				Resting			Feeding		
Pintail		Resting	Nesting	Nesting	Molting		Feeding		
			Resting	Feeding			Molting		
Redhead					Nesting	Nesting	Resting	Feeding	Feeding
							Feeding	Brood	
								Resting	
Cin.Teal		Feeding	Feeding	Feeding	Feeding				
		Resting	Nesting	Resting	Brood				
					Molting				
Dabbler		Feeding	Feeding	Feeding	Brood				
		Resting	Nesting	Brood	Molting				
Shorebird	Nesting	Nesting	Nesting	Feeding					
		Feeding							
Fish Eating				Feeding	Feeding	Nesting	Feeding	Feeding	Feeding
					Nesting				
Waterbirds				Feeding	Feeding	Nesting	Feeding		
Can.Geese	Resting	Resting	Feeding	Feeding	Nesting		Feeding	Molting	Resting
		Feeding		Nesting					
Divers					Nesting	Nesting	Resting	Resting	Resting
							Feeding	Feeding	Feeding
								Brood	
Raptors			Feeding	Feeding					
			Nesting						
Passerine		Feeding	Feeding	Feeding	Feeding	Nesting			
			Nesting		Nesting				

APPENDIX D - SEASONAL USE OF HABITATS

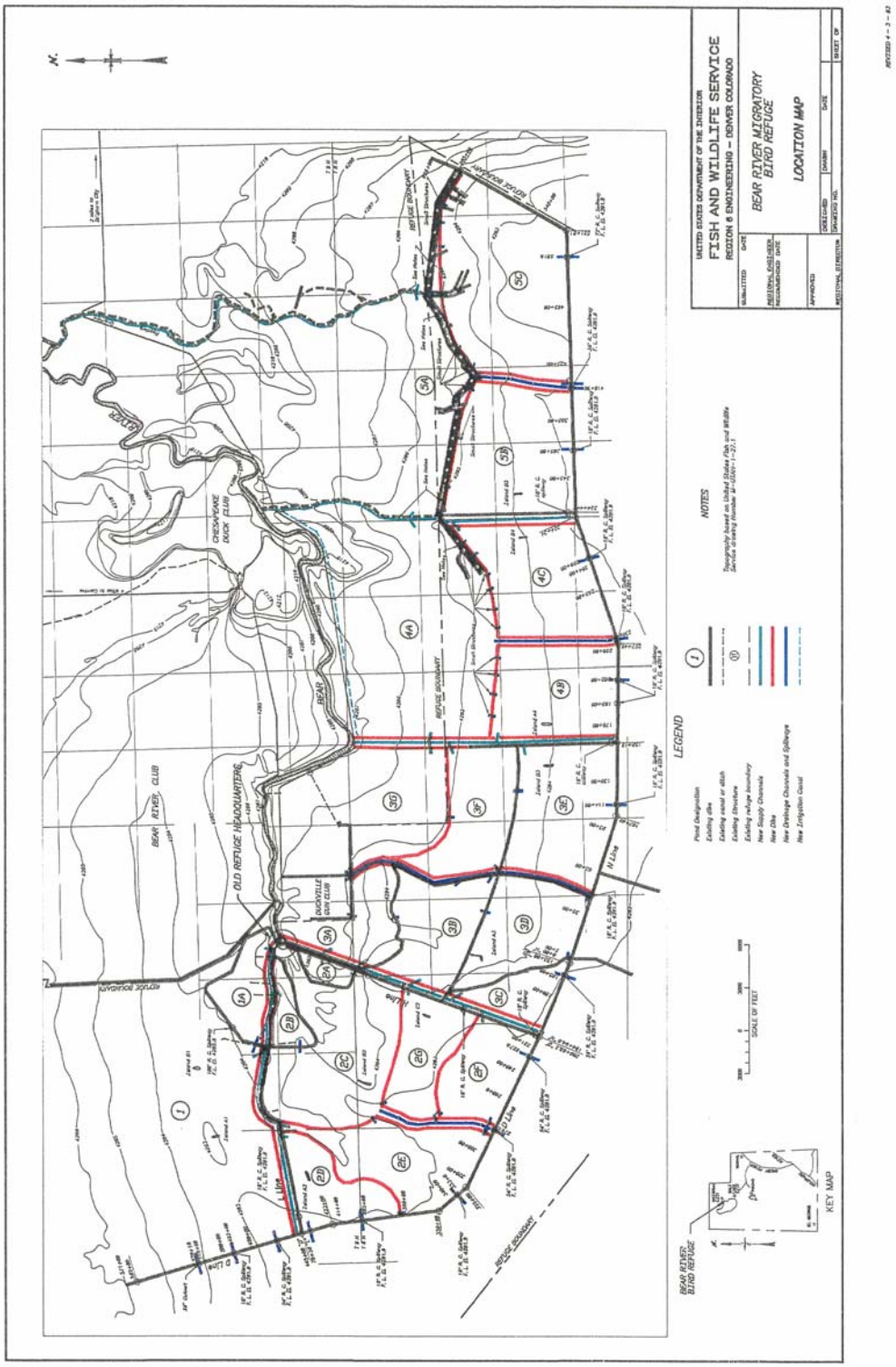
IMAGE NOT AVAILABLE

APPENDIX E - HABITAT OBJECTIVES

OPTIMUM HABITAT OBJECTIVES	
Habitat Type	Acres
1. Uplands	1,700.00
2. Dry Mudflat	6,400.00
3. Wet Mudflat	28,800.00
4. Wet Meadows	7,700.00
5. Shallow Emergent	8,000.00
6. Mid-depth Emergent	6,000.00
7. Deep Emergent	1,800.00
8. Shallow Submergent	8,500.00
9. Deep Submergent	3,500.00
10. Open Channel	550.00
Total	72,950.00

Barn Swallows

APPENDIX F - MAP OF EXISTING AND NEW DEVELOPMENTS



APPENDIX G - FUNDING AND FTE SUMMARY

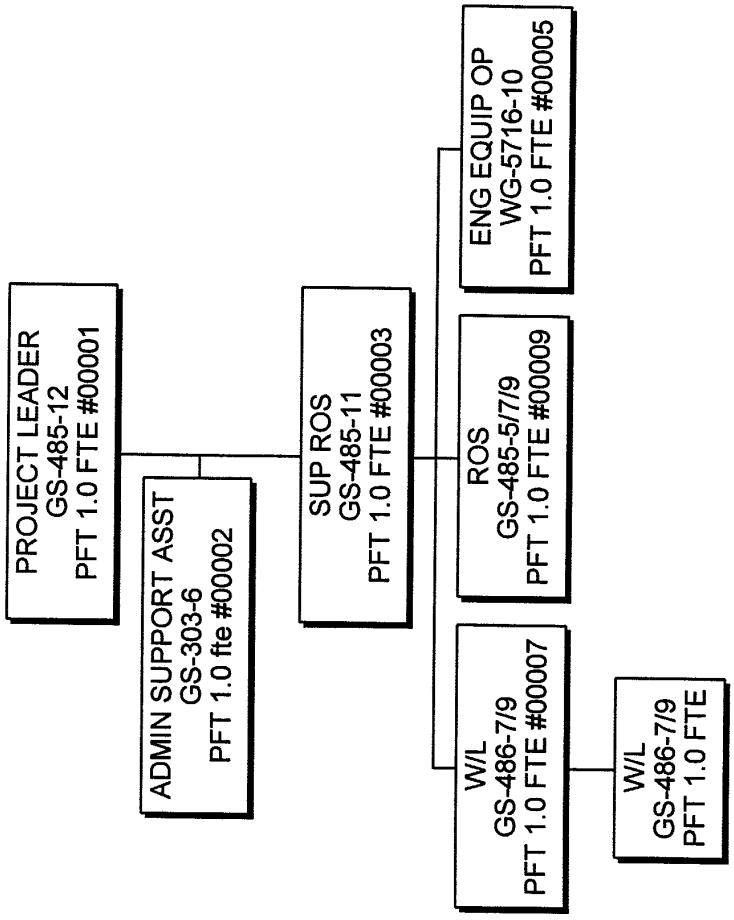
FUNDING AND FTE STATION SUMMARY					
	Habitat Management	Population Management	Public Use	Resource Management	Totals
CURRENT					
1260 Base	234.2	50.0	20.0	10.0	314.2
1260 1-Time	7.3	0.0	0.0	0.0	7.3
Non-1260 Base	55.0	0.0	0.0	0.0	55.0
Non-1260 1 Time	246.8	7.0	0.0	0.0	253.8
Total $$	543.3	57.0	20.0	10.0	630.3
1260 FTE's	4.6	1.9	0.5	0.6	7.6
Non-1260 FTE's	1.6	0.7	0.0	0.0	2.3
MINIMUM NEEDS					
Recurring Base	318.6	135.6	128.3	77.5	660.0
One-Time	0.0	0.0	0.0	0.0	0.0
Total $$	318.6	135.6	128.3	77.5	660.0
FTE's	4.6	1.9	2.1	1.0	9.6
FULL OBJECTIVE					
Current 1260 Base	234.2	50.0	20.0	10.0	314.2
RONS Base Needs	105.0	30.0	50.0	0.0	185.0
RONS 1-Time Needs	1,760.0	0.0	344.0	0.0	2,104.0
All MMS Projects					4,067.0
Total $$	2,099.2	80.0	414.0	10.0	6,670.2
Current 1260 FTE's	4.6	1.9	0.5	0.6	7.6
RONS FTE's	2.0	0.5	1.0	0.0	3.5
Total FTE's	6.6	2.4	1.5	0.6	11.1

APPENDIX H - ORGANIZATIONAL CHART

BEAR RIVER MBR

(65530)

TOTAL FTE's: 8.6
PERM FTE's: 7.0
TEMP FTE's: 1.6



APPENDIX I - RONS NEEDS SUMMARY

7 **8) PUBLIC EDUCATION & RECREATION : Provide Visitor Services**

50 additional visitors will visit the station , 20 existing visitors will have new opportunities

DEVELOP A 8'X8'X7'FULLY ACCESSIBLE PHOTO/HUNT BLIND

FUNDS($000) & STAFF NEEDED:	Construction	Operations	FTEs
First Year:	$15		0.0
Subsequent Years:		$1	0.0

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RFW	PED	PRC	TOT
				10	0	0	0	60	30	100

PLANNING LINK: ☐ Station CMP ■ Station Step-down Mgmt Plan ☐ Ecosystem Goal/Plan ☐ Station Goal/Objective ☐ Recovery Plan ☐ Legal Mandate

IDENTIFIED IN PUBLIC USE MASTER PLAN

PROJECT #: 96004 RANK - STATION: 7 DISTRICT: 999 REGION: 999 NATIONAL: 999

1 **2) HABITAT RESTORATION : Wetland Restoration: On-Refuge**

5000 acres will be restored , 3 site(s) will be restored

HIRE A PERMANENT HEAVY EQUIPMENT OPERATOR TO OPERATE EARTH MOVING EQUIPMENT CONSTRUCTING A BYPASS CANAL , EARTHERN DIKE, AND CLEAN EXISTING, BUT DETERIORATING CHANNELS INTO UNIT 4 OF THE REFUGE. THIS WILL ENHANCE APPROXIMATELY 5,000 ACRES. IF THIS PROJECT IS NOT COMPLETED, WATER MANAGEMENT IN THE UNIT WILL NOT BE AS EFFICIENT AND THE MARSH WILL NOT BE AS PRODUCTIVE.

FUNDS($000) & STAFF NEEDED:	Construction	Operations	FTEs
First Year:	$150	$50	1.0
Subsequent Years:		$5	1.0

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RFW	PED	PRC	TOT
	3	67	20	10	0	0	0	0	0	100

PLANNING LINK: ■ Station CMP ■ Station Step-down Mgmt Plan ☐ Ecosystem Goal/Plan ☐ Station Goal/Objective ☐ Recovery Plan ☐ Legal Mandate

THE CMP, ENVIRONMENTAL ASSESSMENT PLAN FOR THE RESTORATION AND EXPANSION OF THE REFUGE AND THE WATER MANAGEMENT PLAN ALL ARE BASED ON THE ENHANCEMENT OF THE REFUGE, I.E. BREAKING THE EXISTING REFUGE UNITS INTO SMALLER, MORE MANAGEABLE UNITS WHICH WILL INCREASE THE PRODUCTIVE OF THE MARSH.

PROJECT #: 96001 RANK - STATION: 1 DISTRICT: 999 REGION: 999 NATIONAL: 999

2 **1) MONITORING & STUDIES : Surveys & Censuses**

new survey(s) will be conducted , % of effort will be off-refuge

HIRE A BIOLOGICAL TECHNICIAN FOR SIX MONTHS TO HELP WITH BIOLOGICAL MONITORING ON THE REFUGE. THIS WOULD INCLUDE MONITORING WATERFOWL POPULATIONS, WATER QUALITY STUDIES, MIGRATORY SONG BIRD BANDING, SHOREBIRD CENSUSES AND PREDATOR POPULATION MONITORING AND MANAGEMENT.

FUNDS($000) & STAFF NEEDED:	Construction	Operations	FTEs
First Year:	$5	$30	0.5
Subsequent Years:		$30	0.5

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RFW	PED	PRC	TOT
	3	67	20	10	0	0	0	0	0	100

PLANNING LINK: ■ Station CMP ■ Station Step-down Mgmt Plan ☐ Ecosystem Goal/Plan ☐ Station Goal/Objective ☐ Recovery Plan ☐ Legal Mandate

POPULATIONS MUST BE MONITORED TO DETERMINE IF GOALS AND OBJECTIVES FOR WILDLIFE POPULATIONS ARE BEING MET.

PROJECT #: 96002 RANK - STATION: 2 DISTRICT: 999 REGION: 999 NATIONAL: 999

3 **1) MONITORING & STUDIES : Studies & Investigations**

.3 new study(ies) will be conducted , % of effort will be off-refuge

ESTABLISH AND MAINTAIN BASELINE VEGETATIVE AND WILDLIFE MONITORING ON RECENTLY AQUIRED PROPERTY AND ENHANCED WETLANDS.

FUNDS($000) & STAFF NEEDED:	Construction	Operations	FTEs
First Year:	$5	$30	0.5
Subsequent Years:		$30	0.5

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RFW	PED	PRC	TOT
	3	67	20	10	0	0	0	0	0	100

PLANNING LINK: ■ Station CMP ■ Station Step-down Mgmt Plan □ Ecosystem Goal/Plan
□ Station Goal/Objective □ Recovery Plan □ Legal Mandate

NEED MONITORING ON NEWLY ACQUIRED PROPERTY NAD ENCHANCED WETLANDS TO DOCUMENT THAT MANGEMENT ACTIVITIES AND GOALS ARE BEING MET.

PROJECT #: ....96003.... RANK - STATION: ....3..... DISTRICT: ...999.. REGION: ...999.. NATIONAL: ...999..

4 **2) HABITAT RESTORATION : Wetland Restoration: On-Refuge**

5000 acres will be restored , .3 site(s) will be restored

PURCHASE A ONE TON TRUCK WITH BED MOUNTED FUEL TANK AND UTILITY SIDES FOR TOOLS NEEDED TO SERVICE AND MAINTAIN HEAVY EQUIPMENT IN THE FIELD.

FUNDS($000) & STAFF NEEDED:	Construction	Operations	FTEs
First Year:	$25	$0	0.0
Subsequent Years:		$1	0.0

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RFW	PED	PRC	TOT
	3	67	20	10	0	0	0	0	0	100

PLANNING LINK: ■ Station CMP ■ Station Step-down Mgmt Plan □ Ecosystem Goal/Plan
□ Station Goal/Objective □ Recovery Plan □ Legal Mandate

MARSH/WETLAND RESTORATION HAS BEEN IDENTIFIED IN THE ENVIRONMENTAL ASSESSMENT, WATER MANAGEMENT PLAN AND CMP

PROJECT #: ....96005.... RANK - STATION: ....4..... DISTRICT: ...999.. REGION: ...999.. NATIONAL: ...999..

5 **3) HABITAT MANAGEMENT : Manage Water Levels**

10000 additional acres will be managed , .6 new unit(s) will be managed

PURCHASE WATER CONTROL STRUCTURES FOR NEW CANALS TO CONTROL WATER LEVELS WITHIN THE CANALS AND WATER IMPOUNDMENTS.

FUNDS($000) & STAFF NEEDED:	Construction	Operations	FTEs
First Year:	$400		0.0
Subsequent Years:			0.0

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RFW	PED	PRC	TOT
	3	67	20	10	0	0	0	0	0	100

PLANNING LINK: ■ Station CMP ■ Station Step-down Mgmt Plan □ Ecosystem Goal/Plan
□ Station Goal/Objective □ Recovery Plan □ Legal Mandate

ENHANCEMENT OF THE EXISTING REFUGE UNITS BY BREAKING THEM INTO SMALLER MANAGEMENT UNITS WAS IDENTIFIED IN THE CMP, WATER MANAGEMENT PLAN AND THE ENVIRONMENTAL ASSESSMENT.

PROJECT #: ....96006.... RANK - STATION: ....5..... DISTRICT: ...999.. REGION: ...999.. NATIONAL: ...999..

8 | 8) PUBLIC EDUCATION & RECREATION : Provide Visitor Services

10000 additional visitors will visit the station , 5000 existing visitors will have new opportunities

HIRE OUTDOOR RECREATION PLANNER TO WORK WITH ENVIRONMENTAL EDUCATION PROGRAMS FOR SCHOOL GROUPS, ORGANIZATIONS AND AGENCIES.

FUNDS($000) & STAFF NEEDED:	Construction	Operations	FTEs
First Year:		$50	1.0
Subsequent Years:		$50	1.0

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RFW	PED	PRC	TOT
	3	67	20	10	0	0	0	0	0	100

PLANNING LINK: ☐ Station CMP ■ Station Step-down Mgmt Plan ☐ Ecosystem Goal/Plan
☐ Station Goal/Objective ☐ Recovery Plan ☐ Legal Mandate

ENVIRONMENTAL EDUCATION WAS IDENTIFIED AS A NEED IN THE PUBLIC USE MASTER PLAN

PROJECT #: ....96007.... RANK - STATION: ....8.... DISTRICT: ...999.. REGION: ...999.. NATIONAL: ...999..

6 | 3) HABITAT MANAGEMENT : Manage Water Levels

10000 additional acres will be managed , 6 new unit(s) will be managed

INSTALL 12 CONCRETE STOPLOGS WATER CONTROL STRUCTURES INTO CANALS TO SPILL/DRAIN WATER INTO INDIVIDUAL UNITS.

FUNDS($000) & STAFF NEEDED:	Construction	Operations	FTEs
First Year:	$180	$0	0.0
Subsequent Years:		$0	0.0

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RFW	PED	PRC	TOT
	3	67	20	10	0	0	0	0	0	100

PLANNING LINK: ■ Station CMP ■ Station Step-down Mgmt Plan ☐ Ecosystem Goal/Plan
☐ Station Goal/Objective ☐ Recovery Plan ☐ Legal Mandate

ENHANCEMENT OF THE REFUGE BY BREAKING THE EXISTING REFUGE UNITS INTO SMALLER UNITS WAS IDENTIFIED IN THE WATER MANAGEMENT PLAN, CMP AND ENVIRONMENTAL ASSESSMENT

PROJECT #: ....96008.... RANK - STATION: ....6.... DISTRICT: ...999.. REGION: ...999.. NATIONAL: ...999..

10 | 2) HABITAT RESTORATION : Wetland Restoration: On-Refuge

10000 acres will be restored , 4 site(s) will be restored

HIRE AN ADDITIONAL HEAVY EQUIPMENT OPERATOR TO RUN HEAVY EQUIPMENT TO RESTORE AND ENHANCE REFUGE FACILITIES.

FUNDS($000) & STAFF NEEDED:	Construction	Operations	FTEs
First Year:	$0	$50	1.0
Subsequent Years:		$50	1.0

OUTCOMES*:	ES	WF	OMB	HEC	IAF	SDA	RFW	PED	PRC	TOT
	3	67	20	10	0	0	0	0	0	100

PLANNING LINK: ■ Station CMP ■ Station Step-down Mgmt Plan ☐ Ecosystem Goal/Plan
☐ Station Goal/Objective ☐ Recovery Plan ☐ Legal Mandate

ENHANCEMENT AND RESTORATION OF THE REFUGE WAS IDENTIFIED IN THE WATER MANAGEMENT PALN, ENVIRONMENTAL ASSESSMENT AND CMP

PROJECT #: ....96009.... RANK - STATION: ...10... DISTRICT: ...999.. REGION: ...999.. NATIONAL: ...999..