

**STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WILDLIFE**

**WAYNE E. KIRCH WILDLIFE MANAGEMENT AREA
CONCEPTUAL MANAGEMENT PLAN**



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EXECUTIVE SUMMARY

The Nevada Division of Wildlife (NDOW) has developed this Conceptual Management Plan (CMP) to guide the management of species, habitats and programs on the W. E. Kirch Wildlife Management Area (KWMA). NDOW intends to use this CMP as a working document to guide the management of the area for a ten year time period. Public stakeholder meetings were held in November 1998 to obtain public input regarding management strategies for the WMA, many of which have been incorporated into this plan.

Part One of the CMP contains information on resources and public uses of the area to support the plan's goals, objectives and strategies. Part Two of the CMP contains the goals, objectives and strategies for the future management of the KWMA. This section was developed by a team of NDOW employees with guidance provided by the list of stakeholder issues, the CMS Plan, the WMA policy, the Wetland Conservation Plan for WMAs, Federal Aid requirements, and other state and federal regulations.

The KWMA is located in Nye County and totals 14,814 acres. Habitats on the area include sagebrush, desert wash, alkali desert scrub, annual grassland, wet meadow, fresh emergent wetland, riverine and lacustrine. The fish and wildlife resources of the area are very diverse due to the mosaic of habitat types. Waterfowl are the most conspicuous group of birds on the area. Mule deer are the most common big game animal on the area. Nongame species including wading birds, shorebirds, raptors, and passerines benefit from the project. Game fish on the area include bass, trout, and black bullhead. There are four native fish species on the KWMA: the White River spinedace, the Moorman White River springfish, the White River speckled dace and the White River desert sucker. Management of these four species is directed toward preservation of existing habitat and perpetuation of the species within guidelines of state and federal regulations.

KWMA is primarily spring fed with two major spring sources discharging into the surface, the Flag Springs and the Hot Creek Spring. The With River drainage basin provides surface water inflow during runoff periods. Several other minor springs provide intermittent runoff during early spring and after heavy rains. Water distribution on KWMA is composed of dirt ditches and natural stream channels. An annual water management plan is written based on the projected water supply. The Old Place, Dacey, Adams-McGill and Tule reservoirs emphasize waterfowl utilization. The Cold Springs and Haymeadow reservoirs are maintained at a high stable water levels on a yearly basis to maximize fisheries values. The Flag Springs, Hot Creek Spring, and Sunnyside Creek are managed for endemic fish.

Area management on KWMA includes water management, prescribed burning, herbicide spraying, and invasive plant control. Fish management includes stocking of rainbow trout in Cold Springs and Haymeadow reservoirs. Vegetative surveys are conducted each year to determine diversity of aquatic plants in the reservoirs. Electrofishing surveys are conducted to sample fish populations each year. Facilities management includes the general upkeep of buildings, grounds, residences, roads, fences, equipment and vehicles. Law enforcement on the KWMA is administered through

NDOW's Law Enforcement Bureau.

Hunting and fishing are the major public use activities on the area. Waterfowl hunting is the major hunting activity followed by dove hunting. Fishing is the most popular recreational activity on the area and includes warm and cool water fishing. The fishing season is open year round on KWMA, except for Dacey and Tule reservoirs and the upper portion of Adams-McGill, Cold Springs and Haymeadow, as posted, which are open for fishing August 16 through February 14. Wildlife-related recreation on the area includes camping, boating, wildlife viewing, educational, scientific and other uses.

Part Two of the CMP contains the management goals, objectives and strategies for the KWMA. The goals of this plan are classified as biological goals (wildlife population goals and habitat enhancement goals), public use goals, and facility maintenance goals.

Wildlife population goals to be achieved on KWMA include: enhancing waterfowl production; maintaining adequate habitat for migrating and local waterfowl and dove populations; maintaining diverse nongame wildlife species; managing game fish populations; and maintaining and enhancing native fish and their habitat.

Habitat enhancement goals to be achieved on KWMA include: enhancing and increasing wetland quantity and quality; creating a mosaic of habitat for birds through habitat management; establishing a noxious weed control program; maintaining and enhancing game fishery habitat; and acquiring important wildlife habitat near the KWMA.

Public use goals to be achieved on KWMA include: providing for and promoting hunting opportunities; providing and promoting fishing opportunity; increasing access to wildlife resources and boating opportunity; and developing watchable wildlife opportunities.

Facility maintenance goals to be achieved on KWMA include: maintaining and enhancing public use facilities; maintaining building, dams, dikes roads, fences and equipment; coordinating with stakeholders, and maximizing compliance with regulations and laws.

The proposed budget to implement the WMA goals over the next four years is approximately \$905,000. The Federal Aid portion would be split 75% Wildlife Restoration funds and 25% Sport Fish Restoration funds. A total of about 1,500 man days has been proposed to accomplish the goals over the next four years. A Fish Management Implementation Schedule is also provided.

In two years, a report will be given to the Board of Wildlife Commissioners on the progress toward implementing the goals, objectives and strategies of the CMP. The CMP will also be evaluated in five years to determine if modifications are needed based on changing conditions, improved habitat strategies, or changing public priorities. The CMP will be amended to allow implementation of approved unique-opportunity projects.

W. E. KIRCH WILDLIFE MANAGEMENT AREA

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PART ONE:
Background Resource Information



PART ONE

I. Introduction

A. Purpose of Plan

Planning the future of Nevada's Wildlife Management Areas (WMAs) is essential due to the increased and sometimes conflicting demands being placed upon the limited natural resources. The Nevada Division of Wildlife (NDOW) has undertaken the long-term planning of the Wayne E. Kirch Wildlife Management Area (KWMA) with the development of a Conceptual Management Plan (CMP). This long-range plan will assist in meeting the present and future use demands, help maintain and enhance the natural resources, and resolve the problems of the sometimes conflicting resource uses.

This CMP guides the management of species, habitats and programs on KWMA. The CMP provides background information on fish and wildlife resources, habitats, water resources, area management and public uses of the area. The management goals, objectives and strategies developed in the plan will guide management decisions concerning the property for a ten-year time period. An overview of the area's operation, maintenance and personnel requirements to implement area goals and objectives is provided in the plan. The CMP also serves as a budget planning tool for annual and biennial budget preparation, and for development of Federal Aid grant agreements and proposals.

B. Planning Process

1. Stakeholder Meeting

To involve the public in the Division's planning efforts, stakeholder meetings were held for the KWMA CMP. Stakeholders (persons or entities affected by management decisions on the WMA) were invited to attend the meetings to involve a diverse group of representatives in the Division's planning efforts. The stakeholder meetings for the Kirch WMA plan were held on November 18, 1998 in Ely and November 19, 1998 in Las Vegas. Participants included adjacent landowners, representatives from federal, state and local agencies, sportsmen groups, conservation groups, Board of Wildlife Commissioners, and County Advisory Board members. The meetings were held to obtain public input regarding management strategies for the WMA and to attempt to build consensus on the overall management of the area.

The meetings were informal to encourage public input. NDOW staff gave a brief presentation regarding the purpose of the CMP, the need for public input, and the intention to incorporate the public participation information into plan development. A slide presentation was given with background information provided on the KWMA. The participants were then briefed on the guidelines that direct management on WMAs including the Commission Policy on WMAs, the Wetland Conservation Plan for WMAs, Federal Aid requirements and the NDOW Strategic Plan.

Following the introductory presentation, a methodology to foster stakeholder participation in planning called Nominal Group Technique was implemented at the meeting. This technique is desirable where collective idea generation and issue formulation is important. A facilitator recorded ideas generated by participants. NDOW also accepted written suggestions for the CMP from stakeholders who were unable to attend the meetings.

The list of issues generated by the stakeholders at both meetings is presented in Appendix A. Many of the suggested strategies have been incorporated into this CMP as listed in Appendix B. A response to those issues that were suggested but that NDOW was not able to implement in this plan due to budgetary constraints, resource issues or public use conflicts is also listed in Appendix B.

2. Written Plan

The CMP consists of Part One and Part Two. Part One contains important and concise information about the area that supports the plan's goals, objectives and strategies. This includes pertinent background information on KWMA resources and public uses. Part Two of the CMP contains the goals, objectives, and strategies for the future management of the KWMA. This section was developed by a team of NDOW employees of various natural resource disciplines with guidance by the Staff Habitat Biologist. The list of stakeholder issues, the CMS Plan, the WMA Policy, the Wetland Conservation Plan for WMAs, and Federal Aid requirements guided the development of this part of the CMP. Part Two also contains a proposed Implementation Schedule for habitat management on KWMA and a proposed budget to accomplish the stated objectives of this plan.

A WMA brochure will be developed for Kirch WMA following the completion of this CMP. The brochure will include a map, descriptions of the area, and public recreational opportunities on the area. The brochure will be made available to the public at the WMAs, and the Headquarters and Regional offices.

C. Guidelines for Plan Development

The Kirch WMA CMP was developed in accordance with a number of guidelines, regulations and/or policies including:

1. Federal Aid in Wildlife and Sport Fish Restoration Acts

The purpose for the acquisition of the KWMA was critical in the development of goals for this CMP. KWMA was purchased with Federal Aid in Wildlife Restoration Act funds for its wildlife values with priority management given to wetland development and waterfowl activities, including the use of the area as a public hunting area. By Federal Aid regulation, the property must continue to serve the purpose for which it was acquired. Federal Aid in Sport Fish Restoration Act funds have been used for development and management activities on the area.

2. The NDOW Strategic Plan

A Comprehensive Strategic Plan for NDOW was completed in 1997. This document provides overall agency direction for the next five years. Goals in this CMP are closely tied to the goals in the NDOW Strategic Plan and are adapted to meet the needs of the KWMA.

3. Board of Wildlife Commissioners Policy on WMAs - Policy #66

This broad policy for WMAs, amended in August 1998, provides policy-level guidance to NDOW in the development of CMPs for each wildlife management area in the state. It directs priority management on KWMA toward wetland development and waterfowl activities including the use of the area as a public hunting ground.

4. Wetland Conservation Plan for WMAs

The Wetland Conservation Plan (WCP) for Wildlife Management Areas, funded by an EPA grant, was completed in July 1998 (Huffman et al. 1998). The overall goal of the WCP is no net loss of wetlands on WMAs and the long-term goal to increase wetland quantity and quality within WMAs. Specific WCP Recommendations on Kirch WMA are as follows:

- Develop infrastructure to promote a watchable wildlife experience.
- Prioritize management for populations of endemic fish.
- Land acquisition/acquire additional water rights.

5. Board of Wildlife Commissioners Policy on Fisheries Management Program-Policy #33

This document provides broad policy for programs and projects of the Fisheries Bureau.

6. Fisheries Management Concepts Program and Procedure Manual

This recently adopted document provides program direction for statewide management projects in all fisheries program areas including wildlife management areas.

7. State Regulations

In accordance with the provisions of NRS 501.105, the Board of Wildlife Commissioners is responsible for establishing polices and adopting regulations necessary for preservation, protection, management and restoration of wildlife and its habitat. These duties are further refined in NRS 501.181, which allows the Commission to establish policies for areas of interest including the acquisition of lands, water rights, easements and other property, including the entry, access to, and occupancy and use of such property, including leases of grazing rights, and sales of agricultural products. NDOW must also comply with all rules and regulations of the State Water Engineer, the Nevada Department of Environmental Protection (NDEP), and other state agencies.

8. Federal Mandates

NDOW must abide by such federal regulations as the Endangered Species Act, Section 404 of the Clean Water Act, Section 106 of the National Historical Preservation Act, Americans with Disabilities Act, among others.

9. Migratory Bird Programs

NDOW is also committed to participate in national and international efforts to insure the future well being of migratory birds. The wildlife management areas of Nevada are an extremely important component of the North American Waterfowl Plan, the National Shorebird Conservation Plan, and the Partners in Flight Conservation Plan for neotropical migratory birds, of which a Nevada plan has been recently completed (Neel 1999).

II. Description of Kirch WMA

A. Geographic Location

The KWMA is located in the White River Valley in northeastern Nye County, Nevada (Figure 1). State Route 318 is the major access route to the area. The Preston-Lund area is located about 32 miles to the north of the WMA in White Pine County. Ely is about 75 miles north of the area and Las Vegas is about 200 south of the area in Clark County.

B. Land Status

The KWMA is composed of a total of 14,814.52 acres. Of this, 9,221.52 acres are owned in fee title by the State of Nevada, Division of State Lands with administrative and management duties assigned to the Division of Wildlife. The remaining 5,593 acres were withdrawn for wildlife and recreational purposes from the U.S. Bureau of Land Management (BLM). An additional 21,395 acres of surrounding Natural Resource Land is managed primarily as a buffer area around the WMA by the BLM under a cooperative agreement with NDOW. Five major reservoirs cover about 1,730 acres on the WMA.

C. Geology

The White River Valley is a broad north-south valley typical of many in Nevada. The KWMA lies in the valley floor at an elevation of about 5,200 feet above Mean Sea Level (MSL). The Egan Range borders the Valley on the east and the Grant Range on the west. Both mountain ranges are made of sedimentary limestone. The Egan Range is extremely precipitous on its west face. Numerous deep-cut canyons create relatively large alluvial fans that extend to the valley floor. The east face of the Grant Range is bordered by low-lying foothills, rising to 11,312 feet MSL at Troy Peak.

Several prominent buttes intercept the relatively flat aspect of the Valley near Kirch WMA including Hot Creek Butte. The northern extension of the Golden Gate Range separates White River Valley from Coal and Garden valleys just south of the management area. An aerial image of KWMA and surrounding terrain is found in Figure 2.

D. Climate

The climate of the White River Valley is fairly typical of central Nevada where

temperature extremes are great between day and night. The Western Regional Climate Center has been recording weather data from the weather station at Sunnyside, NV (No. 267908), located on the KWMA, for the period of record from December 1965 to December 1998. During this period of record, the average maximum temperature was 91.3°F in July and the average minimum temperature was 15.8°F in January. The total precipitation has averaged 9.59 inches annually during this period of record with peaks of precipitation occurring in March, May and September. The total snowfall has averaged 17.3 inches per year with most snowfall occurring in December, January and March. Snow accumulation during the winter is generally light in the valley and moderate to heavy in the surrounding mountains. Average frost free days approach 180 days annually on KWMA. Appendix C has the period of record general climate summary for temperature and precipitation from the Sunnyside, NV weather station.

E. Cultural Features

The Nevada State Historic Preservation Office (SHPO) conducted a preliminary archaeological site information survey through the Harry Reid Center at UNLV for the KWMA and found no Historic National Register sites on the area (See Appendix D). However, SHPO considers the KWMA highly sensitive for cultural resources since it has extensive wetland and riparian habitats, which are known to be important culturally elsewhere in the Nevada and the Great Basin.

Any future development projects on the KWMA which propose to move dirt on previously undisturbed sites, will have the required state and federal archaeological surveys. Any required mitigative measures to be conducted will be approved prior to site disturbance.

F. History of Parcel

Settlement of the White River Valley progressed during the 1870s when isolated homesteads appeared, generally associated with meadows where water supply was available. Mining activities precipitated boomtowns such as Hamilton, Ely, Taylor and Bristol Wells. By 1896, Mormon settlers had established the agriculture communities of Preston and Lund.

During the early 1900s, W. E. McGill and J. W. Adams formed the Adams-McGill Company and purchased the land that is now the KWMA and other surrounding lands. They operated a successful ranching empire for several decades with ranch land and associated federal rangeland totaling nearly 100,000 acres. Upon the death of these two gentlemen, Ervin Hendrix purchased the Sunnyside and Hot Creek Ranches in 1943 and

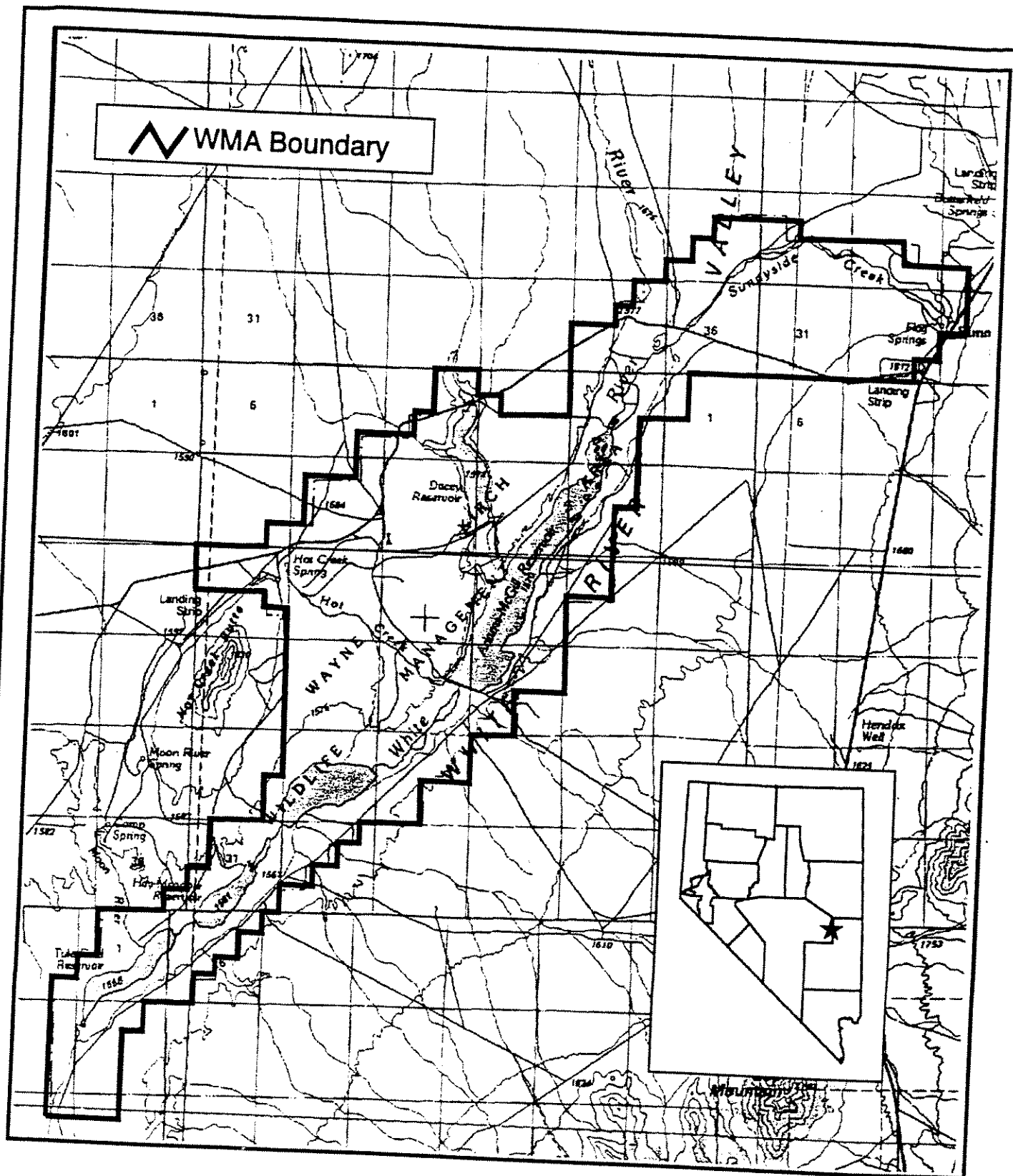


Figure 1. Location and boundary of the W. E. Kirch Wildlife Management Area

0.5 0 0.5 1 1.5 Miles



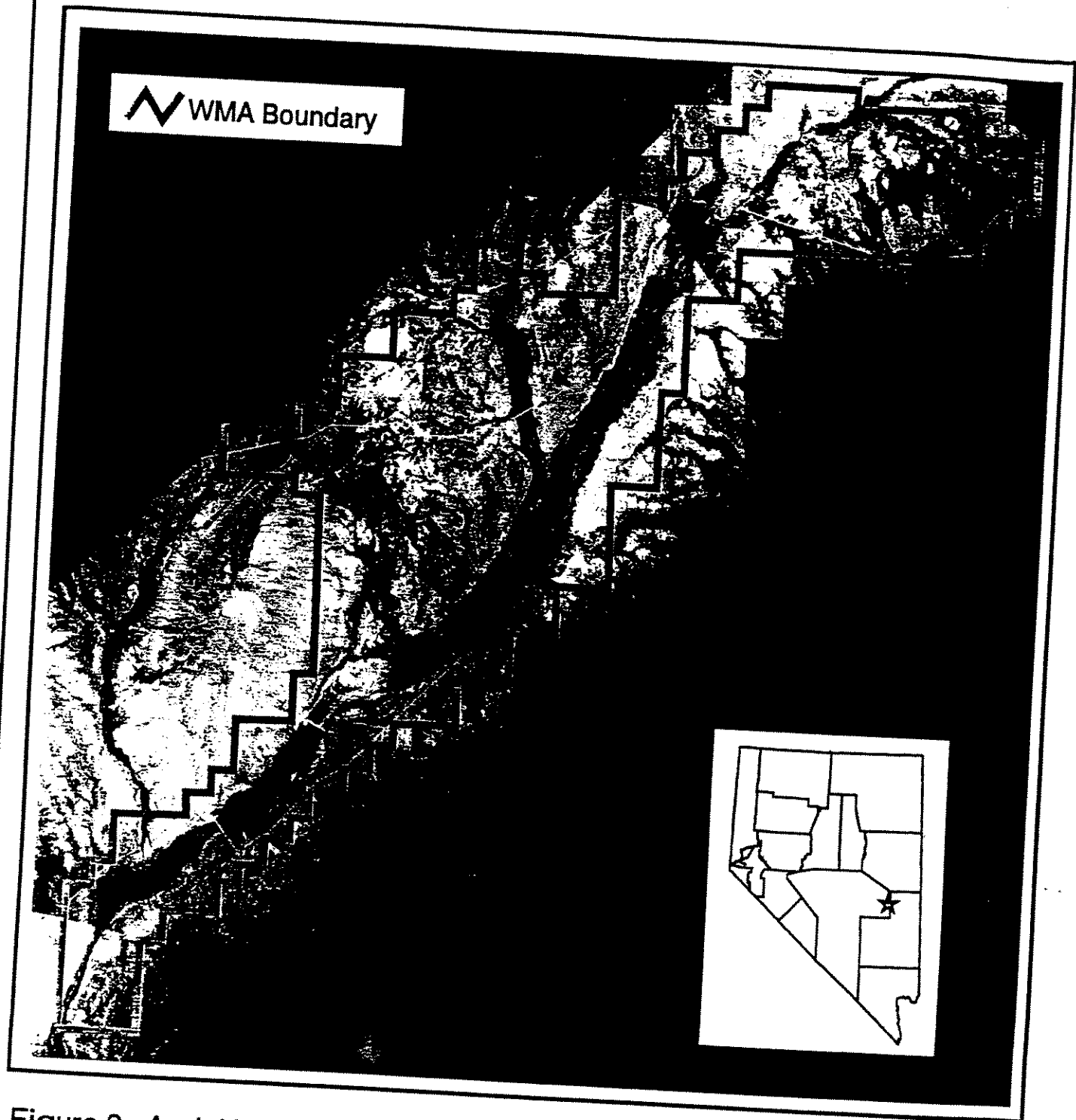


Figure 2. Aerial image of the W. E. Kirch Wildlife Management Area.

0.5 0 0.5 1 1.5 Miles



operated the ranch for the next 16 years until 1959.

G. Acquisition History and Purpose

The Nevada Fish and Game Commission recognized the wildlife potential of the property and purchased the land for the creation of the Sunnyside Wildlife Management Area in April 1959. When first purchased, there was only one major impoundment and associated marsh habitat. Federal Aid in Wildlife Restoration Funds, which are derived from an excise tax on firearms and ammunition, were used to purchase the property. The property was purchased for its wildlife values with priority management given to waterfowl and wetlands. By Federal Aid regulation, the property must continue to serve the purpose for which it was acquired.

In May 1968, the area was dedicated by former governor Paul Laxalt in honor of Fish and Game Commissioner Wayne E. Kirch of Clark County. The name of the area was then changed from the Sunnyside WMA to the Wayne E. Kirch WMA.

H. WMA Boundaries and Adjacent Lands

The KWMA Headquarters is located along State Route 318 on the eastern portion of the WMA (Figure 1). Easements on the area include:

An Electric Line Right-Of-Way Easement - Dated 2/27/73 from the State of Nevada, Department of Fish & Game to MT. Wheeler Power Co., Inc., a right-of-way across lands described as NW1/4 SW1/4 SW1/4 of Sec. 9, T. 6N., R. 61E., M. D. B. & M. and portions of W1/2 W1/2 of Sec. 36, T. 7N., R. 61E., M. D. B. & M., all located in Nye County, Nevada.

A Right-Of-Way Livestock Corridor Easement - Dated 9/3/76 from Nevada Department of Fish and Game to Unelco Inc., a 70 foot wide alignment to Sunnyside Creek for livestock right-of-way watering located in portions of the S1/2 NW1/2 of Sec. 36, T. 17N., R. 61E., M. D. B. & M. in Nye County, Nevada.

Most of the surrounding lands are public lands administered by the BLM. Private lands border the WMA in four locations. The Sunnyside Ranch properties form a common boundary near the headquarters area as well as at the southern tip of the KWMA in the vicinity of Murphy Meadows. The Moon River Ranch forms a common boundary on the Moon River drainage. A significant development adjacent to the KWMA is the 40 acres of private property near the headquarters. Private hunting clubs (Hot Creek Gun Club, Pioche Rod and Gun Club, Inc. and others) maintain cabins and trailers for use by their

respective members with most using the property seasonally.

I. WMA Administration

The KWMA is administered by NDOW under policies and regulations that are adopted by the Board of Wildlife Commissioners. The WMA falls under the supervision of the Chief of Habitat in Reno. Long range plans and programs for KWMA are also prepared by the Chief of Habitat and the Habitat Bureau staff in Reno, as approved by the Administrator.

Kirch WMA is within the Eastern Complex of WMAs and is supervised by a Wildlife Area Supervisor II. A Wildlife Area Supervisor I and a Wildlife Area Technician II are assigned to and reside on the WMA. They perform all the normal activities required for the orderly operation of the area. Routine and emergency law enforcement on the WMA are administered through NDOW's Law Enforcement Bureau. The Wildlife Area Supervisor on Kirch WMA also has one month of law enforcement duty on the area.

During the past five years, an average of \$125,475 has been budgeted each year to operate KWMA. This is about 12% of the amount budgeted to manage all the state WMAs annually. Funding for the management area is comprised of 75% Federal Aid dollars and 25% state dollars. Within the Federal Aid portion, Federal Aid in Wildlife Restoration Act funds were 74% of the Kirch budget while Federal Aid in Sport Fish Restoration Act funds were 26% of the Kirch budget during the past five years. An average of 375 man-days has been budgeted for the area during the past five years, which is about 15% of the man-days used to manage all WMAs in the state.

III. Habitat Types and Soils of Kirch WMA

A. Habitat Types

From sagebrush shrub lands to wet meadows and grasslands, the habitats of KWMA support an abundance of fish and wildlife that contribute significantly to the biological diversity of central Nevada. The WMA contains 3,868 acres of wetlands and aquatic habitats consisting of lacustrine, riverine, fresh emergent wetlands, and wet meadow. Uplands total 11,234 acres of sagebrush, alkali desert scrub, annual grassland and desert wash. Figure 3 shows a map of the habitats found on the KWMA based on data from the Wetland Conservation Plan for Wildlife Management Areas (Huffman et al. 1998). The habitat delineation was based on aerial photography taken on June 22, 1995. The habitat types and the acreages of each type on the area are as follows:

1. Sagebrush

Sagebrush (*Artemisia tridentata*) stands are typically large, open, discontinuous stands of big sagebrush of fairly uniform height. Plant heights range from 1.5 to 6.0 feet and density ranges from very open, widely spaced, small plants to large, closely spaced plants (Mayer and Laudenslayer 1988). In addition to a deep root system, big sagebrush has a well developed system of lateral roots near the soil surface, excluding most other plants in the area. On KWMA, sagebrush is often mixed with other species of shrubs of similar form and growth habit including black greasewood (*Sarcobatus vermiculatus*) and rubber rabbitbrush (*Chrysothamnus nauseosus*). The understory is commonly inland saltgrass (*Distichlis stricta*). The sagebrush type is important habitat for mule deer, pronghorn, sage grouse and nongame species. There are about **4,020 acres** of this habitat type on the KWMA.

2. Desert Wash

The desert wash habitat is characterized by the presence of arborescent shrubs generally associated with intermittent streams or washes. Plants comprising desert wash habitat generally are taller and denser than those of surrounding desert habitats. Presence of water during part of the year is required for this habitat type (Mayer and Laudenslayer 1988). On the KWMA, the desert wash habitat type is found in narrow

corridors around intermittent streams carrying runoff from the Egan Range into the White River Valley. This habitat supports more bird species than any other desert habitat with the exception of riparian. The dense shrubbery also provides food and cover for small mammals and other species of wildlife. There are about **160 acres** of this habitat type on the KWMA.

3. Alkali Desert Scrub

The alkali desert scrub plant community is the most extensive on the KWMA and across the State of Nevada. Shrubs of this community are salt tolerant and are primarily chenopods, or members of the goosefoot family, and include shadscale (*Atriplex confertifolia*) and black greasewood (Mayer and Laudenslayer 1988). The community consists of open stands of low subshrubs and shrubs, which are uniform, widely spaced, and occur on relatively dry soils. Alkali desert scrub vegetation generally occurs at lower to middle elevations next to a number of other arid wildlife habitats. Loggerhead Shrikes, Horned Larks, Crows, Ravens, and a host of small mammals and reptiles inhabit this community (Neel 1999). Other common plant species in this habitat type include rubber rabbitbrush, big sagebrush, spiny hopsage (*Grayia spinosa*), and Indian ricegrass (*Oryzopsis hymenoides*). There are about **6,000 acres** of this habitat type on the KWMA.

4. Annual Grassland

Annual grassland habitats are open grasslands composed primarily of annual plant species. Fall rains cause the germination of annual plant seeds (Mayer and Laudenslayer 1988). Plants remain low in stature until spring, when temperatures increase and stimulate more rapid growth. Many wildlife species use annual grasslands for foraging, breeding, resting, and escape cover. Common birds known to use this community are Horned Larks, Western Meadowlarks, and American Kestrels. There are about **1,040 acres** of this habitat type on the KWMA.

5. Wet Meadow

Wet meadows generally have a simple structure consisting of a layer of herbaceous plants. Shrub or tree layers are usually very sparse. However, they may be an important feature of the meadow edge (Mayer and Laudenslayer 1988). Wet meadows usually occur as ecotones between fresh emergent wetlands and perennial grassland or mesic meadow types. Where wet meadows merge with fresh emergent wetlands, slight differences in water depth control the species present. Common plant species on the KWMA in this habitat type include rushes (*Juncus* spp.) and sedges (*Carex* spp.). Waterfowl use this habitat type for food, escape cover, and nesting habitat. There are **773 acres** of this

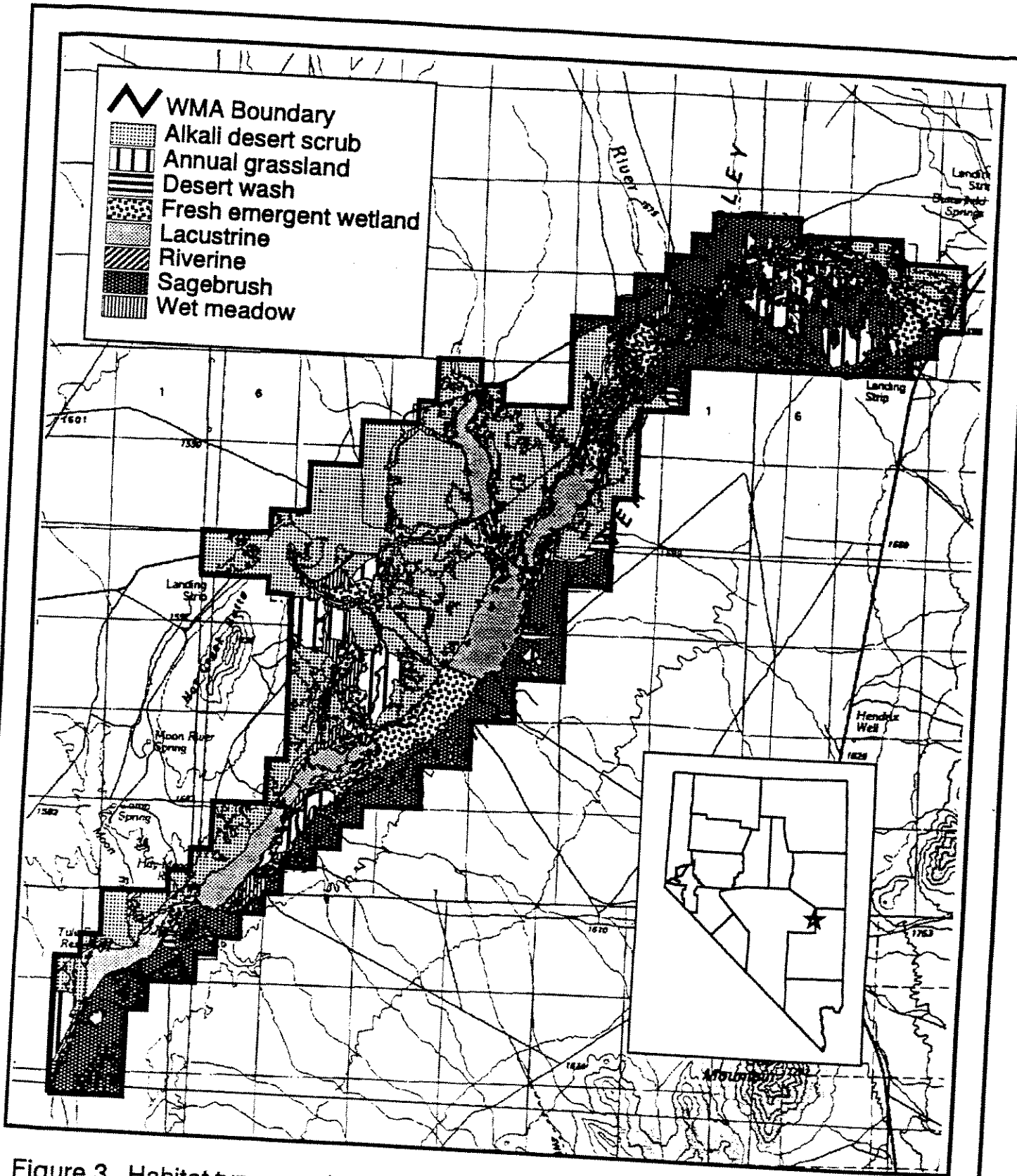


Figure 3. Habitat types on the W. E. Kirch Wildlife Management Area.
 (Based on aerial photographs taken 6-22-95).

habitat type on the KWMA.

6. Fresh Emergent Wetland (Palustrine)

Fresh emergent wetlands are characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation is generally perennial monocots to six feet tall (Cowardin et al. 1979). The emergent wetlands are flooded frequently and the roots of the vegetation prosper in an anaerobic environment. Dominant species in fresh emergent wetland on KWMA include alkali bulrush (*Scirpus robustus*), hardstem bulrush (*S. acutus*), cattail (*Typha latifolia*), sago pondweed (*Potamogeton pectinatus*), rushes, smartweeds (*Polygonum* sp.), and common reed (*Phragmites australis*). The acreage of fresh emergent wetlands in Nevada has decreased dramatically since the turn of the century due to drainage and conversion to other uses, primarily agriculture and urbanization. Fresh emergent wetlands are among the most productive wildlife habitats in Nevada. They provide food, cover, and water for numerous species of birds (waterfowl, wading birds, shorebirds), mammals, reptiles, and amphibians. There are about **1,717 acres** of fresh emergent wetlands on the KWMA.

7. Riverine

The riverine system includes wetlands and deep water habitats contained within a channel (Cowardin et al. 1979). On KWMA, this habitat type consists of the White River corridor and floodplain which bisects the area. There are **68 acres** of riverine habitat on the KWMA.

8. Lacustrine

Typical lacustrine habitats include permanently flooded lakes and reservoirs, intermittent lakes (e.g. playa lakes) and pond habitats with extensive areas of deep water habitat (Cowardin et al. 1979). Most permanent lacustrine systems support fish life; intermittent types usually do not. Vegetation, when present, is predominately nonpersistent emergent plants or submerged and/or floating plants. On the KWMA this habitat encompasses the five reservoirs on the area: Tule, Adams-McGill, Cold Springs, Dacey and Haymeadow reservoirs. The deep water provides habitat for fish, cormorants, and diving ducks. Shallow littoral zones of the reservoirs provide feeding areas for puddle ducks and shorebirds. Lacustrine habitats are used by mammals, birds, reptiles and amphibians for reproduction, food, water and cover. There are **1,310 acres** of lacustrine habitat on the KWMA.

B. Sensitive Plant Species

The Nevada Natural Heritage Program database for the lands on or near KWMA (Appendix E) contains several sensitive plant species including:

Eastwood milkweed (*Asclepias eastwoodiana*) which prefers rocky desert wash habitat;
White River catseye (*Cryptantha welshii*) which is found in valley bottom or low barren knolls with alkaline deposits and enriched gypsum soils;
Sunnyside green gentian (*Frasera gypsicola*) which is found in alkaline playas;
Charleston grounddaisy (*Townsendia jonesii* var. *tumulosa*) which prefers carbonate rocks near springs and seeps; and
Parish phacelia (*Phacelia parishii*).

C. Soils

Soils on the KWMA generally lie in the lower spectrum of the irrigable soil classification. Soils are generally coarse, saline, relatively shallow and poorly drained. The agriculture areas generally lie in better soil types that are well drained with a surface texture of sandy loam or loam. The soils of KWMA fall into six soil series based on soil information from the Natural Resources Conservation Agency (NRCS). Figure 4 shows the soil series on the KWMA. The soil series present are generally described as follows:

The Armespan Series consists of very deep, well drained soils that formed in mixed alluvium. They are very gravelly sandy loam soils. Armespan soils are on fan piedmont remnant. Slopes are 2 to 15 percent.

The Candelaria Series consists of very deep, well drained soils that formed in alluvium from mixed rock sources. They are very gravelly fine sandy loam soils. Candelaria soils are on fan piedmonts. Slopes are 0 to 30 percent.

The Equis Series consists of very deep, poorly drained soils that formed in lacustrine sediments and mixed alluvium on alluvial flats, floodplains and lake plains. Slopes are 0 to 2 percent.

The Nuyobe Series consists of very deep, poorly drained soils that formed in lacustrine sediments from mixed rock sources and volcanic ash. Nuyobe soils are on alluvial flats, drainage ways, lake plains and stream terraces. Slopes are 0 to 4 percent.

The Parisa Series consists of moderately deep over an indurated, well drained soils that formed in alluvium from limestone and dolomite. The Parisa Soils are on fan piedmont

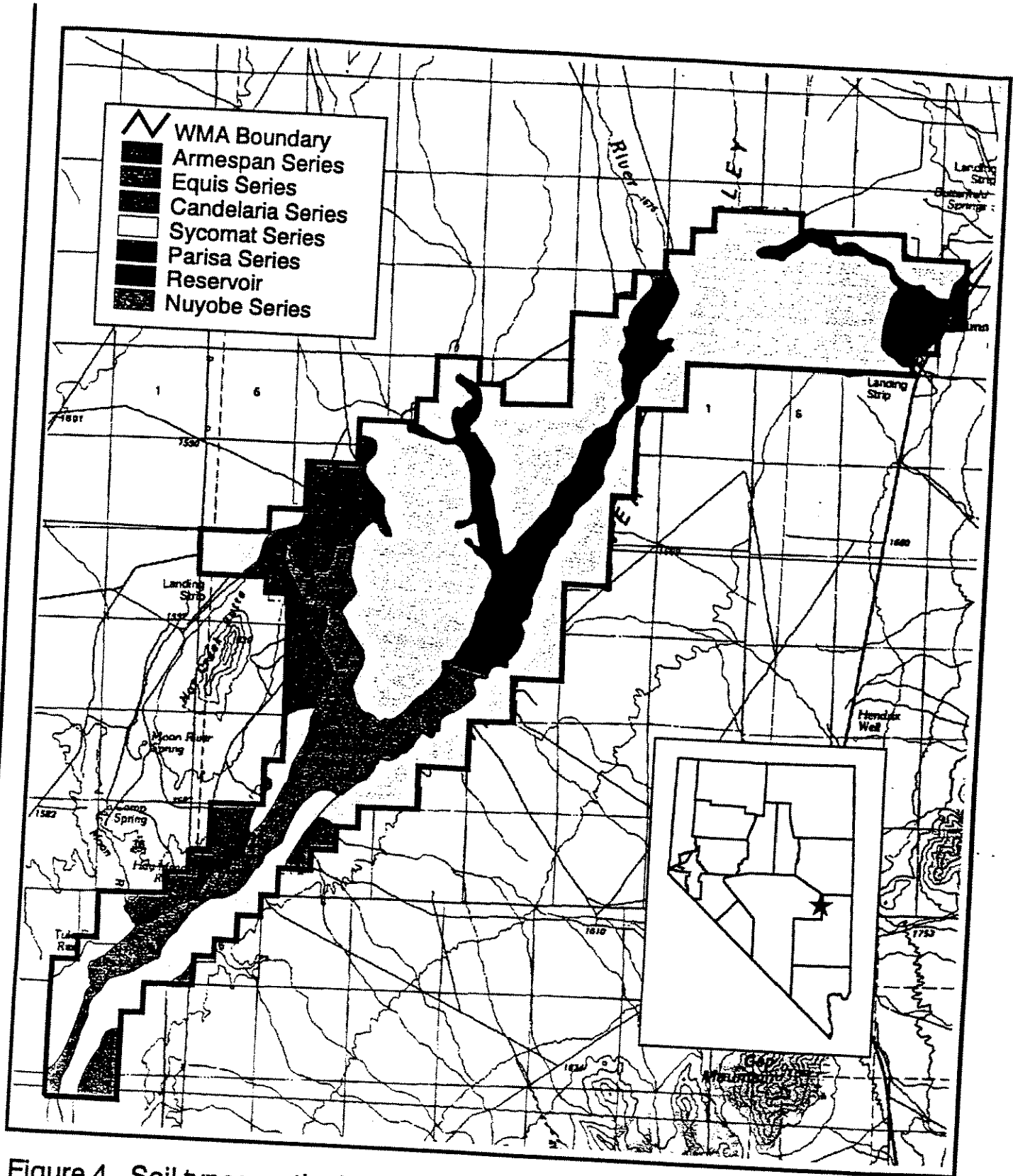


Figure 4. Soil types on the W. E. Kirch Wildlife Management Area.

0.5 0 0.5 1 1.5 Miles



remnants. Slopes are 2 to 15 percent.

The Sycomat Series consists of very deep, well drained soils that formed in mixed alluvium. These soils are on stream terraces, alluvial fans, stream terraces, and piedmont remnants. Slopes are 0 to 8 percent.

IV. Fish & Wildlife Resources of Kirch WMA

The fauna of KWMA is extremely diverse due to the mosaic of habitat types present and NDOW's efforts to develop all the potential wetland habitat the area's water resource can maintain. The exceptional diversity in such a relatively small area emphasizes the biological importance of the area. A list of animals known to occur or are expected to occur on the KWMA is found in Appendix F (NDOW and Huffman et al. 1998).

A. Wildlife Resources: Waterfowl

1. Ducks

Much of the development of the KWMA has been directed toward making the area more attractive to ducks. Over 24 species of ducks have been recorded on the area. Since 1969, the most common ducks species recorded on the area have been Canvasbacks, Pintails, Widgeons, and Gadwall. Diving ducks make up about 35% of the total duck use on the area. Canvasbacks, Redheads, and Ruddy Ducks are the most common species of divers observed (Table 1).

Waterfowl populations on KWMA generally reach highest numbers in October and early November. Duck use usually begins to increase in late August with the arrival of early migrant Pintails and continues through November. During the mid-winter period, duck numbers decrease, dependent on area ice conditions. A few early spring migrants arrive in late January, but the vast majority of the migration occurs from March through April.

The KWMA provides a valuable stopping place for migrant ducks that follow the state's eastern sub-flyway. Duck habitat is comprised of wet meadow, shallow flooded areas, large reservoirs, small ponds, creeks and associated slough areas. Baltic rush (*Juncus balticus*) and saltgrass along the shorelines and shallow depressions provide cover and nesting habitat. An important duck food is sago pondweed, but also alkali bulrush and spike rush seeds.

Areas of particular importance to dabblers include the eastern and western shore areas and the northern third of Adams-McGill Reservoir, the northern and western portions of Cold Springs, and the Sunnyside Creek area. Diving ducks, particularly Redheads, Canvasbacks, and Ruddy Ducks use the northern two thirds of Adams-McGill Reservoir.

Migrating diving ducks also use Dacey, Cold Springs, and Haymeadow reservoirs for feeding and resting.

The annual peak population of ducks has averaged 9,344 birds since 1969. The highest duck population recorded on KWMA since 1969 was 17,060 birds in 1987-88. The lowest duck population was in 1991-92 with only 3,785 birds recorded. The average, high and low populations of ducks by species is shown in Table 1. Low numbers generally were recorded during periods of drought when available habitat was limited while high numbers were generally during the migration in spring or fall during high water years.

To protect nesting waterfowl on the KWMA, trespass is prohibited on the upper portion of Adams-McGill, Cold Springs and Haymeadow reservoirs and all portions of the Tule and Dacey reservoirs, as posted, from February 15 to August 15 each year.

Surveys for duck breeding pairs have been conducted on the KWMA since 1967. The average annual number of breeding pairs of ducks since 1967 has been 660. The highest number of duck pairs was in 1984 with 1,255 pairs counted and the lowest number of duck pairs (208) was counted in 1997.

Up to 12 species of ducks breed and raise their young on the area. The first duck nests begin hatching in mid-April and by mid-August, 95% have hatched. Peak of hatch is usually late July through early August. Adams-McGill and Dacey reservoirs produce most of the ducklings on the area.

Brood surveys are conducted once each year on the KWMA in July. Production is based upon the pair count and average brood size. Gadwall, Redheads, Canvasbacks, and Ruddy Ducks have been the most common nesting species on the area since 1976. Duck production has averaged 124.37 broods with 662.89 young since 1976. Duck production has averaged 108.2 broods with 490.2 young in the past five years (Table 2).

2. Geese

Canada Geese are the most common geese on the KWMA. White-fronted, Snow and Ross's geese are infrequent users of the area. A Canada Goose introduction was initiated by NDOW in 1960 to establish a resident flock which would reproduce and maintain adequate numbers for recreational use. Despite several setbacks, production improved and winter flock numbers have increased. The breeding population is considered to be established and brood and gosling numbers appear to be fairly stable (NDOW 1999).

Canada Goose numbers remain low from August to late November when northern migrants arrive, with a peak in numbers in January. The spring exodus of migrants usually begins in early February and by mid-March, after which only local geese are left on the area.

The entire watered area of KWMA can be classified as Canada Goose habitat. Brooding habitat is found on Adams-McGill, Dacey and Tule reservoirs, Old Place ponds, and Murphy Meadows. Prescribed burning and sufficient spring moisture provide for early green-up of succulent vegetation preferred by geese. Important feeding areas are located on Dacey Slough, the Old Place ponds, and the shorelines of Adams-McGill and Tule reservoirs. The upper end of Adams-McGill Reservoir is an important area for goose nesting.

The annual peak population of geese on the KWMA since 1969 has averaged 411 birds with a high of 793 birds in 1978-79 and a low of 171 geese recorded in 1996-97 (Table 1).

The geese begin nesting on the area in early March and by early April, the broods are beginning to appear. Most young-of-the-year are on the wing by early July. There is adequate feed in and around the ponds for the flightless birds. In mid-August, molting geese begin to return to the area and the goose population remains relatively stable until late November when migrant geese again arrive.

Pair count data taken since 1972 show an average of 40.8 pairs of Canada Geese on the WMA annually. As many as 95 pairs of geese were counted in 1993 and a low of 18 pairs were counted in 1996.

Since 1976, the average number of Canada Goose broods each year has been 18.37 with 70.21 young and an average brood size of 3.82. The number of broods recorded in the past five years has averaged 15.4 broods with 57.4 young and 3.73 the average brood size (Table 2).

3. Swans

Tundra Swans are annual visitors to the White River Valley. Small groups are usually seen on the area between November and April. During years with severe winters, ice cover reduces the feeding habitat, pushing the birds further south on their migratory route.

The five major reservoirs on the area produce an abundance of sago pondweed

which are highly preferred foods for swans. Open water and shallow slough areas are also present in adequate quantities and quality for swans. Annual peak population of swans since 1969 has been 83 birds with a high of 315 in 1979-80 (Table 1).

4. Coots

American Coots are found in large numbers during almost all months of the year. They represent the highest game bird use on the area. Annual peak population since 1969 has averaged 10,402 birds with a high of 19,780 birds in 1976-77 and a low of 540 birds in 1994-95 (Table 1).

B. Wildlife Resources: Upland Game

1. Upland Game Birds

Mourning Doves have been observed on all upland habitat types on the KWMA but are most concentrated in the food plots next to the headquarters. Climatic and habitat conditions cause Mourning Dove breeding populations to be extremely variable from one year to the next on the area. Mourning Doves nest in the area's trees or shrubs. Peak fall migration numbers usually occur prior to the opening of hunting season. White-winged doves also occur infrequently on the area.

White-winged and Ring-necked Pheasants were released onto the area by NDOW in the 1960s and 1970s. Today the population of pheasants on the area remains low. Pheasant habitat is restricted mainly to the historic agriculture fields at Kirch WMA. Sunflower and other weedy plant species offer some food and escape cover. Scaled Quail also were released on the area in the early 1960s but several severe winters eventually eliminated the population.

2. Mammals

Rabbit species on KWMA include the black-tailed jackrabbit (*Lepus californicus*) and cottontails (*Sylvilagus* spp). The populations of rabbits are variable from year to year. The edges of the White River drainage provide adequate cover and feed during most years for maintenance of rabbit populations.

Other mammals on the KWMA include the bobcat (*Lynx rufus*), coyote (*Canis latrans*), spotted skunk (*Spilogale gracilis*), striped skunk (*Mephitis mephitis*), long-tailed weasel (*Mustela frenata*), badger (*Taxidea taxus*), and others listed in Appendix F.

Four big game species have been recorded on the area. Mule deer (*Odocoileus hemionus*) use the area throughout the year with a population estimate of less than 50 animals. The main area of use by deer is the headquarters fields and adjacent dense sagebrush and the west shore of Cold Springs, Hot Creek Butte, and the associated bluffs. Pronghorn (*Antilocapra americana*) continue to use portions of the area following their reintroduction in the White River Valley in 1984. Mountain lion (*Felis concolor*) presence is regarded as rare or accidental on the KWMA. Rocky Mountain elk (*Cervus canadensis*) are infrequently seen on the area.

C. Wildlife Resources: Nongame Wildlife

Although the area was originally purchased and developed to preserve wetland habitat, principally for waterfowl, many other wildlife species including raptors, shorebirds, and wading birds have benefitted from this project.

1. Wading Birds

White-faced Ibis, Great Blue Herons, Great Egrets, Snowy Egrets, bitterns, and rails are common on the Kirch WMA. The most conspicuous species of wading birds on KWMA are Snowy Egrets and White-faced Ibis. Black-crowned Night Herons and Great Blue Herons nest on the area. The trespass closure during nesting times benefits nesting waterfowl and as well as numerous other water birds. Important feeding areas for wading birds include the shallow shoreline of the Adams-McGill Reservoir and the Sunnyside and Hot Creek ditches.

2. Shorebirds

This group of birds is composed of species that prefer mudflat or wet meadow areas on the Kirch WMA. Black-necked Stilts, American Avocets, Greater Yellow Legs, Willets, Wilson's Phalaropes, plovers, dowitchers, Long-billed Curlews and Marbled Godwits are common on the area (Bamgrover 1982). Shorebird populations are most numerous during the fall and spring migrations.

One of the most important shorebird habitat areas is located below Kirch's southern boundary in the Murphy Meadows area where bottom land is flooded with winter and spring runoff water, creating a large expanse of shallow flooded area. Black-necked Stilts and American Avocets utilize the Dacey Slough and the western marsh of the Adams-McGill Reservoir.

The mud flats and associated shallow water areas of KWMA are required for

migrating and breeding shorebirds for foraging and resting. Mud flats are essential for nesting by Snowy Plovers and American Avocets, while Black-necked Stilts require dry mud flats or hummocks within the marsh. Grassy areas and wet meadows are used for foraging by many of the shorebirds while Common Snipe, Willets, and Wilson's Phalaropes all require wet meadows for nesting.

3. Other Water Birds

Gulls, terns, Double-crested Cormorants and American White Pelicans are also found on the KWMA, primarily during migration periods. A rookery of Forester's Terns was recorded on the northern portion of Adams-McGill Reservoir in 1997. A Double-crested Cormorant nesting colony is present on the north portion of Adams-McGill Reservoir. Pied-billed Grebes and Eared Grebes nest on the area, primarily in the suitable areas on the edges of Dacey and Adams-McGill reservoirs, while Western and Horned Grebes are transient visitors. Emergent habitat necessary for Virginia Rails and Soras is provided on the area.

4. Raptors

KWMA is visited by a variety of raptors during all seasons. Kirch provides adequate and diverse prey for raptors but sufficient nesting habitat is lacking because of a scarcity of trees except for ground or burrow nesters.

Nesting species of raptors on the area include Great Horned Owls and Northern Harriers. Golden Eagles, Red-tailed Hawks, and Prairie Falcons use the area primarily for feeding. Peregrine Falcons and Merlins use the area seasonally during the spring and fall migration periods. Bald Eagles and Rough-legged Hawks visit the area for winter feeding.

5. Passerines

Passerine populations generally peak during the spring migration period. The greatest numbers occur near riparian habitat and in close association with marsh areas. Passerine birds regularly nesting in or near the KWMA include Horned Larks, Marsh Wrens, Red-winged Blackbirds, Savannah Sparrows, Song Sparrows, Common Yellowthroats, Black-throated Sparrows, and Western Kingbirds.

6. Sandhill Cranes

Greater Sandhill Cranes nest in Elko and White Pine counties in Nevada and

migrate south through eastern Nevada to spend the winter in Arizona and California. In winter, the cranes become highly social and feed in large flocks, primarily on waste grain in cultivated fields. The population historically congregated to feed and loaf on the grain fields near Preston and Lund, just north of the KWMA in late February and early March during spring migration (NDOW undated). In recent years, many of the fields in Lund and Preston have been converted from grain to alfalfa and this traditional stopover area has been diminished in importance (C. Tomlinson, pers. comm). The cranes are occasional visitors to the KWMA.

7. Small Mammals

No formal surveys have been conducted for small mammals on the KWMA, although the area probably supports a diverse array of mammals. The meadow and wetland areas are important habitat for voles, shrews, and harvest mice. The uplands provide habitat for pocket mice, kangaroo rats, and other mice. In addition, the open water sources provide abundant insects for several species of bats as indicated in Appendix F.

8. Reptiles and Amphibians

Several surveys of reptiles and amphibians have been conducted on the KWMA. A list of reptiles and amphibians known to occur or would be expected to occur on the KWMA is found in Appendix F.

D. Fisheries Resources: Game Fish

Since KWMA was purchased by NDOW, enhancement of wetland areas has resulted in an increase in the number of reservoirs from one in 1959 to five presently which provide an important fisheries resource on the area. A list of fish species that occur on the KWMA is found in Appendix F.

Largemouth bass (*Micropterus salmoides*), were first stocked into Adams-McGill Reservoir by NDOW in 1961 and have since spread to every impoundment on the area. Largemouth reproduction has been documented in all reservoirs. Largemouth bass and black bullhead are the only self-sustaining game fish species on the area. The bass utilize the shallower shoreline areas for spawning activities. Bass have about a five to six month growing season on the KWMA.

Rainbow trout (*Oncorhynchus mykiss*) were first introduced onto the KWMA in 1962 in the Sunnyside Creek above Adams-McGill Reservoir. Good survival prompted plants in the reservoirs following this. These are the only species of trout being stocked currently

at KWMA. Without a stocking program, a salmonid fisheries could not be sustained in any of the reservoirs due to the angling pressure and lack of proper spawning conditions. Currently, Cold Springs and Haymeadow reservoirs receive hatchery reared trout during the spring and fall periods each year.

Black bullhead (*Ameiurus melas*) were introduced onto the KWMA by persons unknown and illegally. They have been found in Cold Springs, Haymeadow and Tule reservoirs and natural reproduction has been noted.

There are several game fish which had been documented on the area in the past, but are no longer present. The bluegill (*Lepomis macrochirus*), was present before NDOW obtained ownership of the area, but are no longer present. The black crappie (*Pomoxis nigromaculatus*), cutthroat trout (*Oncorhynchus clarki*), and brown trout (*Salmo trutta*) were introduced by NDOW, but were not successful beyond their initial plants.

F. Sensitive Fish and Wildlife Species

The Nevada Natural Heritage Program has designated the KWMA as one of 48 Highest Priority Conservation Sites. KWMA is within the White River Valley Macrosite, Site: Sunnyside/Kirch WMA (Nevada Natural Heritage Program 1998). The Nevada Natural Heritage Program database for the lands near KWMA (Appendix E) contains several sensitive fish and wildlife species as follows:

1. Sensitive Wildlife Species

The Bald Eagle (*Haliaeetus leucocephalus*), listed as a threatened species, is a winter visitor of the KWMA. The Peregrine Falcon (*Falco peregrinus*), recently delisted as an endangered species, is an occasional visitor to the property.

There are also several sensitive species (Nevada Natural Heritage Program 1999) that are visitors to KWMA including White-faced Ibis (*Plegadis chihi*), Ferruginous Hawks (*Buteo regalis*), Western Snowy Plover (*Charadrius alexandrinus nivosus*), and Western Least Bittern (*Ixobrychus exilis hesperis*). There are also a number of species of springsnails (*Pyrgulopsis* spp.) on or near the area (Appendix E).

2. Sensitive Fish Species

There are four endemic species of fish on the Kirch WMA. They are the White River spinedace (*Lepidomeda albivalis*), the Moorman White River springfish (*Crenichthys baileyi thermophilus*), the White River speckled dace (*Rhinichthys osculus velifer*), and the

White River desert sucker (*Catostomus clarki intermedius*.)

Flag Springs and Hot Creek Springs serve as home to these four endemic fish species. The White River spinedace, the White River desert sucker and the White River speckled dace are all present in the Flag Springs Complex. Three major springs comprise the Flag Springs complex and are situated on the northern edge of Kirch WMA adjacent to the area headquarters. Water produced from Flag Springs is controlled by runoff and contributes significantly to the formation of Sunnyside Creek which maintains water levels in downstream reservoirs. The combined Flag Springs discharge averages 6.5 cfs, with a typical annual range of 5.5 to 7.4 cfs depending on the season. The Hot Creek Spring is home to the Moorman White River springfish and originates from several warm springs. Hot Creek feeds into Dacey, Adams-McGill and Cold Springs reservoirs.

a. The White River Spinedace

The White River spinedace was federally listed as endangered under the Endangered Species Act in 1985. In 1994, a recovery plan for the species was implemented (USFWS 1994). Today, the spinedace is one of the rarest fish species in the western states with the only known population occurring in the immediate outflow and confluence of North Flag Springs and Middle Flag Springs on the KWMA. A combination of factors caused their decline including habitat modifications, water diversions, and competition and predation from nonnative gamefish. Low spinedace densities which preclude male/female sequencing necessary for reproductive success and competition and egg predation from other resident native fishes have also contributed to their decline (NDOW 1998).

Spinedace are found in the bottom of springs that are mostly gravel and sand with some mud; they are generally found in water depths not over two feet (La Rivers 1962). White River spinedace are opportunistic omnivores and are confined to areas of cool springs (65 to 71° F) and their overflow, with a preference of swift to moderate currents (Sigler and Sigler 1979).

As recently as spring 1996, the population of spinedace was believed to be less than 20 non-reproducing adults in artificial pools near the North Flag Spring source, based on survey observations. In 1995, the fish were moved from the pools into the outflow channel to allow reproduction. Population surveys conducted more recently in March 1999 and September 1999 estimated the populations to be at least 539 in March and at least 1,573 comprising four age classes in September (J. Stein, per. comm.). Surveys found spinedace up to 500 meters below the confluence of Middle and North Flag Springs (Figure 5). It appears that the range of the White River spinedace is expanding down

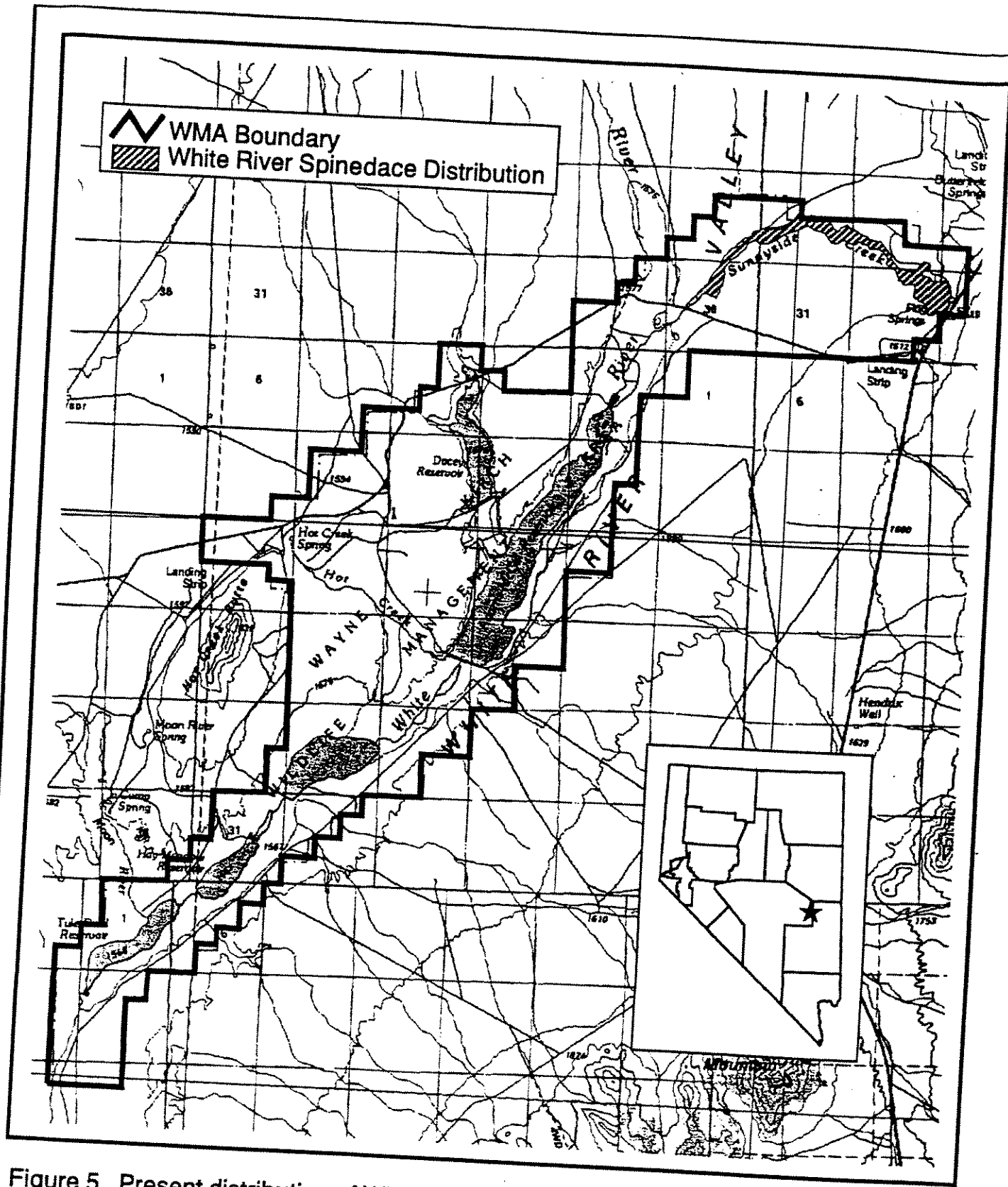


Figure 5. Present distribution of White River spinedace, *Lepidomeda albivallis*, on the W.E. Kirch Wildlife Management Area.

0.5 0 0.5 1 1.5 Miles



Sunnyside Creek. With the recent completion of a Rotenone project that removed bass from the lower reach of the stream, substantially more suitable habitat is available and the populations should continue to recover (NDOW 1998). A permanent fish barrier structure on the lower Sunnyside Creek, constructed by NDOW personnel, prevents movement of largemouth bass from Adams-McGill Reservoir upstream into occupied spinedace habitat.

b. The Moorman White River Springfish

The Moorman White River springfish, a species of concern, is protected by the State of Nevada which prohibits the taking of protected species without a valid state collecting permit (Nevada Administrative Code 503.065). They are found in the warmest springs in the White River Valley including the Hot Creek Springs on the Kirch WMA. The Hot Creek Refugium was officially designated in 1966 by NDOW for the protection of the population. This site has also been designated as a National Natural Landmark. Management of this site since then has included removal of largemouth bass, erecting barriers to keep bass out of the system, and protection and restoration of the area. Population monitoring of the springfish was conducted during the summer of 1998 using mark-recapture techniques. The population was estimated to be 15,276 adult fish above the culvert and a similar number estimated downstream of the culvert (NDOW 1998).

Moorman White River springfish are found in suitable warm springs and their effluents along the White River (La Rivers 1962). The springfish lives in waters with high temperatures (from 70 to 98.5° F) and low dissolved oxygen environments and prefers spring heads and quiet water along the outflows (Sigler and Sigler 1979).

c. The White River Desert Sucker

The White River desert sucker is another rare native fish on Kirch WMA. This species is a species of concern, and is protected by the State of Nevada. These fish are present in largest numbers in the North Flag Springs/ Sunnyside Creek complex. White River desert suckers were found to be abundant in the Flag Springs system during September 1997 and March 1998 surveys, general distribution was recorded but fish were not individually enumerated (NDOW 1998). The White River desert sucker is a herbivore, feeding on encrusted diatoms and algae scraped from stones. It is most frequently found in water depths of 3-4 feet (Sigler and Sigler 1979).

d. The White River Speckled Dace

The White River speckled dace is a species of concern and is protected as sensitive by the State of Nevada. They are located in cooler waters of the White River

Valley. Daytime water temperature in occupied habitats ranged from 13.7 to 28.5° C, and dissolved oxygen ranged from 3.07 to 16.8 mg/l (Scoppottone et al. 1992). The White River speckled dace was found to be abundant in the Flag Springs system during September 1997 and March 1998 surveys. General distribution was recorded but fish species were not individually enumerated (NDOW 1998).

White River speckled dace serve as prey for gamefish and are parasitized by a variety of organisms. They are bottom-dwelling, feeding primarily on benthic organisms including aquatic insects, shrimp, plant material, zooplankton, and algae. They are uncommon in water over three feet in depth (Sigler and Sigler 1979).

Management of these four endemic species is directed toward preservation of existing habitat and perpetuation of the species within guidelines of state and federal regulations. The Nevada Division of Wildlife receives funding from the U. S. Fish and Wildlife Service through Section 6 of the Endangered Species Act to monitor population status and manage the species. A management plan for the White River spinedace and other White River Valley endemic fishes is currently being developed by the endemic fish biologist at NDOW.

V. Hydrology and Water Resources of Kirch WMA

A. Water Resources

The KWMA is located along the main channel of the Pleistocene White River in the White River Valley sub-basin of the Colorado River Basin hydrographic area. The KWMA has about 50-52 inches of average annual surface water evaporation (Nevada Division of Water Planning 1999) and averages 9.59 inches total precipitation annually.

The major sources of water for the KWMA come from ground water outflow (springs), ground water inflow, surface water inflow and precipitation. Water is usually abundant during winter, spring, and early summer period, but somewhat less than adequate to maintain levels in Cold Springs, Haymeadow and Adams-McGill reservoirs during the late summer-early fall period (NDOW 1999).

Kirch WMA is primarily spring fed with total measured water inflows feeding the area averaging between 17 cubic feet per second (cfs) in the summer and 21 cfs in the winter. The two major spring sources discharging to the surface for use on the KWMA are the Flag Springs and the Hot Creek Spring. Flag Springs issue from three points located near the KWMA headquarters on the west sloping alluvial fan of the Egan Range at an elevation of 5,275 feet MSL. Flag Springs flow a combined average of 6.5 cfs. Fluctuations in volume flow are normal on these springs. Hot Creek Spring is a thermal spring (92°F) located on the west edge of the Kirch WMA (Figure 5). Hot Creek Spring flows between 12-17 cfs.

The KWMA is located near the northern end of the White River drainage basin and a considerable amount of water may flow through the project as surface water inflow during runoff periods. Following above-average winter rainfall and above-average snow pack in the mountains surrounding the White River Valley, KWMA receives higher than average surface flows in the form of spring runoff for a 2 to 12 week period. Total inflow from this source can be as much as 1,500 acre feet during extremely wet years or next to nothing in moderate and dry years.

The Moorman Spring Wash, Egan Spring Wash, Shingle Wash, Butterfield Creek and Moon River provide intermittent runoff during early spring and after heavy rains in the summer. Butterfield Springs release about 2.5 cfs and the Moon River spring releases about 2.0-2.5 cfs during the winter and spring. Several other minor seeps and springs that occur on KWMA include the Cold Springs and Old Place Field springs which do not provide

significant amounts of surface discharge. In most years on the WMA, water is in surplus from January through June, in deficit from July through early October, and then the reservoirs begin filling once again in late October.

According to records on file with the State Water Engineer, Division of Water Resources, water rights appurtenant to the KWMA are covered under two Proofs of Appropriation and nine Certified Water Rights. A summary of water rights on the KWMA is found in Appendix G.

B. Water Distribution

The water distribution system is composed of approximately 17 miles of dirt ditches and about nine miles of natural stream channels. Water distribution from Flag Springs to Adams-McGill Reservoir is accomplished through the natural stream channel and through the Old Place dike system. Water from Hot Creek Spring is presently diverted from its natural channel to Adams-McGill Reservoir, Dacey Reservoir, and the Cold Springs Reservoir.

C. Water Management

Since the purchase of the WMA by the Division, a series of dams and spreader dikes have been constructed to increase the shallow flooded acreage. NDOW constructed Tule, Haymeadow, Cold Springs, and Dacey reservoirs and added to the storage capacity of Adams-McGill Reservoir two times since the area was purchased. Currently, during maximum water levels (November through June), there are about 2,000 acres of surface water of which nearly half is at two foot depths or less.

The first formal Water Management Plan (WMP) for the KWMA was implemented in 1982. Monitoring studies were implemented at each reservoir to properly evaluate the results of the WMP and make adjustments as required. Monitoring has included: weekly project inflow/outflow water measurements, reservoir water level and temperature measurements, spring and stream water measurements, reservoir submerged vegetative transects and emergent vegetative photo plots.

The development of each annual WMP is based on sound marsh management principals supported by current literature and the decisive results of previous water management to meet the stated objectives. A water management flow chart by unit for 2000 is found in Appendix H.

Currently, water levels at the Flag Spring and Hot Creek Spring units are managed

to protect and enhance native fish populations and to provide water sources to downstream water management units. Due to the presence of White River spinedace in Flag Springs and the first three miles of Sunnyside Creek, water and surrounding habitat associated with these waters have been dedicated to the recovery of the species. Water management units managed for endemic fish include the following:

The Flag Springs Unit encompasses the headquarters area, the headquarters fields, portions of Sunnyside Creek and associated meadows. The Flag Springs arise from the upper portion of this unit and run through its entire length. Water from Flag Springs is used for residential/domestic use at the Headquarters and to satisfy permitted livestock use south of the Headquarters.

The Sunnyside Creek Unit encompasses the creek area north and west of the headquarters fields and extends southwesterly to the County Road bridge.

The Hot Creek Springs Unit includes the Hot Creek Springs which arises and originally flowed south toward the White River Channel.

The Old Place, Dacey, Adams-McGill and Tule reservoirs emphasize the production of sago pondweed, and alkali bulrush for maximum utilization by waterfowl during the spring and fall migration periods and to maximize waterfowl production on these units. These units include the following:

The Old Place Field Unit is located at the confluence of the White River Channel and Sunnyside Creek and extends south to Adams-McGill Reservoir. With the construction of four dikes, an effective mosaic of alkali bulrush surrounded by wetland grasses was created. Sunnyside Creek provides the major portion of the water for this unit. This unit consists of 250 acres of shallow flooded impoundments surrounded by another 350 acres of native hay fields establishments in wet soils. Most of the fields can be irrigated providing wet soil or shallow flooded conditions from fall through spring. After completion of the four dikes, grazing on the area was discontinued and in the last several years, cattails and hardstem bulrush have become the dominant emergent vegetation.

The Dacey Unit is located on the Moorman Wash and includes Dacey Reservoir and Dave Deacon Campground. Dacey Reservoir receives most of its water supply from Hot Creek Spring via the north Dacey diversion ditch and also from the Moorman Wash during spring run-off.

The Adams-McGill Unit is located centrally on the area and borders the east boundary. Adams-McGill Reservoir, the major impoundment on the unit, is situated along the White

River Channel at the confluence of Moorman Springs Wash. Water reaches this unit from the White River and Sunnyside Creek to the north and from Moorman Wash and Hot Creek to the west.

Tule Field Unit is located on the southernmost extreme of the WMA and encompasses Tule Reservoir. Water enters the unit via the White River Channel, through the Haymeadow Reservoir, and from the Moon River drainage. This unit is maintained in lower priority than Dacey Reservoir to achieve prescribed water levels at other reservoirs during limited water years and for downstream water right deliveries. Total water necessary to satisfy the downstream use in the Murphy Meadows is 11.787 cfs or 2,223 acre feet annually during the season (October 1- June 1). The unit will be a supplemental fishery dependent on water availability and wetland/waterfowl management needs.

Cold Springs Reservoir and Haymeadow Reservoir are maintained at high stable water levels on a yearly basis to maximize fisheries values. These water management units include the following:

The Cold Springs Unit is located along the White River Channel directly south of the Adams-McGill Reservoir.

The Haymeadow Unit is located about 5 miles below the Adams-McGill Dam on the White River Channel.

VI. Area Management of Kirch WMA

Water management will be the most important tool used on the KWMA to achieve vegetation management objectives. When water management alone will not meet vegetation management objectives, other habitat management tools such as prescribed burning and/or herbicide spraying will be conducted in conjunction with water management.

A. Prescribed Burning

Prescribed burning is a practical and economical tool for the management of natural vegetation for the control of litter and the stimulation of plant regrowth. Using prescribed fire as a management tool in wetlands can reduce dead debris, control undesirable shrubs, trees and thick stands of cattail and bulrush, increase availability of desirable forage and improve wildlife habitat (Wright and Bailey 1982).

Currently, area management includes prescribed burning to improve habitat conditions for resting, nesting and feeding by waterfowl. The burns remove excessive litter and optimize forage production for waterfowl. The burn program is closely tied to the herbicide spraying and water management programs. A five year burning rotation is targeted for wet meadow, annual grassland, riverine, and fresh emergent wetland on the WMA identified as waterfowl forage areas. The green-up of native wetland grasses following the fall burns provides excellent habitat for waterfowl and shorebirds.

Prescribed burns on the management area occur in the late fall and winter because by March, waterfowl are nesting and during the summer, the vegetation is too green to be effectively burned. Firebreaks are developed or maintained in association with any planned prescribed fire or to protect boundaries and habitats.

On KWMA, prescribed burning is usually conducted in coordination with Nevada Division of Forestry and occasionally BLM. Smoke management from prescribed burning is becoming a serious issue in the western states. NDEP is currently revising regulations and the permit process for conducting prescribed burning. More planning, coordination, manpower and equipment will probably be required in the future as the window of opportunity for prescribed burning narrows. More stringent regulations could lead to less prescribed burning and a resulting need for alternative means of vegetation control.

The intent of the habitat improvement projects/methods outlined in this plan are to manage the amount of cattails, hardstem bulrush, and wire grass on the area and provide as much variation of vegetation possible. This approach should in turn attract a more diverse wildlife population and increase wildlife use. The KWMA is divided into five units for the purpose of prescribed burning including the Dacey Slough Unit, the Tule Unit, the Haymeadow Unit, the Cold Springs Unit, and the Old Place Unit (see Section IX for unit descriptions).

B. Herbicide Spraying

Chemical control is an effective method to manage undesirable vegetation in conjunction with water management, when water management alone will not meet vegetation objectives. Aerial spraying (about 200 acres biannually) is conducted with the herbicide Rodeo to open up mono-typical stands of cattail and hardstem bulrush to make them more desirable for waterfowl. The areas targeted are primarily shallow (0-3 feet deep). In the past, these areas were managed for alkali bulrush and sago pondweed but the undesirable emergent vegetation had taken over. By spraying, preceded and followed with burning where feasible, these areas will become more desirable for waterfowl feeding, resting and nesting. Many of these areas currently have little or no waterfowl use. Aerial spraying will be conducted to control undesirable emergent vegetation (cattails and hardstem bulrush) along the shorelines, channels, shallow impoundments and reservoirs where hand spraying is not practical and other vegetation control methods such as water control or prescribed burning are not effective.

Hand spraying is also conducted with the herbicide Rodeo to open ditches, enhance water delivery and to provide better habitat to attract waterfowl by decreasing the emergent vegetation, primarily hardstem bulrush and cattails. Hand spraying the boat launches and other public access to reservoirs benefits the public. An added benefit to hand spraying these areas is that the rate of siltation in the ditches and creeks is reduced and less time and money is spent mechanically cleaning the ditches with heavy equipment.

C. Seeding

Following burning and spraying, alkali bulrush has been hand-seeded on the KWMA. Once established, the seedings are self-sustaining with the aid of proper water management. Alkali bulrush seedings work well in those areas following treatment with herbicides. This process was implemented on Old Place Reservoir recently with excellent alkali bulrush regrowth resulting. Waterfowl benefit from the habitat resulting from spraying, burning and seeding with alkali bulrush in shallow flooded areas in the fall.

D. Invasive Plant Management

The invasion of non-native plants has become a major threat to the native habitats on the KWMA. Controlling these invaders is a difficult and time-consuming management concern. The competitive nature of these plants and their ability to spread impacts the natural plant diversity and ultimately the diversity of animals on the WMA. Activities that can promote distribution of invasive plant species include farming, livestock grazing, ground disturbance and others. Weed control with herbicides or mechanical treatments needs to be followed by a reseeding and restoration of native plant species program to prevent reinvasion of the weeds (Jacobs et al. 1998). Problematic invasive species on KWMA include:

Tall whitetop (*Lepidium latifolium* L.) is a perennial plant that grows 1 to 3 feet tall. It grows in riparian and wetland areas, ditches, roadsides, croplands, and disturbed areas and is very difficult to control once it is established because of its spreading roots and numerous seeds (Stoddard et al. 1996). Though livestock grazing keeps this plant in check in portions of Carson Lake, it is extremely difficult to control and requires repeated herbicide applications.

Russian knapweed (*Centaurea repens* L.) colonizes cultivated fields, pastures, roadsides and rangelands. Plants grow 1 1/2 to 3 feet tall and invade new areas through cultivation, and transporting seeds on equipment, vehicles, etc. (Stoddard et al. 1996)

Whitetop or hoary cress (*Cardaria draba* L.) grows on disturbed sites and is highly competitive with native species once it is established (Stoddard et al. 1996). Dense stands of healthy native vegetation can limit the spread of this invader. Control on WMAs will be most effective through using competitive vegetation and repeated herbicide applications.

Tamarisk or saltcedar (*Tamarix ramosissima*) is a deciduous shrub that has naturalized throughout the west mostly along waterways, interrupting natural habitats. Its' aggressive root system uses much ground water, often to the detriment of other species. In many sites, it forms dense stands where no native plants can grow under the canopy (Stoddard et al. 1996). This species is very difficult to eradicate. Control methods include mechanical control and herbicides, but no one method has been entirely successful.

Other noxious plant species such as puncturevine (*Tribulus terrestris*) and cocklebur (*Xanthium strumarium*) grow in disturbed areas, along roads, pastures and fields, but generally do not displace native plants.

E. Farming

Prior to NDOW's purchase of the WMA, the Hendrix family farmed several hundred acres of alfalfa and cereal grains in the vicinity of the headquarters. The remainder of the ranch operation depended on natural meadow vegetation for pasturage and hay. After the purchase of the area by NDOW, much of the farming was reduced because of conflicts with the development of the area and water needed to maintain the wetlands for waterfowl.

Farming of the plot just north of the headquarters has continued on an experimental basis using known dry-land farming practices. Currently, a low maintenance dry land farming plot on 25 acres is prepared for doves and other birds. A mixture of sunflower and dove proso seed is planted. Success of the plantings for the last eight years has been poor to good, dependent on spring moisture.

Following invasive weed control treatment, experimenting with seed mixtures will continue on the headquarters plot. A reliable seed blend (including the seeding of Indian ricegrass, sunflower, sand dropseed, and other native plant seeds) that is low maintenance will be initiated and maintained using dry land farming practices.

Plantings will be expanded to the "west" or "elm tree" fields once successfully established in the headquarters plots and invasive plant species concerns are addressed. The feasibility of establishing food plots to attract Sandhill Cranes will also be evaluated. The expansion of the food plots would increase use by nongame, upland game, and waterfowl, increase opportunities for wildlife viewing, and increase hunting opportunities for upland game, dove and waterfowl species.

F. Grazing

Livestock grazing has been an integral part of the economy of the area since the early settlement of the White River Valley. In the past, sheep, cattle, and horses were grazed on the open ranges adjacent to the area and the natural meadows of the Sunnyside and Hot Creek Ranches have supported livestock for many years. The Division discontinued grazing by cattle in 1978 due to poor livestock control by lessees. Trespass cattle were also a frequent problem. Currently, there is no grazing by livestock on the WMA.

When prescribed properly, livestock grazing can serve as a viable and cost-effective habitat management tool for enhancing habitat conditions for certain species of wildlife. There are many possibilities for harmonizing grazing practices (season of grazing, stocking rate, and distribution) with habitat management needs for wildlife. Grazing plans

that promote a mosaic of shrub cover, grass and forb cover, and openings of bare ground will benefit birds and other wildlife for food and cover (Paige and Ritter 1999).

On Kirch WMA, grazing will be considered as a habitat management tool in the next ten years. The primary goal of implementing grazing on the area would be to graze native annual grasslands and wet meadows during August and September to stimulate green-up. This would provide succulent feed for waterfowl and improve habitat for other wildlife. Currently, many of these grasslands and meadows are fallow and the dead litter prevents a spring green-up, attracting few birds. In addition, grazing will increase hunter mobility by opening up thick stands of vegetation. NDOW staff will utilize the expertise of the Natural Resource Conservation Service to evaluate the development of a grazing plan beneficial to the wildlife of KWMA. Possible impacts from grazing including noxious weed spread, increased nutrients, and increased erosion will be considered in the evaluation.

G. Waterfowl Management

The Mid-Winter Inventory, a survey flown by all states in early January, is the only statewide aerial waterfowl population survey flown. Fall and winter waterfowl population data for KWMA has been obtained through bi-monthly ground counts. Canada Goose breeding pair surveys are conducted in April with ground counts being conducted on KWMA. Duck breeding pair surveys are implemented in May with ground counts on KWMA. Waterfowl brood surveys are conducted in the summer to gather information on the effectiveness of habitat management techniques.

Waterfowl surveys are conducted on KWMA to monitor waterfowl use-days, pairs, production and harvest and to complete waterfowl reports annually. This data is used for estimating populations, documenting trends, establishing season length and harvest recommendations, and evaluating the success of the current and past management of the habitats of KWMA. Check stations are operated on the KWMA several days each year with random bag checks conducted about 40 days each year.

H. Fish Management

Fish population characteristics are evaluated through standardized methods to assess factors including distribution and relative abundance, reproduction and recruitment estimation, age and growth characteristics of sport fish species, and factors affecting recruitment and overwinter survival of resident warmwater game fish and stocked salmoids. Prey base condition and characteristics are evaluated through food habits studies, and related survey activities including macro invertebrate and benthic organism surveys. Fish habitat conditions and characteristics are evaluated on a systematic basis using

standardized methodologies, including monitoring of environmental and water quality characteristics and evaluation of vegetative cover density, condition and trend (NDOW 1994).

The Dacey Reservoir was dry as recently as 1993. The bass fishery of this reservoir has been reestablished with plans to maintain and enhance the bass fishery. However, this reservoir will be managed as a supplemental fishery dependent on other water availability and needs. The Cold Springs Reservoir fisheries was reestablished after the control structure was repaired in 1995. The habitat of this reservoir is managed for a two story fishery of bass and trout. Currently, the Haymeadow Reservoir is managed to provide a put, grow and take trout fishery and a quality bass fishery. The Tule Reservoir is managed as a supplemental fishery dependent on water availability and waterfowl management needs (NDOW 1998).

The trout fishery is enhanced by hatchery-reared fish. Most of the rainbow trout are stocked twice a year, in spring (March and April) and again in the fall (October and November) in the Cold Springs and Haymeadow reservoirs only. These trout originate from the Lake Mead Hatchery most years. Largemouth bass populations are self-sustaining in all reservoirs except Tule, and are supplemental through stocking only as necessary for fishery re-establishment or to address specific management needs. A stocking summary for past ten years on KWMA is found in Table 3.

Vegetative surveys are conducted every year in late August by fisheries and KWMA personnel to determine the amount and diversity of aquatic plants in the reservoir for fish and waterfowl. The most beneficial plant for fish and waterfowl is pondweed, an undesirable plant is water milfoil (*Myriophyllum spicatum*). Both of these plants have generally increased on the reservoirs during the last several years. An average of the vegetation sampled over a six year period is provided in Table 4 for Dacey, Adams-McGill, Cold Springs, and Haymeadow reservoirs. Temperature, dissolved oxygen, pH and conductivity of those waters is also provided.

Digital temperature data loggers have been used to monitor temperatures in Adams-McGill, Cold Springs, and Haymeadow reservoirs from May through July to evaluate reservoir thermal regimes and assess bass spawning triggers. Water temperatures were at or near bass spawning levels (60°F) by the end of May on all reservoirs. Young-of-the-year bass were observed on 24 June 1998 (NDOW 1998).

Electrofishing surveys have been used on Adams-McGill, Cold Springs, and Haymeadow reservoirs to sample fish populations in April each year. Over the last 10 years, the average length of largemouth bass sampled has been 7.84 inches and the

average length of rainbow trout has been 10.51 inches on the Cold Springs Reservoir. On the Haymeadow Reservoir, the average length bass has been 9.34 inches and the average length rainbow trout has been 12.43 inches over the past 10 years. The average length of bass has been 8.04 inches on the Adams-McGill Reservoir over the last 10 years (NDOW 1998).

White River Valley native fish populations and their habitats on KWMA will be maintained and enhanced. Water levels at the Flag Springs, Hot Creek Spring, and Sunnyside Creek are dedicated to the recovery of the native species. Disturbance activities will be avoided in stream channels and adjacent riparian and upland habitats along Sunnyside Creek, Flag Springs, and Hot Creek Spring which would negatively impact water quality parameters and habitat characteristics of these native species.

All fisheries management on the KWMA will be in accordance with NDOW's *Fishery Management Concepts Program and Procedure*. The KWMA CMP Fisheries Management Implementation Schedule is found in Appendix I.

I. Facilities Management

Capital improvements on the KWMA include two houses, a headquarters shop building, a bunkhouse and office, and several storage sheds. Five dams and eight dikes have been constructed. Developments also include 13 miles of dirt ditches, 20 miles of gravel-dirt roads, 50 miles of perimeter fence, and three outhouses outside the campground. A developed campground with three outhouses, an RV dump station and potable water are also present on the area. There are three developed boat ramps with docks and four primitive boat facilities, and seven informational kiosks throughout the area. Figure 6 shows the KWMA public facilities including roads, campground, boat ramps, etc.

Annual facilities maintenance includes general upkeep of buildings, grounds and residences. All dams and dikes are maintained in good condition. Canals and ditches are cleaned and repaired as needed. About 20 miles of project roads are graded including cleaning culverts and cattle guards as necessary. The perimeter fence is repaired as needed. Campground facilities maintenance includes pumping outhouses once annually, testing water quality in chlorine injection system, chopping weeds, and general upkeep of the public use facility. KWMA information signs are repaired or replaced as necessary. All project equipment and vehicles are maintained in good condition for safe operation. All operators keep equipment clean and maintained as outlined in the NDOW Equipment Policy and Procedures manual.

The proposal to develop the Hot Creek Springs area, as detailed in Section VIII, will

include a self-guided tour, cement deep vault toilet, graveled parking area, another information sign, a perimeter fence with cross fence.

NDOW will assess the property for compliance with the Americans with Disabilities Act (ADA). Where compliance is not met, the Division will develop a transition plan to meet any deficiencies. Needed facilities will be budgeted for and phased in over a period of time as funds become available.

J. Law Enforcement

Routine and emergency law enforcement on the KWMA is administered through NDOW's Law Enforcement Bureau with additional assistance from the Wildlife Area Supervisor who has one month of law enforcement duty on the area. Additional LE presence will be received from 3320 when completing his one day per month of creel census on the area. Additional LE will be coordinated through 3400 for holiday weekends (Memorial, 4th of July, and Labor Day), and on the heavy use weekends during the spring and waterfowl season.

A summary of KWMA regulations is provided in Appendix J. Refinement of the hunting program may become necessary in the near future. The increased regulation of other public use activities will also be necessary with the increase in public use for hunting, fishing and nonconsumptive users, particularly on summer holiday weekends.

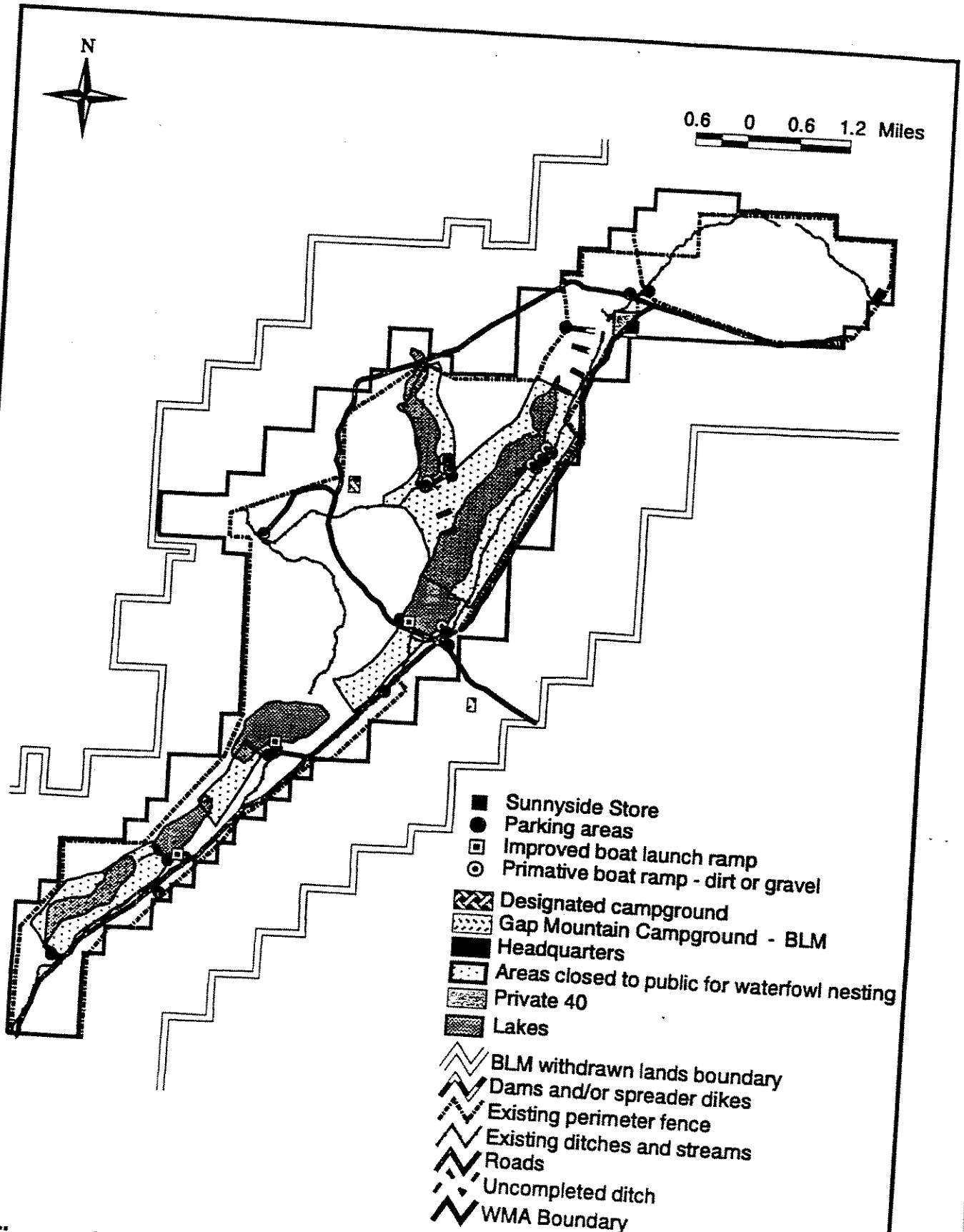


Figure 6. W. E. Kirch Wildlife Management Area

VII. Public Use of Kirch WMA

Kirch WMA is a productive oasis in a large expanse of Nevada high desert with hunting and fishing the major public use activities. The rapidly increasing human population, particularly in the Las Vegas area, creates the potential for a rapidly increasing demand for waterfowl hunting, fishing and other wetland-related recreation.

A. Hunting

Hunting on Kirch WMA provides a great amount of recreation, particularly for residents of southern and eastern Nevada. Waterfowl hunting is the most popular hunting activity on the area. However, doves and other small game are occasionally pursued. There are three peaks of hunter use on the area. The first is the opening of dove season. The primary peak of hunting activity occurs with the opening of duck season. The third peak is the first week of goose season on the area.

1. Waterfowl Hunting

Road counters, bag checks, check stations, and the statewide hunter questionnaire are used to estimate waterfowl hunter use and harvest. The majority of waterfowl hunters on the KWMA reside in Clark County (88%), followed by residents from White Pine (8%). Washoe and Lincoln counties, and nonresidents totaled 4% of the hunters using KWMA in 1998.

During the 1998-99 waterfowl hunting season on the KWMA, the season length for ducks was 107 days with a daily and possession limit of 7 and 14 birds, respectively. The goose season was 93 days with a daily and possession limit of 3 and 6 birds, respectively. Hunters could pursue coots during a 107-day season with a daily and possession limit of 25 birds (Table 5).

In the past 10 years, there has been an estimated average of 741 hunter days expended annually in waterfowl hunting based upon information obtained from check stations and road counters. In the past 20 years, there has been an estimated average of 955 hunter days expended annually in waterfowl hunting. During 1998, there was a total of 1,220 estimated hunter days. The small game post season questionnaire data estimated an average of 865 hunter days and 256 hunters since 1992 with 2,027 ducks harvested. In 1998, 283 hunters expended 760 days to harvest 1,774 ducks (Table 6). The percent

success has averaged 71% with the average number of birds per hunter estimated to be at 2.0 in the past 10 years.

Since 1959, ducks have comprised 96.1% of all waterfowl harvested on KWMA. Dabblers have comprised 66.6% of all waterfowl harvest on the area with Green-winged Teal, Mallard, and Gadwall accounting for the majority of the harvest of dabbling ducks. Diving species comprised 28.9% of the harvest with Redhead, Ruddy Duck and Canvasback accounting for most of the harvest of diving ducks. Geese have comprised 1.6% of the harvest with an average of 15.7 birds harvested annually. Coots have comprised about 2.2% of the harvest with an average of 22.3 birds harvested annually since 1959 (Table 6).

Due to favorable winter moisture conditions over the past five years, many wetlands have experienced major improvements in habitat conditions. The improved conditions and increasing continental populations have led to a dramatic increase in waterfowl numbers and a surge in interest from waterfowl hunters. This rapidly increasing demand for waterfowl hunting opportunity combined with a rapidly growing population in southern Nevada requires diligent and effective development and maintenance of wetland resources where opportunities exist (NDOW 1999).

2. Upland Game Hunting

Dove hunting is the second most popular hunting activity on the KWMA with 150 hunter-use days expended on the area in 1998-99. Dove hunting accounted for 0.7% of the public use on the area that year. Rabbit and quail hunting primarily occurs incidental to other hunting activities. The Kirch WMA is within Hunt Management Unit 132. Hunting pressure is very light for mule deer on the KWMA due to the very low population level on the area and also due to weapons restrictions for safety purposes.

B. Fishing

Fishing continues to be the most popular recreational activity on the area. Significant use by trout fisherman occurs from March through August, peaking in May. Occasionally when conditions allow, ice fishing for trout is a significant use during January. Bass fishing becomes popular in late May and continues into September, with peaks in July and August.

During 1998-99 a total of 5,550 use days or 25.3% of the total recreational use on the area was for cold water fishing. Likewise, a total of 2,798 use days or 12.8% of all recreational use was for warmwater fishing as recorded on NDOW Form 651.

Based upon random creel census, angler origin from 1991 through 1998, an average of 78% of the fisherman reside in Clark County, 12% reside in White Pine County, 5% reside in Lincoln County, 3% reside in Nye County, and 2% are from other counties or from out-of-state (Table 7). The high percentage of anglers from Clark County indicates the length anglers are willing to drive for quality fishing opportunity.

The fishing season on KWMA is open year round, any hour of the day or night, except for Dacey and Tule reservoirs and the upper portion of Adams-McGill, Cold Springs, and Haymeadow reservoirs as posted, which are open to fishing August 16 through February 14. The limit is 5 trout, 10 black bass, and 15 other warmwater game fish singly or in aggregate. Minimum size for black bass is 10 inches.

Hot Creek to its confluence with Adams-McGill Reservoir is closed year round to fishing and a 100-yard radius around the inflow from Hot Creek to Dacey and Adams-McGill reservoirs is closed to fishing January 1 through April 1.

Angler use and harvest by species and area is evaluated through systematic and random creel census on KWMA. Data forms from creel census boxes were used to enhance regular creel census information. The Las Vegas Fly Fishing Club made and installed seven creel census boxes during 1996. Information obtained from these boxes is voluntary.

On Cold Springs Reservoir, creel census over the last eight years has shown the average length of harvested trout to be 13.7 inches. An average of the last three years shows anglers using bait amounted to 44%, 38% of surveyed anglers used lures and 18% fished with flies. Shore anglers averaged 57%, boat anglers averaged 30% and float tube anglers averaged 13% of the anglers on the Cold Springs Reservoir. Largemouth bass in the reservoir are usually in the 8 to 12 inch range with a few reaching 15 to 17 inches.

Three questions were posed to anglers on the creel box survey concerning angler satisfaction while fishing on Cold Springs Reservoir. Of those anglers responding over the last three years, 82.43% indicated they had a positive day of fishing, 77.32% indicated they were satisfied with the size of the fish caught, and 67.73% were satisfied with the number of fish caught (Table 8).

On Haymeadow Reservoir, creel census over the last eight years has shown the average length of harvested trout to be 13.59 inches. An average of the last three years shows anglers using bait amounted to 48%, 28% of surveyed anglers used lures and 24% fished with flies. Shore anglers averaged 50%, boat anglers averaged 29% and float tube anglers averaged 20% of the anglers on Haymeadow Reservoir. Largemouth bass in the

reservoir are usually in the 8 to 12 inch range with a few reaching lengths in the 15 to 17 inch range.

Three questions were posed to anglers on the creel box survey concerning angler satisfaction. Of those anglers responding over the last three years, 79.74% indicated they had a positive day of fishing, 76.74% indicated they were satisfied with the size of the fish caught, and 73.66% were satisfied with the number of fish caught on Haymeadow Reservoir (Table 8).

C. Wildlife-Related Recreation

KWMA receives considerable use by nonconsumptive users. Most nonconsumptive users in FY1998 were involved either in camping, swimming or boating. Nonconsumptive users reported on NDOW Form 651 were also undertaking other use activities including sightseeing, wildlife observation, picnicking, photography, hiking, and educational/scientific uses. During 1998-99, 55.3% of the use at the WMA was for nonconsumptive recreational activities.

1. Camping

A total of 4,503 use-days were spent by campers at the Dave Deacon (Hot Creek) Campground during 1998-99; this was the leading nonconsumptive use on the area. Camping is permitted only at this site on the WMA and is usually associated with fishing or hunting activities on the area.

The Dave Deacon Campground would be improved by establishing more trees. Benefits would include additional shade, privacy, and wind breaks for the campers; additional perches for raptors and other birds which is a bonus for wildlife observers staying in the campground; once established the campers would more evenly spread throughout the campground rather than the users crowding under the existing and limited row of trees currently existing; and provide continued shade for the campers since most of the existing trees are at the end of their useful/healthy life span. The campground is used primarily by hunters and fishermen and their families.

2. Boating

Boating is a popular activity on the reservoirs of KWMA and is usually associated with fishing or hunting. During 1998-99, 3,220 use-days were spent in boating activities on the area. Figure 6 is a map of KWMA showing the boat launching facilities available on the area. Boat speed on the KWMA is limited to five nautical miles per hour.

3. Wildlife Viewing

Wildlife viewing is becoming very popular across the country and in Nevada. In 1996, approximately 258,000 Nevada residents participated in wildlife-watching activities (U.S. Fish and Wildlife Service 1996). Roads throughout the area provide excellent viewing of wetland dependent wildlife and upland wildlife.

4. Educational, Scientific and Other Uses

Other wildlife-related recreation on KWMA includes sightseeing, picnicking, and photography. During 1998-99, 2,720 use-days were spent swimming at the Hot Creek Spring and the reservoirs. Bird watching tours of the KWMA are occasionally conducted by the Las Vegas chapter of the Audubon Society.

Tables

TABLE 1. Annual Peak Population of Waterfowl Species on Kirch WMA

ANNUAL PEAK POPULATION BY SPECIES
 Aug 15 - Jan 30
 Area KIRCH WMA

Species / Year	'85-86	'86-87	'87-88	'88-89	'89-90	'90-91	'91-92	'92-93	'93-94	'94-95	'95-96	'96-97	'97-98	'98-99	'89 - Present		
															Average	High	Low
Mallard	610	400	730	400	335	305	335	200	395	200	240	435	911		862	1,500	200
Gadwall	1,530	915	3,770	1,855	1,000	1,470	805	1,200	425	325	285	259	375		954	3,770	190
Pintail	1,630	1,095	1,500	255	905	530	145	240	200	150	375	530	1,550		1,289	6,042	145
G.W. Teal	1,190	815	1,060	740	115	425	450	305	215	240	345	360	511		735	2,000	115
Cinn. Teal	100	1,320	0	1,430	1,010	1,580	180	625	150	282	525	1,463	173		855	1,805	0
Widgeon	1,770	460	1,310	1,290	980	2,225	265	160	125	100	380	605	811		1,048	3,495	125
Shoveler	2,030	90	1,680	630	235	1,385	125	90	120	100	150	85	523		641	2,030	85
Redhead	620	245	280	330	600	200	55	480	155	160	280	236	614		392	1,500	55
Ring-neck	50	50	200	5	20	20	5	10	20	25	20	190	5		61	200	0
Canvasback	1,500	1,155	4,100	2,715	2,800	2,200	280	345	1,130	390	370	2,650	1,156		1,480	5,580	280
Scaup	20	25	170	60	20	45	70	60	175	65	70	70	206		82	275	15
Goldeneye	10	5	10	20	10	0	5	0	5	20	10	3	0		8	30	0
Bufflehead	260	175	260	320	285	135	440	200	220	190	210	55	293		187	450	45
Ruddy	510	725	1,990	1,045	775	410	625	640	515	1,030	575	1,125	1,105		744	1,990	230
Other Duck	0	0	0	0	0	0	0	0	1,620	1,000	875	700	0		294	1,880	0
Total Ducks	11,830	7,475	17,060	11,095	9,090	10,930	3,785	4,555	5,470	4,312	4,680	8,766	8,233		9,344	17,060	3,785
Merganser	40	0	0	0	0	0	0	0	0	0	0	0	5		7	40	0
Dk. Goose	500	292	420	408	401	440	310	385	343	315	225	170	248		408	717	170
Wh. Goose	1	1	0	0	0	6	6	0	0	17	1	1	1		5	76	0
Total Geese	501	293	420	408	401	448	316	385	343	332	226	171	249		411	793	171
Swan	100	96	15	26	12	7	0	2	2	87	24	160	90		83	315	0
Coot	11,610	8,470	19,370	6,760	8,380	6,465	5,600	7,020	6,900	540	5,375	9,100	6,500		10,402	19,780	0
Total Birds	24,041	16,334	36,865	18,289	17,883	17,848	9,701	11,982	12,715	5,271	10,315	18,197	15,072		20,245	36,865	5,400

% Change from:
 Previous Yr. -18.9%
 Prev. 10 Avg. -0.6%
 69-98 Avg. 19%

-32.1%
 -28.8%
 -19%

125.7%
 67.8%
 82%

-50.4%
 -20.8%
 -10%

-2.2%
 -22.0%
 -12%

-0.2%
 -20.0%
 -12%

23.3%
 -43.1%
 -41%

6.3%
 -36.7%
 -37%

58.5%
 -73.0%
 -74%

95.7%
 -39.6%
 -49%

76.4%
 15.8%
 -10%

-17.2%
 -5.2%
 -26%

TABLE 2. Waterfowl Production Summary for Kirch WMA

NEVADA DEPARTMENT OF WILDLIFE					DIVISION OF GAME					FORM 411	
WATERFOWL PRODUCTION SUMMARY											
YEAR : 1999											
KIRCH WMA											
SPECIES	CLASS I	CLASS II	CLASS III	TOTAL	1998	1997	1996	1995	1994	5 yr. avg	40 yr. avg
CANADA GOOSE					(Ground Surveys)						
# Broods		3	15	18	22	8	4	8	15	11.40	17.88
# Young		5	47	52	100	38	24	38	36	47.20	60.60
Avg. Brood	0.00	1.67	3.13	2.89	4.55	4.75	6.00	4.75	2.40	4.14	3.39
MALLARD											
# Broods	2	5	12	19	15	12	16	4	4	10.20	8.21
# Young	8	20	50	78	79	51	66	17	12	45.00	45.28
Avg. Brood	4.00	4.00	4.17	4.11	5.27	4.25	4.13	4.25	3.00	4.41	5.52
GADWALL											
# Broods	4	6	11	21	11	34	5	5	6	12.20	15.97
# Young	16	25	44	85	60	132	20	29	23	52.80	94.33
Avg. Brood	4.00	4.17	4.00	4.05	5.45	3.88	4.00	5.80	3.83	4.33	5.91
PINTAIL											
# Broods	1	4	4	9	8	3	2	12	1	5.20	7.92
# Young	2	10	13	25	39	13	8	47	3	22.00	43.31
Avg. Brood	2.00	2.50	3.25	2.78	4.88	4.33	4.00	3.92	3.00	4.23	5.47
CINN. TEAL											
# Broods	3	16	26	45	10	4	0	6	3	4.60	13.56
# Young	7	58	90	155	56	15	0	30	9	22.00	75.82
Avg. Brood	2.33	3.63	3.46	3.44	5.60	3.75	0.00	5.00	3.00	4.78	5.59
SHOVELER											
# Broods	2	7	12	21	1	3	0	2	4	2.00	3.46
# Young	9	27	48	84	10	11	0	10	12	8.60	18.59
Avg. Brood	4.50	3.86	4.00	4.00	10.00	3.67	0.00	5.00	3.00	4.30	0.00
REDHEAD											
# Broods	4	19	15	38	33	16	8	7	10	14.80	14.82
# Young	16	77	62	155	195	83	39	34	31	76.40	78.08
Avg. Brood	4.00	4.05	4.13	4.08	5.91	5.19	4.88	4.86	3.10	5.16	5.27
CANVASBACK											
# Broods	5	42	11	58	44	32	22	14	27	27.80	18.87
# Young	23	199	36	258	224	136	108	65	103	127.20	98.71
Avg. Brood	4.60	4.74	3.27	4.45	5.09	4.25	4.91	4.64	3.81	4.58	5.23
RUDDY DUCK											
# Broods	7	42	20	69	12	13	16	18	7	13.20	13.55
# Young	27	183	74	284	44	40	64	80	18	49.20	63.37
Avg. Brood	3.86	4.36	3.70	4.12	3.67	3.08	4.00	4.44	2.57	3.73	4.68
OTHER DUCKS											
# Broods	2	5	4	11	2	9	29	3	8	10.20	5.13
# Young	4	15	11	30	14	35	116	13	33	42.20	26.76
Avg. Brood	2.00	3.00	2.75	2.73	7.00	3.89	4.00	4.33	4.13	4.14	5.22
TOTAL DUCKS											
# Broods	30	146	115	291	136	126	98	71	70	100.20	100.54
# Young	112	614	428	1154	721	516	421	325	244	445.40	539.41
Avg. Brood	3.73	4.21	3.72	3.97	5.30	4.10	4.30	4.58	3.49	4.45	5.37

Prepared by: Norman Saake

TABLE 3. Fish Stocking Summary for Kirch WMA

STOCKING SUMMARY, KIRCH WILDLIFE MANAGEMENT AREA. 1989 - 1998									
Year	DACEY RES. (BASS ONLY)			COLD SPRINGS RESERVOIR			HAYMEADOW RES.		
	Nos.	Pounds	Length (in.)	Nos.	Pounds	Length (inches)	Nos.	Pounds	Length (in.)
1989				28,255	10,395	9.50	27,047	9,460	9.25
1990				24,350	6,738	9.00	22,378	5,983	8.75
1991				13,685	3,545	8.00	27,645	7,210	8.38
1992				7,000	2,000	9.00	33,158	9,302	8.88
1993	20,000 75	20.00 18.75	1.30 6.50	33,527	8,735	8.40	325,593	9,065	8.80
1994				17,550	5,100	8.83	34,942	11,273	9.17
1995 Trout Bass	803	811.80	9.56				<u>33,252</u> 50	<u>8,592</u> 32.5	<u>8.63</u> 9.00
1996 Trout Bass				<u>43,743</u> 218 17,400	<u>14,384</u> 107.19 14.00	<u>9.71</u> 8.56 1.20	<u>31,942</u>	<u>10,148</u>	<u>8.78</u>
1997 Trout				<u>30,275</u>	<u>9,180</u>	<u>8.50</u>	<u>32,083</u>	<u>9,693</u>	<u>9.00</u>
1998 Trout				26,030	8,398	9.50	27,984	8,755	9.50
Trout Totals Average				<u>224,415</u> <u>22,441.1</u>	<u>68,475</u> <u>6,847.5</u>	<u>8.04</u>	<u>303,024</u> <u>30,302.4</u>	<u>89,481</u> <u>8,948.1</u>	<u>8.91</u>
Bass Total Average	20,878 2,087.88	850.55 85.055	1.64	17,618 1,761.8	121.19 12.119	1.29 6.22	50 5.0	32.50 3.25	9.00

Most of the rainbow trout were stocked twice a year, in the spring time (March and April) and again in the fall (October and/or November). These trout usually come from the Lake Mead Hatchery. Water temperatures are within stocking tolerances during these periods. Smaller largemouth bass came from Ink's Dam, Texas. The larger bass came from several sources where salvage operations and electro shocking sampling was done. Most of these were from Adams McGill or Cold Springs reservoirs.

TABLE 4. Aquatic Vegetation Survey Information for Kirch WMA

KIRCH WILDLIFE MANAGEMENT AREA AVERAGE AQUATIC VEGETATIVE PROFILE, 1993-1998					
PLANT SPECIES	DACEY RES.	ADAMS McGILL	COLD SPRINGS	HAYMEADOW RES.	AREA WII AVERAG
PONDWEED	15.92%	49.20%	37.88%	59.14%	40.53%
WATER MILFOIL	50.37%	18.90%	29.38%	18.32%	29.24%
COONTAIL	27.46%	12.50%	0.0	0.29%	10.07%
MARESTAIL	0.0	0.92%	0.0	0.0	0.23%
CHARA	0.0	4.68%	25.08%	1.00%	7.69%
ALGAE	5.95%	8.28%	4.98%	17.82%	9.62%
BARE GROUND	0.30%	5.51%	2.68%	3.43%	2.98%
OTHER PARAMETERS- INFORMATIONAL					
TEMPERATURE-C/F	20.46/ 68.83	20.35/ 68.63	20.59/ 69.06	20.88/ 69.58	20.57/ 69.00
DISSOLVED OXYGEN	6.92 ^{MG/L}	5.38 ^{MG/L}	7.50 ^{MG/L}	6.27 ^{MG/L}	6.52 ^{MG/L}
HYDROGEN ION (pH)	9.43	8.56	8.84	8.54	8.84
CONDUCTIVITY	788	1285	858	1868	1200

Vegetative surveys are completed each year during the second or third week of August. The data in the above table is an average of the vegetation sampled over a 6 year period (1993-1998). The pH indicates the waters on Kirch Wildlife Management Area are alkaline. Anything above 7.00 (neutral) is alkaline and readings below 7.00 are of acidic nature.

The most beneficial aquatic plant for waterfowl and fisheries is pondweed. The least desirable aquatic plant for waterfowl and fisheries is water milfoil.

TABLE 5. Waterfowl Harvest Summary Data Sheet: 1998-99, Kirch WMA

WATERFOWL HARVEST SUMMARY DATA SHEET

Region III

Area:

KIRCH W.M.A.

Year: 1998 - 99

SEASON DATA				
	DUCKS	GEESE dark - white	SWANS	COOTS
Hunting Season Dates	10/03 - 01/16	10/16 - 01/16	Closed	10/03 - 01/16
Season Length (Area's Hunt Days)	107	93	0	107
Bag Limits (Daily / Poss.)	7/14	3/6 - Closed	0	25 / 25

CHECKING STATION DATA

No. of Days Checked	45
No. of Hunters Checked	436
No. Successful Hunters	306
Percent Success	70.2%
No. of Vehicles	????
Avg. No. Hunters / Vehicle	2.20
Waterfowl Checked - Ducks	1,007
Geese	33
Swans	0
Coots	12
All birds	1,052
Success - Ducks / Hunter	2.31
Geese / Hunter	0.08
Birds / Hunter	2.41
Reported Crippling Loss	174
Estimated Crippling Loss - (20%)	210
ESTIMATED SEASON TOTALS	
Total Hunter Days	1,220
Total Harvest - Ducks	2,820
Geese	92
Swans	0
Coots	34
TOTAL EST. HARVEST	2,946

SPECIES COMPOSITION (BAG CHECK)

SPECIES	NUMBER	% COMPOSITION	PLACE IN KILL
Mallard	153	14.5%	2
Gadwall	115	10.9%	4
Pintail	34	3.2%	12
G.W. Teal	162	15.4%	1
B.W. Teal	20	1.9%	14
Cinn. Teal	133	12.6%	3
Widgeon	44	4.2%	9
Shoveler	87	8.3%	5
Wood Duck	1	0.1%	17
Total Dabblers	749		
Redhead	46	4.4%	8
Ring-necked	16	1.5%	15
Canvasback	61	5.8%	6
Scaup	39	3.7%	10
Goldeneye	4	0.4%	17
Bufflehead	35	3.3%	11
Ruddy	57	5.4%	7
Merganser	0	0.0%	0
Other		0.0%	0
Total Divers	258		
Total Ducks	1,007		
Canada Goose	33	3.1%	13
W. F. Goose	0	0.0%	0
Snow Goose	0	0.0%	0
Other Goose	0	0.0%	0
Total Geese	33		
Swan	0	0.0%	0
Coot	12	1.1%	16
TOTAL WATERFOWL	1,052	100.0%	

Prepared by _____ RON MILLS

Date _____ 1/20/99

TABLE 7. Angler County of Origin for Kirch WMA

CREEL CENSUS, ANGLER ORIGIN: 1991 - 1998						
YEAR	CLARK CO.	WHITE PINE CO.	LINCOLN CO.	NYE CO.	OTHER CO.	OUT-OF STATE
1991	79.69%	10.33%	4.08%	2.08%	0.86%	2.96%
1992	79.22%	12.28%	2.59%	3.51%	1.21%	0.83%
1993	79.52%	13.02%	2.32%	1.51%	1.21%	2.42%
1994	77.39%	12.56%	3.72%	3.12%	1.70%	1.51%
1995	85.80%	8.45%	2.96%	1.39%	0.62%	0.78%
1996	73.65%	12.80%	4.90%	3.75%	2.50%	2.40%
1997	73.77%	14.63%	5.09%	1.43%	2.06%	3.02%
1998	74.63%	11.71%	7.80%	4.88%	0.48%	0.50%
AVERAGE	77.96%	11.97%	4.55%	2.71%	1.38%	1.80%

Highway 318 was paved/completed about 1981. Before this date, Clark County residents made up about 40 % of the angler use on the area. Following the paving, the Clark County residents increased to about 60% of the angler use and it has grown as the Las Vegas area has grown.

TABLE 8. Angler Satisfaction Survey for Cold Springs and Haymeadow Reservoirs

COLD SPRINGS RESERVOIR: ANGLER SATISFACTION TABLE FROM CREEL BOX FORMS, 1996-1998									
YEAR	How was the day's experience?			Were you satisfied with fish size?			Were you satisfied w/ fish No.		
	Positive	Neutral	Negative	Positive	Neutral	Negative	Positive	Neutral	Negative
1996	85.71%	4.76%	9.52%	85.71%	9.52%	4.76%	71.43%	14.29%	14.28%
1997	74.36%	17.95%	7.69%	70.67%	20.00%	9.33%	60.00%	20.00%	20.00%
1998	87.21%	5.81%	6.98%	75.58%	17.44%	6.98%	71.76%	17.65%	10.59%
AVG.	82.43%	9.51%	8.06%	77.32%	15.65%	7.02%	67.73%	17.31%	14.96%

HAY MEADOW RESERVOIR: ANGLER SATISFACTION DATA FROM CREEL BOX FORMS, 1996-1998									
YEAR	How was the day's experience?			Were you satisfied with fish size?			Were you satisfied w/ fish No.		
	Positive	Neutral	Negative	Positive	Neutral	Negative	Positive	Neutral	Negative
1996	80.56%	5.56%	13.89%	78.46%	3.08%	18.46%	73.53%	8.82%	17.65%
1997	72.77%	11.39%	15.84%	78.46%	14.86%	6.67%	67.19%	21.88%	10.94%
1998	85.89%	6.75%	7.36%	73.29%	17.39%	9.32%	80.25%	10.49%	9.26%
AVG.	79.74%	7.90%	12.36%	76.74%	11.78%	11.48%	73.66%	13.73%	12.62%

PART TWO:

Goals, Objectives and Strategies



PART TWO

VIII. Goals, Objectives and Strategies for the Kirch WMA

The most extensive part of the CMP is Part Two, the management goals, objectives and strategies. This section was developed by a team of NDOW employees of various natural resource disciplines with guidance by a Staff Habitat Biologist. The list of stakeholder issues, the NDOW Strategic Plan, the WMA Policy on WMAs, the Wetland Conservation Plan for WMAs, and Federal Aid requirements guided the development of this part of the CMP. The goals of this plan are classified as follows:

1. Biological Goals

A. Wildlife Population Management Goals (includes the monitoring and management of wildlife populations).

B. Habitat Management Protection and Enhancement Goals (includes the management, development, and acquisition of wildlife habitat).

2. Public Use Goals

Hunting, Fishing, and Non-consumptive Goals (camping, photography, wildlife watching, boating, etc).

3. Facility Maintenance Goals

Buildings, Grounds and Other Area Maintenance Goals (dams, canals, roads, fences, etc.).

Goals in this CMP are defined as a general statement to establish the direction of management of the WMA over the next 10 years. They are broad statements of direction which describe in general terms the areas of emphasis and desired outcomes on the WMA.

Objectives found under each goal provide further explanation regarding the meaning of the goal statement. Objectives are concise, measurable, and usually quantitative, ("how much and by when?"). Objectives reflect specific accomplishments that are desired and are "action items" derived from WMA goals.

Strategies are defined as specific methods or tools by which objectives are achieved. Strategies make up the, "How do we get there?", part of the planning process. Strategies provide the strongest linkages between the CMP and implementation plans.

OVERVIEW

The goals listed on the following pages establish the general direction of management on KWMA for the next 10 years. The Board of Wildlife Commissioners Policy Number P-66 (Management and Use of Wildlife Management Areas-as amended in 1998), established the policy-level management direction of all state owned or controlled wildlife management areas, including KWMA. This policy and the KWMA CMP together provide guidance for the protection, management and restoration of KWMA and to meet public use demands and resolve the problems of sometimes conflicting resource uses on the area now and in the future.

Because KWMA was purchased with Federal Aid in Wildlife Restoration funds, priority management will be directed toward wetland values and waterfowl activities, including the use of the area as a public hunting ground. On overall goal of no net loss of wetlands and the enhancement of wetland quantity and quality are long-term wetlands management objectives on KWMA.

Fisheries values and other wildlife values will be optimized after consideration of the primary uses described above. The quality and variety of recreational opportunities on KWMA will be emphasized within the above-referenced priorities, within habitat capabilities, and as may be limited by budget constraints or regulations applicable to lands purchased using Federal Aid.

Management emphasis of wildlife populations on KWMA will include: enhancing waterfowl production; maintaining adequate habitat for migrating and local waterfowl and dove populations; improving upland gamebird population information; and managing game fish populations for their ecological, aesthetic, recreational, educational and economic values.

Management of the native fish species on KWMA will be directed toward preservation of existing habitat and perpetuation of the species within guidelines of state and federal regulations. Waters of Flag Springs, Hot Creek Spring and the first three miles of Sunnyside Creek and surrounding habitat associated with these waters have been dedicated to the recovery of the native fish species.

Priority will be placed on maintaining diverse, productive communities of nongame wildlife species associated with the habitats found on KWMA with emphasis on Partners in Flight Priority Species.

Emphasis for habitat management, protection and enhancement on KWMA will

include enhancing and increasing wetland quantity and quality; creating a mosaic of habitat for wildlife through various habitat management tools; establishing and maintaining a noxious weed control program; maintaining and enhancing game fish habitat; and acquiring important wildlife habitat near the KWMA.

The Old Place, Dacey, Adams-McGill and Tule reservoirs will emphasize wetland enhancement, the production of pondweed and alkali bulrush for maximum utilization by waterfowl during migration periods, and to maximize waterfowl production. Dacey Reservoir will be a surge reservoir for downstream reservoirs. Bass fishery will be subordinate to downstream water level management. The Tule Field Unit will be maintained in lower priority than Dacey Reservoir to achieve prescribed water levels at other reservoirs during limited water years and for downstream water right deliveries. The unit will be a supplemental fishery dependent on water availability and wetland/waterfowl management needs. Old Place management will emphasize moist soil management, and emergent and submergent vegetation.

Cold Springs and Haymeadow reservoirs will be maintained at high stable water levels on a yearly basis to maximize fisheries values (trout and bass).

Water levels at the Flag Spring and Hot Creek Spring units will be managed to protect and enhance native fish populations and to provide water sources to downstream water management units.

Water management will be the most important tool on the KWMA to achieve vegetation management objectives. When water management alone will not meet vegetation management objectives, other habitat management tools such as prescribed burning and/or herbicide spraying will be conducted in conjunction with water management.

Management of public use on KWMA will include: providing for and promoting hunting opportunities; providing and promoting fishing opportunities; increasing access to wildlife resources and boating opportunities; and developing watchable wildlife opportunities. Because of the many opportunities the KWMA provides for the general public, nonconsumptive uses associated with the fish and wildlife resources such as bird watching, nature trails, educational pursuits, scientific endeavors and other associated activities will be encouraged whenever and wherever possible.

Management of facilities on KWMA will include: maintaining and enhancing public use facilities; and maintaining buildings, dams, dikes roads, fences and equipment. Coordination with stakeholders and maximizing public compliance with regulations and laws will also be emphasized.

1. BIOLOGICAL GOALS

A. Wildlife Population Management Goals

NDOW will conserve, protect, and manage all of Nevada's wildlife populations for their ecological, aesthetic, recreational, educational, and economic values (NDOW Strategic Plan).

GOAL: Enhance waterfowl production on the KWMA.

OBJECTIVE: Provide nesting and brood rearing habitat on the KWMA to accommodate three year running average of 60 pairs (10% above the long-term average) of Canada Geese by 2004.

- Strategy:** Identify and protect key Canada Goose nesting sites.
- Strategy:** Develop secure nesting island sites in low disturbance areas (Tule and upper Adams-McGill Reservoir).
- Strategy:** Maintain existing active goose nesting platforms and repair inactive platforms where appropriate.
- Strategy:** Identify and protect key Canada Goose brood rearing and feeding areas.
- Strategy:** Conduct banding operations of annual production if the three year running average drops below the objective of 60 pairs to assess harvest impacts on the local population.
- Strategy:** Augment production and breeding population with young Canada Geese from urban use problem areas in accordance with the Upland Game and Waterfowl Release Plan.
- Strategy:** Evaluate the objective on a five year basis and adjust as

necessary.

OBJECTIVE: Provide diving duck nesting and brood rearing habitat on the KWMA to accommodate a three year running average of 90 pairs of Canvasbacks, 130 pairs of Redheads, and 155 pairs of Ruddy Ducks (10% above the long-term average) by 2004.

Strategy: Manage key brood rearing areas for maximum submergent vegetation, with special management for sago pondweed.

Strategy: Attempt to keep increases in water elevations on production units to less than one tenth of a foot in a two week period from April through July to minimize nest flooding.

Strategy: Maintain duck brood habitat through the middle of September.

Strategy: Evaluate status every five years to determine the success at meeting the objective and attempt to determine causes for reduced breeding population or production.

OBJECTIVE: Provide dabbling duck nesting and brood rearing habitat on the KWMA to accommodate a three year running average of 45 pairs of Mallards, 90 pairs of Gadwall, 50 pairs of Cinnamon Teal, and 30 pairs of Pintails (10% above the long-term average) by 2004.

Strategy: Identify and protect key upland nesting sites within ½ mile of wetland units.

Strategy: Maintain or develop dense nesting cover on identified key nesting units or portions of units.

Strategy: Evaluate the potential to create improved nesting sites on peninsulas by cutting them off from the main shoreline.

Strategy: Maintain duck brood habitat through the middle of September.

Strategy: Evaluate success every five years to determine the success

at meeting the objective and attempt to determine causes for reduced breeding population or production.

OBJECTIVE: Continue waterfowl surveys on the KWMA to monitor waterfowl use-days, pairs, harvest, and production.

Strategy: Conduct goose pair surveys, duck pair surveys, goose brood surveys, duck brood surveys, waterfowl population surveys, and conduct waterfowl bag checks during the waterfowl hunting season.

Strategy: Utilize volunteers to maintain goose platforms and to assist with surveys where feasible.

GOAL: **Maintain adequate habitat for migrating and local waterfowl, doves, and Sandhill Crane populations on the KWMA.**

OBJECTIVE: Provide feeding and resting habitat to accommodate a minimum of 400 Canada Geese during the migration and wintering periods by 2004.

Strategy: Provide a diversity of dispersed feeding sites for a maximum number of geese through habitat management.

OBJECTIVE: Provide adequate feeding and resting habitat for local and migrating ducks on the KWMA by 2004.

Strategy: Manage open water habitat to provide dense stands of submergent vegetation, primarily sago pondweed, for diving species.

Strategy: Provide shallow seasonally flooded wetland habitat for dabbling species between mid-August and April.

Strategy: Maintain the maximum number of wetland surface acres consistent with available water supplies from August through March.

OBJECTIVE: Provide roosting and feeding areas for migrating Mourning Doves on the KWMA by 2004.

Strategy: Evaluate planting native species preferred by doves including sunflowers.

Strategy: Maintain and/or enhance cottonwood roost sites.

OBJECTIVE: Encourage migrating Sandhill Crane use of the KWMA by 2004.

Strategy: Evaluate the potential for creating several food plots to attract and benefit migrating Sandhill Cranes and provide watchable wildlife opportunities.

GOAL: Improve upland gamebird population information on the KWMA.

OBJECTIVE: Document all Sage Grouse sightings on the KWMA and submit report to area biologist to assist NDOW to establish range, habitat, and populations statewide.

Strategy: All sightings of Sage Grouse on or near KWMA will be documented, recording numbers, broods, location, time of sighting, observed behavior, and habitat observed.

GOAL: Maintain diverse, productive communities of nongame wildlife species associated with the habitats found on KWMA with emphasis on Partners in Flight Priority Species.

OBJECTIVE: Provide for at least one nesting pair of Ospreys through 2004.

Strategy: Establish at least two nesting platforms away from public access areas to provide for a nest site and an alternative nest site.

OBJECTIVE: Maintain present distribution and abundance of wintering raptors on the KWMA through 2004.

Strategy: Maintain live trees, snags, raptor-safe power poles, fence posts, etc. for raptor perches wherever possible.

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- Strategy: Maintain healthy, productive prey populations of voles, mice, rabbits, and passerines on the KWMA.
- OBJECTIVE: Monitor Burrowing Owl occurrence on the KWMA and encourage the presence and successful reproduction of one or more breeding pairs annually through 2004.
- Strategy: Monitor Burrowing Owl occurrence on the KWMA and maximize opportunities to host successful breeding pairs whenever the opportunity arises.
- Strategy: Where suitable nesting burrows are limited, facilitate the initiation of an artificial burrow program in cooperation with local scouting, school, or other civic groups.
- Strategy: Protect and maintain populations of primary burrowing mammals such as ground squirrels and badgers.
- OBJECTIVE: Maintain suitable wetlands for up to 100 breeding White-faced Ibis through 2004.
- Strategy: Maintain selected areas with suitable nesting habitat described as mature stands of hardstem bulrush flooded at a constant depth between 12 and 24 inches from April 15 through August 15.
- OBJECTIVE: Provide nesting habitat for at least five nesting pairs of Black Terns on WMA wetland units through 2004.
- Strategy: Monitor and document any breeding activity by Black Terns on KWMA.
- Strategy: When breeding activity and nesting status is determined, include KWMA in intensive monitoring of nesting activity and productivity prescribed for priority sites throughout Nevada.
- OBJECTIVE: Maintain nesting of Short-eared Owls in suitable habitat on the KWMA through 2004.
- Strategy: Maintain residual stands of emergent marsh vegetation through natural or man-induced dry cycles for the purpose of
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building vole populations into abundant food sources, particularly during the breeding season from March 1 through July 1.

Strategy: Highlight dry cycling as one of the natural processes of wetland management complete with its own wildlife outputs.

GOAL: Manage all of KWMA's game fish populations for their ecological, aesthetic, recreational, educational, and economic values.

DACEY RESERVOIR:

OBJECTIVE: Maintain the existing largemouth bass fishery at Dacey Reservoir and, where possible, enhance that fishery where it will not conflict with other resource management objectives through 2004.

Strategy: Monitor largemouth bass population in the spring or early summer of even numbered years to assess structure, status and effects of water management strategies, using electrofishing or other approved methodologies.

Strategy: Conduct contact creel census surveys at least six days annually in the late summer and fall months after removal of the reservoir trespass closure, to assess angler success, harvest and satisfaction.

Strategy: Stock additional northern strain largemouth bass during periods of favorable water storage conditions to enhance angler opportunity, and as fish become available through renovation of other reservoirs or other sources.

Strategy: Review existing regulations and recommend changes, as need is identified, every two years.

ADAMS-McGILL RESERVOIR:

OBJECTIVE: Maintain the existing largemouth bass fishery at Adams-McGill Reservoir and, where possible, enhance that fishery where its will not conflict with other resource management

objectives through 2004.

- Strategy: Monitor largemouth bass population annually in the spring to assess structure, status and effects of water management strategies, using electrofishing or other approved methodologies.
- Strategy: Conduct bass spawning and recruitment surveys annually each spring to assess bass spawning success and survival/recruitment. Monitor temperature regimes to assess spawning period timing and duration. Utilize collected data to assess effects of water management strategies and develop trend predictions for the bass fishery.
- Strategy: Conduct contact creel census surveys at least ten days annually during the peak angling use period, May through September, to assess angler success, harvest and satisfaction.
- Strategy: Maintain volunteer angler creel information boxes and analyze collected data to provide supplemental information on angler success and satisfaction.
- Strategy: Evaluate largemouth bass growth through collection and analysis of scale samples every five years beginning in 2002, or more frequently if data analysis from other sources indicates changes in fishery performance or reservoir productivity.
- Strategy: Evaluate effects of water management strategies on largemouth bass production, recruitment, and maintenance using collected data, and provide fisheries input annually for development and modification of reservoir water management strategies.
- Strategy: Review existing regulations for largemouth bass harvest and recommend changes, as needs are identified, every two years.

COLD SPRINGS RESERVOIR:

- OBJECTIVE:** Maintain and enhance the largemouth bass fishery at Cold Springs Reservoir through 2004.
- Strategy:** Monitor largemouth bass population annually in the spring to assess structure, status and effects of water management strategies, using electrofishing or other approved methodologies.
- Strategy:** Conduct bass spawning and recruitment surveys each spring in odd-numbered years, beginning in 2001, to assess bass spawning success and survival/recruitment. Monitor temperature regimes to assess spawning period timing and duration through 2002. Utilize collected data to assess effects of water management strategies and develop trend predictions for the bass fishery.
- Strategy:** Conduct contact creel census surveys at least once weekly year around, to assess catch and harvest structure of largemouth bass, and angler success and satisfaction.
- Strategy:** Maintain volunteer angler creel information boxes and analyze collected data to provide supplemental information on angler success and satisfaction.
- Strategy:** Evaluate largemouth bass growth through collection and analysis of scale samples every five years beginning in 2002, or more frequently if data analysis from other sources indicates changes in fishery performance or reservoir productivity.
- Strategy:** Evaluate effects of water management strategies on largemouth bass production, recruitment, and maintenance using collected data, and provide fisheries input annually for development and modification of reservoir water management strategies.
- Strategy:** Review existing regulations for largemouth bass harvest and recommend changes, as needs are identified, every two years.
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- OBJECTIVE:** Maintain and enhance the rainbow trout fishery in Cold Springs Reservoir through 2004.
- Strategy:** Stock hatchery-reared rainbow trout in the amount to provide the angling public a quality fishery, characterized by catch rates of at least 0.30 fish per angler hour and 2.00 fish per angler day and with average growth rates exceeding two inches between stocking and harvest.
- Strategy:** Stock hatchery-reared rainbow trout twice annually in late spring and early fall to correspond with peak angler use periods and allow utilization of reservoir over-winter growth potential.
- Strategy:** Monitor rainbow trout population once annually in the spring to assess structure, status, trout growth and survival, using electrofishing or other approved methodologies.
- Strategy:** Conduct contact creel census surveys at least once weekly year around, to assess catch and harvest structure of rainbow trout, and angler success and satisfaction.
- Strategy:** Maintain volunteer angler creel information boxes and analyze collected data to provide supplemental information on angler success and satisfaction.
- Strategy:** Review existing regulations for rainbow trout harvest and recommend changes, as needs are identified, every two years.

- OBJECTIVE:** Evaluate and address impacts of black bullhead on other sport fish species in Cold Springs Reservoir through 2004.
- Strategy:** Inform angling public of bullhead fishing opportunities and encourage harvest and removal.
- Strategy:** Monitor black bullhead occurrence and population structure concurrent with annual sampling efforts for other game fish species.

HAYMEADOW RESERVOIR:

- OBJECTIVE:** Maintain and enhance the largemouth bass fishery at Haymeadow Reservoir through 2004.
- Strategy:** Monitor largemouth bass population annually in the spring to assess structure, status and effects of water management strategies, using electrofishing or other approved methodologies.
- Strategy:** Conduct bass spawning and recruitment surveys each spring in even-numbered years, beginning in 2002, to assess bass spawning success and survival/recruitment. Monitor temperature regimes to assess spawning period timing and duration through 2002. Utilize collected data to assess effects of water management strategies and develop trend predictions for the bass fishery.
- Strategy:** Conduct contact creel census surveys at least once weekly year around, to assess catch and harvest structure of largemouth bass, and angler success and satisfaction.
- Strategy:** Maintain volunteer angler creel information boxes and analyze collected data to provide supplemental information on angler success and satisfaction.
- Strategy:** Evaluate largemouth bass growth through collection and analysis of scale samples every five years beginning in 2002, or more frequently if data analysis from other sources indicates changes in fishery performance or reservoir productivity.
- Strategy:** Evaluate effects of water management strategies on largemouth bass production, recruitment, and maintenance using collected data, and provide fisheries input annually for development and modification of reservoir water management strategies.
- Strategy:** Review existing regulations for largemouth bass harvest and recommend changes, as needs are identified, every two years.
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- OBJECTIVE:** Maintain and enhance the rainbow trout fishery in Haymeadow Reservoir through 2004.
- Strategy:** Stock hatchery-reared rainbow trout in the amount to provide the angling public a quality fishery, characterized by catch rates of at least 0.30 fish per angler hour and 2.00 fish per angler day and with average growth rates exceeding two inches between stocking and harvest.
- Strategy:** Stock hatchery-reared rainbow trout twice annually in late spring and early fall to correspond with peak angler use periods and allow utilization of reservoir over-winter growth potential.
- Strategy:** Monitor rainbow trout population once annually in the spring to assess structure, status, trout growth and survival, using electrofishing or other approved methodologies.
- Strategy:** Conduct contact creel census surveys at least once weekly year around, to assess catch and harvest structure of rainbow trout, and angler success and satisfaction.
- Strategy:** Maintain volunteer angler creel information boxes and analyze collected data to provide supplemental information on angler success and satisfaction.
- Strategy:** Review existing regulations for rainbow trout harvest and recommend changes, as needs are identified, every two years.

- OBJECTIVE:** Evaluate establishment of black bullhead and address impacts on other sport fish species in Haymeadow Reservoir through 2004.
- Strategy:** Inform angling public of bullhead fishing opportunities and encourage harvest and removal.
- Strategy:** Monitor black bullhead occurrence and population structure concurrent with annual sampling efforts for other game fish species.

TULE RESERVOIR:

OBJECTIVE: Manage Tule Reservoir as a supplemental fishery dependent on water availability and wetlands/waterfowl management needs.

Strategy: Conduct random creel census only as anglers are encountered in conjunction with other management activities.

Strategy: Install a volunteer angler creel box at Tule Reservoir to obtain supplemental information on angler use and interest in the fishery.

Strategy: Review existing regulations and recommend changes, as needs are identified, every two years.

Native Fishes

NDOW, to the extent of its authority, will act to recover threatened and endangered species so that they can safely be removed from special status listing (NDOW Strategic Plan).

GOAL: Maintain and Enhance Populations of White River Valley Native Fish and Their Habitat on the KWMA.

OBJECTIVE: Conduct activities which allow the populations of native fish on the KWMA to perpetually exist and preclude activities which may compromise their ability to persist.

Strategy: Continue to provide a predator free environment for the populations of native fish at Flag Springs / Sunnyside Creek and the Hot Creek springfish refugia. This will be accomplished through the use of chemical and mechanical control of nonnative piscivorous fish species as well as maintenance of permanent fish movement barriers at both Sunnyside Creek and Hot Creek.

- Strategy: Secure the appropriated, continued flow of water within confines of occupied native fish habitat.
- Strategy: Maintain the stability of the undercut banks and riparian vegetation of Flag Springs / Sunnyside Creek through the preclusion of grazing ungulates within 50 linear meters of the creek.
- OBJECTIVE: Enhance the habitat which is occupied by native fish on KWMA.
- Strategy: Recover the Flag Springs complex to historic conditions and flow regime through returning the water to the original channels and encouragement of the recruitment of gravels and seasonal flows by connecting the system to the alluvial fan below the Egan Range. This will only be completed after an additional population of White River spinedace has been established within historic habitat and the population of spinedace at the Flag Springs / Sunnyside Creek exceeds 2,500 individuals over 20 mm in total length.
- Strategy: Develop easements with surrounding landowners which would allow expansion of the native fish populations to occur also on private adjacent property.
- Strategy: Develop and implement a fire plan which will mimic the natural disturbance cycle of the riparian areas of White River Valley. Implement this fire plan on the Flag Springs / Sunnyside Creek system.
- Strategy: Avoid disturbance activities in stream channels and adjacent riparian and upland habitats along Sunnyside Creek and Hot Creek which would negatively impact water quality parameters and habitat characteristics for protected native fish species.
- Strategy: Maintain the entire assemblage of native fishes which historically occurred within the boundaries of KWMA.
- Strategy: Construct a pipeline to meet stock water obligations from Middle Flag Spring. The pipeline will replace inefficient

existing overland ditch.

GOAL: **Track the Populations and Demographics of Native Fish Populations on the KWMA.**

OBJECTIVE: Conduct population surveys of all native fish which occur in waters of the KWMA in order to prioritize and conduct proactive management activities that will recover federally listed species of native fish and preclude the additional listing of native fish species.

Strategy: Conduct population surveys of the White River spinedace, *Lepidomeda albivallis*, in the spring and fall of each year according to standardized monitoring protocols. Continue with the semiannual monitoring for at least five years or until a second population has been established within historic occupied habitat. Fall monitoring will continue after the specified period until the species is delisted from the Endangered Species Act of 1973, as amended. After delisting has occurred monitoring will continue during summer months of odd years.

Strategy: Conduct population monitoring of White River speckled dace, *Rhinichthys osculus ssp.*, at Flag Springs / Sunnyside Creek during summer months of odd years.

Strategy: Conduct population monitoring of White River desert suckers, *Catostomus clarki intermedius*, at Flag Springs / Sunnyside Creek during summer months of odd years.

Strategy: Conduct population monitoring of Moorman White River Springfish, *Crenichthys baileyi thermophilus*, at Hot Creek springfish refugia during the summer months of even years.

Strategy: Consider using UNLV or UNR students for native fish population surveys.

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- GOAL:** Create a comprehensive Geographic Information System (GIS) coverage of the distribution of native fish and occupied habitat on KWMA.
- OBJECTIVE:** The creation of a GIS coverage will allow population data that has been collected to be presented in a format which is spatial in nature.
- Strategy:** In conjunction with population monitoring, the distribution of native fish will be mapped using NDOW GIS tools.
- Strategy:** Acquire remote sensing data and conduct supervised habitat classifications of the ground cover within the riparian zone and surrounding uplands of all occupied native fish habitats.

PREDATORS

Predatory animals are part of Nevada's wildlife resources. NDOW will investigate predator/prey interrelationships and document those instances where predation is a significant limiting factor on prey populations of particular public interest. Keep public informed and knowledgeable about the role of predators in the natural process resulting in fewer complaints and concerns (NDOW Strategic Plan).

GOAL: Identify predator populations and depredation on the KWMA.

OBJECTIVE: Using key indicators such as observed populations, predated species and brood survival, evaluate need for predator control on the KWMA.

Strategy: When a problem is identified appropriate measures will be recommended by the biologist to reduce the predator population to minimize wildlife depredation while maintaining a viable predator base population. NDOW personnel and/or Wildlife Services (formerly Animal Damage Control) will effect the control.

B. Habitat Management, Protection and Enhancement Goals

NDOW will preserve and protect quality habitats and enhance deficient habitats (NDOW Strategic Plan).

Wetlands

Achieve an overall goal of no net loss of wetland area or function and the long-term goal to enhance and increase wetland quantity and quality within the WMA (Wetland Conservation Plan).

GOAL: Enhance and increase wetland quantity and quality on the KWMA.

OBJECTIVE: Control emergent vegetation through water management and chemical sprays to achieve a ratio of 70 percent open water to 30 percent emergent vegetation where appropriate on KWMA by 2004.

Strategy: Discourage the growth of cattail and hardstem bulrush and encourage growth of alkali bulrush.

Strategy: Provide for maximum "edge effect" rather than monotypic solid stands of emergent vegetation.

Strategy: Use chemicals, such as Rodeo, to create irregular edges to increase nesting in large stands of emergent vegetation.

OBJECTIVE: Monitor the implementation and success of management activities toward enhancing wetlands on the KWMA by 2004.

Strategy: Incorporate wetland enhancement projects into the GIS natural resource inventory and conduct comparative analyses

of current verses 1996 wetland mapping.

GOAL: Create a mosaic of open shallow water areas for migrating and breeding shorebirds, waterbirds, waterfowl and other birds on KWMA through water management, prescribed burning, and spraying.

OBJECTIVE: Submit a Water Management Plan (WMP) annually for the KWMA. Adjustments must be made annually to support the habitat improvement projects such as burning and spraying. Variations in water management may need annual changes for spinedace recovery projects and other management plans for a given year.

Strategy: Coordinate and write WMP with all proposed actions each year by November 15 and submit for input. Submit final WMP by January 1st each year.

Strategy: Monitor and record water levels weekly during fluctuating or transitional weather and vegetation conditions, and bi-monthly during stable conditions.

Strategy: Adjust and maintain water flows and reservoir levels per the annual Water Management Plan.

OBJECTIVE: Enhance habitat, waterfowl use, and public use on the Old Place Unit and habitat, waterfowl use, public use and fisheries at Adams-McGill Reservoir by improving water control with the completion of the by-pass ditch project by 2001.

Strategy: Complete the by-pass ditch by constructing 1,600 feet of ditch, installing a plunge pool, and installing control structures 300 feet below the upper Adams-McGill boat launch as indicated in the Implementation Schedule for Habitat Management in Section IX.

OBJECTIVE: Continue to use prescribed burning on the KWMA during the fall and winter to enhance habitat through 2004.

Strategy: Prescribed fires will be scheduled and completed in conjunction with water management and herbicide spraying

to achieve desired objectives. (See Implementation Schedule for Habitat Management in Section IX).

Strategy: Evaluate the response of nongame wildlife to prescribed burns.

OBJECTIVE: Use herbicide spraying on the KWMA through 2004 to control undesirable emergent vegetation (cattails and hardstem bulrush) along the shorelines, channels, shallow impoundments and reservoirs whenever water control is not effective or possible.

Strategy: Herbicide spraying will be conducted as indicated in the Implementation Schedule for Habitat Management (Section IX).

OBJECTIVE: Explore the expansion of the food plots for nongame and game species to increase opportunities for viewing wildlife, increase use of nongame, upland game, dove, and waterfowl, and increase hunting opportunities for upland game, dove and waterfowl species.

Strategy: Following invasive plant control, prepare soil and plant Indian rice grass, sunflower, sand dropseed and other native plant seeds in the "headquarters" plots.

Strategy: Once invasive plant concerns are addressed, expand plantings to "west" or "elm tree" fields once successfully established in the "headquarters" plots.

OBJECTIVE: Evaluate the potential use of grazing on wetlands/native hay fields to increase diversity of habitat on the management area, to aid in the control of undesirable vegetation (cattails and hardstem bulrush), and to improve recreational access by FY2001.

Strategy: Coordinate with NRCS to develop a potential grazing program and location on KWMA.

GOAL: Establish and maintain vegetation control programs that minimize noxious weeds and promote healthy and desirable plant communities

that are beneficial to wildlife and to the users of the area.

OBJECTIVE: Aggressively control tamarisk, knapweed, puncturevine and other noxious plants by 2004 and contain stands by 2009.

Strategy: Map noxious plant locations and develop an annual treatment plan.

Strategy: Employ area personnel, volunteer groups, and prison work crews to treat noxious plants on the area.

Strategy: Monitor availability of new herbicides that will treat tamarisk, knapweed and other noxious plants more effectively.

Strategy: Employ Best Management Practices with equipment, tools and vehicles to prevent spread of noxious plant seeds to new areas.

Strategy: Monitor, map and treat invasions of other noxious weeds on the area.

Strategy: Follow treated areas with reseedling and restoration of native plant species to prevent reinvasion of noxious plants.

Strategy: Monitor herbicide treated sites for follow-up treatment needs.

GOAL: Maintain, protect and improve game fishery habitat on the KWMA for both trout and bass.

OBJECTIVE: Maintain, protect and improve the fishery habitat for rainbow trout in Cold Springs and Haymeadow reservoirs through 2004.

Strategy: Monitor water quality parameters at Cold Springs and Haymeadow reservoirs, including temperature, dissolved oxygen, pH, and conductivity, in conjunction with other scheduled monitoring activities and more frequently as identified in response to biological concerns.

Strategy: Monitor reservoir water levels and make fisheries recommendations for water level management as input to annual water management plan development.

Strategy: Conduct aquatic vegetation transect surveys in each reservoir at least once annually to evaluate changes in vegetation density and species composition, and to assess impacts of changes in vegetation on fishery habitat.

OBJECTIVE: Maintain, protect and improve the fishery habitat for largemouth bass in KWMA reservoirs through 2004.

Strategy: Monitor water quality parameters at Dacey, Adams-McGill, Cold Springs and Haymeadow reservoirs, including temperature, dissolved oxygen, pH, and conductivity, in conjunction with other scheduled monitoring activities and more frequently as identified in response to biological concerns.

Strategy: Monitor water levels at all reservoirs and make fisheries recommendations for water level management as input to annual water management plan development.

Strategy: Conduct aquatic vegetation transect surveys in each reservoir at least once annually to evaluate changes in vegetation density and species composition, and to assess impacts of changes in vegetation on fishery habitat.

Strategy: Monitor water quality at Tule Reservoir in those years when adequate water exists to maintain a minimum pool and fishery at that location.

GOAL: Acquire important wildlife habitat and water rights from willing sellers.

OBJECTIVE: Evaluate properties and water rights for acquisition, easement options, or conservation agreement options to enhance wildlife and habitat on or near the management area as they may become available.

Strategy: Evaluate benefits to wildlife and habitat considering

vegetation and wildlife diversity, proposed management goals, annual cost to manage, and availability of funds to manage.

2. Public Use Goals

NDOW will provide and promote fishing, hunting and trapping opportunities (NDOW Strategic Plan).

GOAL: Provide for and promote hunting opportunities on the KWMA.

OBJECTIVE: Provide the maximum waterfowl hunting opportunity possible, while minimizing impacts on waterfowl population objectives.

Strategy: Annually conduct a written evaluation of the previous year's hunting season to identify success and need for changes.

Strategy: Evaluate area waterfowl hunting regulations on a biannual basis and refine or remove those that are not meeting the objectives.

Strategy: Provide strategic parking areas in locations which minimize disturbance for hunters and waterfowl.

Strategy: Evaluate the need for a waterfowl rest area during the hunting season.

GOAL: Provide for and promote fishing opportunities on the KWMA.

OBJECTIVE: Continue to emphasize bass and trout fishing on the KWMA as a priority only second to wetland and waterfowl management.

Strategy: Use bass collected during on-site sampling activities to restock and augment existing bass fisheries where they have been impacted from maintenance activities, low water conditions, or other factors.

Strategy: Utilize the 3262 position for creel census activities at the KWMA fishable waters. Supplement creel activities by this position with assistance from seasonal or Lathrop Scholar

positions during the summer months to provide a minimum of 52 days of creel data collection per year.

- Strategy: Monitor all organized fishing contests on the KWMA to assess and identify possible conflicts with wildlife and fisheries management needs and objectives.
- Strategy: Provide summary reports of fishing activity and conditions, and angler success, at least bi-weekly to the Las Vegas regional office to assist anglers in obtaining up-to-date fishing information on KWMA waters.
- Strategy: Inspect and update fishing information in KWMA informational kiosks at least twice annually to provide current use and regulation information to anglers.

GOAL: Increase public access to wildlife resources and boating opportunity on the KWMA.

OBJECTIVE: Identify needed parking areas, walk throughs in perimeter and interior fences, improved roads, boat launch sites, and vegetation control needs on the KWMA to improve recreational access by 2004.

- Strategy: Improve existing boat launch site and parking area next to Haymeadow Reservoir to adequately provide access during heavy use periods.
- Strategy: Provide a single suitable boat launch site on the west side of Dacey Dam.
- Strategy: Enlarge the parking areas at two of the boat launch sites on the northeast side of Adams-McGill Reservoir.
- Strategy: Replace walk throughs with wood and smooth wire and add additional walk throughs where needed.
- Strategy: Provide a handicapped access facility for waterfowl hunting in an appropriate area.
- Strategy: Improve area roads by adding Type 2 gravel and providing

better drainage at problem areas.

Strategy: Hand spray emergent vegetation around boat launch sites, along dams and structures.

OBJECTIVE: Evaluate and develop handicap fishing access at Adams-McGill and Haymeadow reservoirs by 2002.

Strategy: Provide handicapped fishing access at an appropriate location.

Strategy: Install a handicapped toilet facility at Haymeadow and Adams-McGill reservoirs.

Watchable Wildlife

NDOW will provide public appreciation and nonconsumptive enjoyment of Nevada's wildlife resources (NDOW Strategic Plan).

GOAL: Develop watchable wildlife opportunities on the KWMA.

OBJECTIVE: Increase wildlife viewing participation on the KWMA by 10% above the 1998 Public Use Data Forms by 2004.

Strategy: Develop a wildlife viewing area on the east side of Dacey Dam and provide access during the nesting season by 2003. Improve the parking area on the east side of Dacey dam. Allow access to the area keeping the public confined to the main road and parking area when the rest of the unit is closed for nesting (February 15 to August 15). Add additional signing to inform the public of the limited access and location of the parking area/viewing area.

Strategy: Improve the information available to the public with the development of a management area brochure and additional or improved kiosks by 2004.

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- Strategy: Develop a web site that provides users with an update of fishing, hunting and watchable wildlife opportunities and area conditions.
 - Strategy: Expand the kiosk at the campground to allow for additional information and the distribution of the management area brochures.
 - Strategy: Improve the main kiosk on the east side of the Adams-McGill Reservoir to allow for the distribution of the management area brochure.
 - Strategy: Implement recommendations from the NDOW Interpretive Plan for sign development.

3. Facility Maintenance Goals

Facilities that are safe, accessible to all persons and well maintained to accomplish the agency mission and for the use and enjoyment of the public (NDOW Strategic Plan).

GOAL: Public facilities will be maintained and enhanced on the KWMA for the safety and enjoyment of the public.

OBJECTIVE: Complete the second phase of the Hot Creek development on KWMA by 2002.

Strategy: Install a cement outhouse similar to those in the campground near the parking area.

Strategy: Install the Registered Natural Landmark sign and build a new kiosk at the trailhead for fisheries and native fish information.

Strategy: Build an interpretive trail from the public access point to the main spring. Area personnel will assist with the outhouse installation, the kiosk construction and installation, and the maintenance. The other developments would be contracted.

Strategy: Evaluate further restricting vehicle access near the main spring.

OBJECTIVE: Improve the Dave Deacon Campground by establishing more trees for shade, privacy, and wind breaks for the campers, and additional benefits for birds by 2004.

Strategy: Improve drip irrigation system in the campground and plant 30 trees per year (See Implementation Schedule for Habitat Management in Section IX).

OBJECTIVE: Public facilities on KWMA will be maintained on a regular

schedule and enhancements made for optimum benefit and enjoyment of the public through 2004.

Strategy: Outhouses will be cleaned as scheduled and pumped once annually.

Strategy: The Dave Deacon Campground grounds will be mowed as scheduled to maintain a good appearance, reduce fire hazard, and to enhance use by the public.

Strategy: The campground, dams, parking areas, and boat launch sites will have litter removed monthly. Volunteers will be encouraged to assist. Signage and brochures will emphasize users to pack it in and out.

Strategy: Boat docks, ramps and other angler access facilities will be inspected, repaired and replaced as needed.

Strategy: Signs will be maintained annually to maintain a good appearance and function. As new signing needs arise signs will be fabricated and installed.

Strategy: Install one ADA compliant campsite at the campground including picnic table, fire/cook site, potable water access, vehicle parking, and access to restroom.

GOAL: All buildings at the headquarters, dams, dikes, water control structures, waterways, fences, roads, equipment, and vehicles will be maintained annually for appearance, function and safety.

OBJECTIVE: Maintenance needs will be identified and completed annually to provide good public access, safety to the public and NDOW employees, a well-kept appearance, insure function of water control structures with the ability to maintain and improve habitat for maximum waterfowl use and production, and control cattle trespass.

Strategy: Inspect and make recommendations for maintenance needs on KWMA as part of the comprehensive inventory for all state-owned facilities.

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- Strategy: The office, shop, bunkhouse, and outbuildings will be kept clean, functional and up to approved standards.
- Strategy: Coordinate with the State Historic Preservation Office to protect and restore the historical buildings at the headquarters (the barn and circular corral, the milk barn, and the school house) for the pleasure of the public viewing.
- Strategy: The two residences will be maintained as outlined in the housing contract. Emphasis will be placed on retaining their value, structural integrity, and comfort to employees and families residing in the residences.
- Strategy: The dams, dikes, water control structures, and ditches/canals/streams will be maintained to ensure function and enhancement of the native fish and wildlife habitat, reservoirs, and wetlands. All structures will be repaired as needed.
- Strategy: Mechanical cleaning of ditches should be coordinated to cycle all the canals through a cleaning once every six to ten years or as needed.
- Strategy: Modify existing road counter boxes to ensure better protection from weather/flooding, year round dependability, and reduced service and maintenance costs.
- Strategy: The 50 miles of perimeter fence will be checked and repaired as needed. Use inmate labor when possible.
- Strategy: Three miles of perimeter fence located in three separate areas need to be replaced. One section is included in the Old Place Development, another in the Hot Springs Development, and the remaining one mile section near the headquarters should be replaced by 2004.
- Strategy: Several miles of old interior fencing no longer functional will be removed. This could be accomplished using inmate labor or volunteers.
- Strategy: The 20 miles of roads on the KWMA will be maintained by
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area personnel as regularly scheduled.

Strategy: All equipment and vehicles will be maintained for serviceability, function, operator and public safety.

Consultation

NDOW will consult with government agencies, public and private land owners to effect the management, protection and enhancement of wildlife and wildlife habitats (NDOW Strategic Plan).

GOAL: NDOW will consult and coordinate with KWMA Stakeholders concerning area management and planning.

OBJECTIVE: Individuals and organizations outside of NDOW to be consulted during the planning process include the neighboring land owners, local, state and federal agencies, and other public interest/sportsmen's groups and sportsmen.

Strategy: Use public and interagency meetings to obtain input by the above mentioned individuals and organizations. Include all interested parties in the review and comment process once the proposed strategy or plan is drafted prior to final implementation.

Strategy: Develop and amend Memorandums of Understanding (MOUs) with government agencies, local governments and private organizations which describe responsibilities, authorities and coordination.

Strategy: Evaluate the need and feasibility to update BLM agreements by 2001 and determine desire to expand KWMA through BLM withdrawal or BLM buffer.

Compliance and Enforcement

NDOW will achieve maximum voluntary compliance by informing and involving the public, regulating and monitoring and enforcing laws and regulations (NDOW Strategic Plan).

- GOAL:** Maximize compliance with wildlife and KWMA regulations and laws by increasing law enforcement presence.
- OBJECTIVE:** Increase voluntary compliance of laws and regulations by 20% by 2004 on the KWMA.
- Strategy:** Total staff time dedicated to LE on the management area will be 42. 3260 has 12 man days available for law enforcement activities. Six days will be used during the waterfowl season and the remainder will be spread over the spring and summer months checking fishermen.
- Strategy:** Additional LE presence will be received from 3320 when completing his one day per month of creel census on the area as well as 3310.
- Strategy:** Additional LE will be coordinated through 3400. Additional LE on holiday weekends (Memorial, 4th of July, and Labor Day), during heavy use periods in the spring (March through June), and on the opening weekend of waterfowl season will meet the needs of the management area at this time.
- Strategy:** Evaluate possibility of sharing seasonal law enforcement officer with Nye County.
- Strategy:** Use Division volunteers and conservation groups to assist NDOW staff in the field as part of an "area watch" program, to assist at check stations, campgrounds and to conduct conservation projects.

- Strategy: Evaluate recreational pressure during holidays and develop contingencies for increased public use.

- Strategy: Evaluate need to develop rule to regulate ATV (all-terrain vehicle) use on the KWMA.

IX. Implementation Schedule for Habitat Management on KWMA

A. Water Management: By-Pass Ditch Construction

Completion of the proposed by-pass ditch in FY2001 will enhance habitat, waterfowl use, and public use on the Old Place Unit and habitat, waterfowl use, public use and fisheries at the Adams-McGill Reservoir by improving water control.

Old Place Unit Need and Benefits

The Old Place Unit is a series of four shallow impoundments where currently the only means to control undesirable emergent vegetation (cattails and hardstem bulrush) is with the application of the herbicide Rodeo. With the completion of the by-pass ditch, the ability to thoroughly dry this Unit on an "as needed basis" in conjunction with prescribed burning to remove litter, will aid in controlling the undesirable emergent vegetation. When the Unit is not being dried, water management will consist of wet soils management from May 15 through September 15 and shallow flooding for the rest of the year.

Following the completion of the by-pass ditch and the required maintenance of the existing portion of the by-pass ditch, water control on the Old Place Unit will be greatly enhanced. The only water source feeding this Unit which will not be controlled is the spring run-off when the White River flows.

Adams-McGill Reservoir Need and Benefits

Currently, Adams-McGill Reservoir cannot be effectively dried. Undesirable vegetation is being controlled with aerial applications of the herbicide Rodeo and aquatics are marginally managed with limited water control consisting of one foot draw downs or natural lowering during the summer months. Wide-spread algal growth on the Reservoir has limited the production of sago pondweed. Public access, hunter success, and bass production have also been affected by the algal growth. With the completion of the by-pass ditch, a thorough drying of the Reservoir would be possible. With the use of drying followed with a prescribed burn, control of the algae and emergent vegetation will be improved and the peat/organic matter on the reservoir bottom reduced.

By-Pass Construction

The by-pass ditch will be completed by constructing 1,600 feet of ditch, installing a plunge pool where water will be diverted from Sunnyside Creek to the by-pass ditch, and installing structures and 300 feet of ditch just below the upper Adams-McGill boat launch. This will allow diversion of water back into Adams-McGill Reservoir or by-passing it as prescribed by the annual Water Management Plan.

The remainder of the by-pass ditch will need maintenance, consisting of weed control and mechanical cleaning, before the entire system/by-pass ditch can be put into service. This entails applying the herbicide Rodeo to the vegetation in 3.5 miles of ditch. The estimated cost is \$2,000 for the chemicals and four man days by area personnel to apply the chemicals. Fall burning to remove the litter in the ditch is recommended with an additional two man days by area personnel.

Adams-McGill Reservoir Draw Down

Between March 15 and April 15, 2002, several fish salvage operations using NDOW's shocking barge and volunteer labor will be used to remove as many resident bass as possible from Adams-McGill Reservoir and move them to Cold Springs, Haymeadow and Dacey reservoirs. On April 15, 2002 the water will be diverted around Adams-McGill until December. At the same time the water is diverted, boards will be removed from the outlet structure on Adams-McGill Reservoir and the water feeding Dacey Slough controlled to stop flows into Adams-McGill Reservoir from the Hot Springs. During the early stages of the drying process, bass will be salvaged with seine nets or any other functional method and moved to Cold Springs, Haymeadow, and Dacey reservoirs. During the winter of 2002/2003 the final locations of the proposed three to five nesting islands will be staked and surveyed for elevation.

In July and August of 2003, the bottom should be sufficiently dried to use the small dozer with the wide marsh tracks to build waterfowl nesting islands and bottom structure for bass. In September/October of 2003 the Unit should be burned removing litter and reducing the peat layer on the bottom of the Reservoir. Upon completion of the prescribed burn and when there is available water (December/January) the Reservoir will be refilled. During the following spring, fingerling bass from hatcheries (a minimum of 20,000) and bass collected during the spring fish surveys on the other reservoirs at the management area will be planted in Adams-McGill Reservoir.

Water management beginning in April 2005 will be directed toward the production of alkali bulrush in the shallow areas on the Adams-McGill Reservoir and continued until the next drying cycle. By April 15, 2005, water levels in the Reservoir will be lowered 1.5

feet from 5154.0 ft. to 5152.5 ft. MSL and maintained through September 15. After September 15, the water level will be raised to 5154 ft. MSL and maintained until April 15. This drying cycle should be repeated once every 10-15 years as needed.

The expected benefits of this draw down project will include increased alkali bulrush production and public access for hunting, fishing, and waterfowl viewing; increased sago pondweed production; more nesting islands for waterfowl reproduction; increased bare bottom, structure, and dissolved oxygen for improved bass reproduction and growth rates; and an elevated bass carrying capacity in the reservoir with improved fishing success and fishermen access.

B. Prescribed Burning

Prescribed fires will be scheduled and completed when possible in conjunction with water management and aerial spraying to achieve desired objectives. Listed below are the five prescribed burning management units with the scheduled year a given unit will be burned.

Tule Unit

The Tule Unit encompasses the south side of the Haymeadow dam to the Tule dam totaling about 750 acres. This Unit was prescribe burned in the fall of 1999. Following the burn, the Unit was flooded to 5110.5 ft. MSL and will be maintained through the winter and the following growing season, if conditions allow, to help limit the regrowth of the undesirable emergent vegetation (cattails and hardstem bulrush). On May 15 of the second spring following the burn, the Reservoir will be lowered to 5109.5 ft. MSL and maintained through December to encourage alkali bulrush growth. (Note: During dry years this Reservoir may dry up completely). On January first, the Unit will be raised to 5110.5 ft. MSL and maintained until May 15. The draw down will be continued in May to 5109.5 ft. MSL and flooded in January until the burning cycle is repeated in about five years.

Haymeadow Unit

This Unit encompasses the south side of the Cold Springs dam to the upper 1/3 of Haymeadow Reservoir. The east side boundary is the bypass ditch; the western boundary is the point where salt grass gives way to salt brush, for a total of about 400 acres. This Unit is scheduled to be burned in the fall of 2000.

This Unit will be burned once the vegetation has cured in the fall and 75% to 95% removal of vegetation can be achieved with fire. Prescribed burning of this Unit will be

conducted about every five years.

Cold Springs Unit

This Unit runs from Adams-McGill dam south to the upper 1/3 of Cold Springs Reservoir. The east boundary is the bypass ditch and the west boundary is the point where salt grass gives way to salt brush.

This Unit is scheduled for burning in the fall of 2001 following an aerial spraying treatment with Rodeo. This Unit will be burned as soon as the vegetation cures in the fall and 75% to 95% removal of vegetation can be achieved with fire. Prescribed burning will be conducted about every five years.

Dacey Slough Unit

The Dacey Slough Unit consists of Dacey Slough and the west shoreline of Adams-McGill Reservoir from the southeast corner of Dacey Slough to the improved boat launch on the southwest corner of Adams-McGill Reservoir, totaling about 360 acres.

This Unit is scheduled for burning in the fall of 2002, following aerial spraying in August. This Unit will be drained on May 15, 2002 and allowed to dry prior to a fall burn. The Unit will be burned as soon as the vegetation cures in the fall and 75% to 95% removal of vegetation can be achieved with fire. Immediately following the fall burn, Dacey Slough will be flooded to maximum levels through the winter and the next growing season, which will limit the regrowth of the undesirable emergent vegetation (cattails and hardstem bulrush).

The second spring following the burn, this Unit will be managed for wet soils by draining the water May 15 to expose the bottom. During the growing season the Unit will be kept as wet as possible without covering the new growth. On September 15, Dacey Slough will be shallow flooded and maintained through the following spring. Wet soils management will be continued until the burning cycle is repeated about every five years.

Old Place Unit

This Unit is about 750 acres and encompasses the northeast side, upper end, and the east side of Adams-McGill Reservoir along the shoreline.

This Unit is scheduled to be burned in the fall of 2003. The water in the Old Place Unit will be lowered on March 15, 2002 and maintained as dry as possible until the vegetation has cured in the fall. The shoreline of Adams-McGill and Old Place units will be

burned as soon as 75% to 95% removal of vegetation can be accomplished with fire in the fall. Following the burn, the water level will be raised in the Old Place Unit and maintained until May 15. On May 15, the water will be drained and wet soils maintained through September 15 to encourage alkali bulrush growth. On September 15, the water will be raised to shallow flood the Unit and spread water on the native hay fields through May 15. The wet soils and shallow flooding scenario will continue until the Unit is ready to be burned again.

C. Herbicide Spraying

Aerial spraying will be conducted to control undesirable emergent vegetation (cattails and hardstem bulrush) along the shorelines, channels, shallow impoundments and reservoirs where hand spraying is not practical and other vegetation control methods such as water control, burning, and grazing are not effective.

The upper and lower target percentages (percent ratio of vegetation versus open shoreline or open surface acres of water) to indicate the parameters for control will be: shoreline-70% to 20%; channels-50% to 10%; shallow impoundments-70% to 15%. In reservoirs, vegetation islands of 3 acres or larger will be strip sprayed. These treated areas should be followed in the fall with a prescribed burn to minimize litter and decay (which could cause an anaerobic condition detrimental to fisheries), improve access and use by waterfowl and the public, and limit algae production.

Cost for aerially spraying is approximately \$75/acre for chemicals and \$10/acre for application by a certified aerial spraying contractor-fixed wing. Duck Stamp monies (25%) and Federal Aid funds (75%) are proposed to fund the aerially spraying. Optimum time for spraying is from mid-July to mid-August. Most of the areas proposed for spraying are closed to public access during this optimum spraying window. Those areas not closed to the public will be posted and access denied during the application dates. One block is scheduled for spraying in FY2003 and then the area will be reevaluated for further treatments.

The FY2003 treatment targets the upper end of Haymeadow and Cold Springs. The shoreline at the upper end of Haymeadow has 95% vegetation cover extending 200 yards into the Reservoir. The channel between upper Haymeadow and Cold Springs is approaching 100% vegetation cover. A total of 300 acres will be treated.

D. Tule Reservoir Nesting Island Development

Tule Reservoir is void of nesting islands when water levels are at their prescribed

maximum. In April 2005, water will be diverted around Tule Reservoir and flows entering from Haymeadow Reservoir stopped. If adequate drying of the bottom can be achieved by late August/early September, the Unit will be surveyed and several islands constructed. As soon as the construction is complete, the Unit will be burned and refilled, then the recommended management of the Unit will be followed.

E. Tree Plantings at Campground

The Dave Deacon Campground will be improved by establishing more trees for shade, privacy, and wind breaks for the campers, and additional perches for birds by 2004.

Beginning in 2004, the drip irrigation system will be improved and 30 trees will be planted each year for nine years for a total of 270 trees. Work will begin at the stations furthest from the existing row of trees (remnants of the original homestead). Work will proceed closer to the established trees each successive year in rows aligned on an east-west axis. This will aid in spreading campers throughout the campground and better utilize the available space.

Please see the attached Habitat Implementation Table. A proposed budget to implement the wildlife goals, objectives and strategies over the next four years on KWMA is found in Appendix K.

X. Evaluation Criteria

The Nevada Division of Wildlife intends to use this Conceptual Management Plan as a working document to guide the management of the W. E. Kirch Wildlife Management Area over the next 10 years. It will serve as a budget planning tool for annual and biennial budget preparation, and for development of Federal Aid grant agreements and proposals.

In two years, a report will be given to the Board of Wildlife Commissioners on the progress toward implementing the goals, objectives and strategies of the CMP. The CMP will also be evaluated in five years to determine if modifications are needed based on changing conditions, improved habitat management strategies, or changing public priorities.

Any unique-opportunity projects that may arise in the future on KWMA will be routed through the CMS project proposal procedure. If approved, this CMP will be amended to allow implementation of any unique-opportunity project.

Copies of this CMP will be maintained for public review at the Nevada Division of Wildlife State Office in Reno, each of the Regional Offices located in Fallon, Elko, and Las Vegas, and at the Kirch Wildlife Management Area.

**XI. Literature Cited
and References**

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APPENDICIES



Appendix A.

PUBLIC MEETING NOTICE

The Nevada Division of Wildlife is currently developing Conceptual Management Plans for the Kirch and Mason Valley Wildlife Management Areas (WMAs). The purpose of the plans will be to guide the management of wildlife, habitats, and programs on the WMAs. The management goals, objectives and strategies developed in the plans will guide management decisions concerning the WMAs for a ten year time period.

Public stakeholder meetings are being conducted to gather suggested management strategies for the WMAs and attempt to build consensus on the overall management of the areas. The suggestions developed during the meetings will help guide the Division in the development of goals and objectives for the WMA plans.

The public meetings have been scheduled as follows:

Kirch Wildlife Management Area Plan

November 18, 1998 7pm-9pm

**Bristlecone Convention Center
1506 Sixth St., Ely, NV**

November 19, 1998 7pm-9pm

**Division of Wildlife Conference Room
4747 W. Vegas Drive, Las Vegas, NV 89108**

Mason Valley Wildlife Management Area Plan

December 2, 1998 7pm-9pm

**Division of Wildlife Conference Room
1100 Valley Road, Reno, NV 89520**

December 9, 1998 7pm-9pm

**Lyon County Courthouse Annex Building
31 S. Main St., Yerington, NV 89447**

Draft Agenda

**Nevada Division of Wildlife Stakeholder Meetings for
WMA Conceptual Management Plan Development**

- 7:00pm- Welcome/Introduction
- 7:10pm- Agenda/Objectives/Procedure
- 7:15pm- Slide Presentation- Overview of WMA
- 7:30pm- Public Input Session Guided by Facilitator
- 8:00pm- Break
- 8:15pm- Public Input Continued
- 8:45pm- Wrap-up/Summary of Meeting
- 9:00pm- Meeting Adjourned

Note: This notice has been posted at the following Division of Wildlife Offices: 1100 Valley Road, Reno, 89520; 380 W. "B" Street, Fallon, 89406; 1375 Mountain City Highway, Elko, 89801; 4747 W. Vegas Dr., Las Vegas, 89108.

Notice to the Public

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BOB MILLER
Governor

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WILDLIFE

1100 Valley Road
P.O. Box 10678
Reno, Nevada 89520-0022
(702) 688-1500 • Fax (702) 688-1595

PETER G. MORRIS
Director
Department of Conservation and Natural Resources

TERRY R. CRAWFORTH
Administrator

October 22, 1998

MEMORANDUM

TO: Persons Interested in Nevada's Wildlife Management Area System
FROM: Terry R. Crawford, Administrator *T.R.C.*
SUBJECT: Stakeholder Meetings for the Development of a Conceptual Management Plan for the Kirch Wildlife Management Area

The Nevada Division of Wildlife is currently developing a Conceptual Management Plan (CMP) for the Kirch Wildlife Management Area (WMA). The purpose of the CMP will be to guide the management of fish and wildlife, their habitats, and recreational programs on the Kirch WMA. The management goals, objectives, and strategies developed for the plan will guide management decisions concerning the property for a ten-year time period.

Your participation in this planning process is very important to us. We will be conducting public stakeholder meetings to gather suggested management strategies for the WMA and attempt to build consensus on the overall management of the area. During the meetings, Division staff will give a brief introductory presentation regarding the proposed plan and an overview of the WMA. A facilitator will then guide the participants in the generation of a list of issues and management strategies concerning the Kirch WMA. The suggestions generated during the meetings will be a valuable source of information to guide the Division in the development of goals and objectives for the WMA plan. The schedule of the stakeholder meetings is as follows:

Kirch WMA Plan

November 18, 1998	7pm-9pm	Bristlecone Convention Center, Ely, NV
November 19, 1998	7pm-9pm	NDOW Conference Rm., Las Vegas, NV

If you are unable to attend one of these meetings, you may submit written suggestions to the Division's Habitat Bureau at the address on the letterhead above. Written suggestions should be submitted by December 15, 1998 to ensure consideration. Please contact Laura Richards at 702-688-1562 if you have any questions about the meetings.

We look forward to your participation during these upcoming meetings. Thank you for your continued interest in the future of Nevada's wildlife management area system.

J.R.
cc Management Team
Kirch WMA Plan Team

slk:awf:et

Agenda

Nevada Division of Wildlife
Stakeholder Meeting for the W. E. Kirch Wildlife Management Area
Conceptual Management Plan Development

November 18, 1998, 7-9pm
Bristlecone Convention Center, Ely, Nevada

Purpose of Meeting: To inform stakeholders about the planning process for the W. E. Kirch Wildlife Management Area and to obtain input regarding issues and management strategies.

7:00pm- Welcome/Introduction

7:10pm- Objectives/Agenda/Procedure

7:15pm- Slide Presentation- Overview of W. E. Kirch WMA

7:30pm- Public Input Session Guided by Facilitator

8:00pm- Break

8:15pm- Public Input Continued

8:45pm- Wrap-up/Summary of Meeting

9:00pm- Meeting Adjourned

Note: This agenda has been posted at the following Division of Wildlife Offices: 1100 Valley Road, Reno, 89512; 380 W. "B" Street, Fallon, 89406; 1375 Mountain City Highway, Elko, 89801; 4747 W. Vegas Dr., Las Vegas, 89108.

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Attendance Roster
 Stakeholder Meeting for
 Conceptual Management Plan Development
 Kirch Wildlife Management Area

November 18, 1998
 Bristlecone Convention Center
 Ely, Nevada

<u>Name</u>	<u>Affiliation</u>	<u>Address</u>	<u>Telephone Number</u>
WILLIAM MILLER	W.P. SPORTSMAN	955 AVE. D ELY	289-4907
CHRIS A CROCKSHANKS	M.D.O.W.	685 MILL ST, #2 ELY	289 8042
Frank Eagle	Fisherman	P.O. Box 150402	289-3610
MARLENE KIRCH	MEMBER-W.L.S.L.P. CBK	—	—
George + Rosa Coons		P.O. Box 150867 East Ely 89315	289-636
ERIC Williams		HC 33 Box 32202, Ely NV 89301	289-3220
ROLAND DiSANZA		1144 AVE F ELY NEV. 89301	289-8671
RON CARRION		Bx. 159 EUREKA, NV 89316	702 287-5 237-5 237-5 778-5E

Agenda

Nevada Division of Wildlife Stakeholder Meeting for the Wayne E. Kirch Wildlife Management Area Conceptual Management Plan Development

November 19, 1998, 7-9pm
Division of Wildlife Conference Room, Las Vegas, Nevada

Purpose of Meeting: To inform stakeholders about the planning process for the Kirch Wildlife Management Area and to obtain input regarding area management strategies and issues.

7:00pm- Welcome/Introduction

7:10pm- Objectives/Agenda/Procedure

7:15pm- Slide Presentation- Overview of Kirch WMA

7:30pm- Public Input Session Guided by Facilitator

8:00pm- Break

8:15pm- Public Input Continued

8:45pm-Wrap-up/Summary of Meeting

9:00pm- Meeting Adjourned

Note: This agenda has been posted at the following Division of Wildlife Offices: 1100 Valley Road, Reno, 89510; 360 W. 18th Street, Fallon, 89406; 1375 Mountain City Highway, Elko, 89801; 4747 W. Vegas Dr., Las Vegas, 89108.

Notice to the Public

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Attendance Roster
 Stakeholder Meeting for
 Conceptual Management Plan Development
 Kirch Wildlife Management Area

November 19, 1998
 Division of Wildlife Conference Room
 Las Vegas, Nevada

<u>Name</u>	<u>Affiliation</u>	<u>Address</u>	<u>Telephone Number</u>
RON + TIM MILLS	NDOW	KWMA	289-0927
DAN ROSCOE		4127 BOCA DA	
BRUCE ALWARD	WHIN	6401 HARTMAN ST LV.	631-0258
CRIS TOMLINSON	NDOW	4747 Vegas Drive	645-0868
ANDREW CUMMINGS	WHIN	5205 COLD RIVER AVE LAS VEGAS, NV 89130	486-5127
RANDY UPTON	LV FFC		650-1008
JERRY STEIN	NDOW	5076 HARRISON DR LV NV 89120	498-0813
WALT CLUTTS	SPORTSMAN	4747 W. VEGAS DR	488-5182
MICHAEL CLUTTS	"	6708 KITTELY DR	870-7466
STEPHANIE BYERS	FWS	"	"
MARLENE KIRCH	WILDLIFE COMM.	1340 Financial Blvd	870-7466
JACK COOKS	"	"	861-6300
But Tanner			725-3521
RAY GUTIERREZ	T.U. + LVFC	4444 Flowerdale Ct. LV NV 89103	873-8181
JR. HANSON	LVFFC + U, WHIN MNF	4434 SWANDALE AVE. LV.	451-9296
Jack L. Hoffer	NDOW		
Jon Sjoloy	NDOW	Las Vegas	486-5127
JELINDO FEBERTZ II		6575 W. DIABLO LV 89118	382-7070
JOHN HIATT		8180 PLACID ST. LV. 89123	361-1171
GREG CLARK		6042 SAPE Blossom AVE 89122 LV - NV	871-9011

Nevada Division of Wildlife
Stakeholder Meeting Comments
Kirch Wildlife Management Area
Conceptual Management Plan Development
November 18, 1998
Bristlecone Convention Center, Ely

Suggestions from the Public

- Campgrounds should be primarily for Kirch WMA recreational users.
- Improved boat access on all reservoirs (congestion during fishing derbies).
- Evaluate February 15 to August 15 waterfowl production closure dates. Is the August 15 date later than necessary?
- Implement Ducks Unlimited projects on Kirch (southern Nevada); \$75,000 available.
- *-Enhance upland game bird habitat and hunting (pheasant and quail).
- *-Enhance farming for game birds.
- *-Evaluate need to purchase additional water rights for water deficit on area.
- Evaluate need to update Bureau of Land Management agreements.
- *-Evaluate need for predator control for coyotes, racoons, and ravens including Animal Damage Control involvement.
- *-Establish either Haymeadow or Cold Springs reservoirs as a trophy fishery with size restrictions, catch and release, and single-barb requirements.
- *-Introduce bluegill into one lower reservoir to benefit bass.
- *-Develop handicapped fishing access and waterfowl blind.
- Establish permanent duck hunting blinds.
- Evaluate recreational pressure during holidays (fishing).
- *-Release pheasant and quail: put and take.
- *-Evaluate livestock grazing as a wildlife habitat management tool.

Page 2
Ely Stakeholder Meeting

- Evaluate expanding area through BLM withdrawal, BLM buffer, and acquisition.
- Continue spraying program with Rodeo. Evaluate sources of funding.
- *-Develop informational kiosks on listed fish and wildlife, area wildlife management.
- *-Delineate areas for towers and wildlife observation and other areas for fishing and hunting.
- Develop educational opportunities for schools, field trips on area.
- Develop nature trails, bike trails.
- Evaluate alternative funding sources through conservation groups, selling Division products.
- *-Develop volunteer services on area.
- Develop legislative support and additional funding through the legislature.
- *-Provide maintenance and manpower coverage at appropriate levels.
- *-Evaluate need for conservation stamp, habitat stamp, donations as means to provide additional funds for WMA.

* This suggestion was made at both stakeholder meetings for Kirch WMA.

Nevada Division of Wildlife
Stakeholder Meeting Comments
Kirch Wildlife Management Area
Conceptual Management Plan Development
November 19, 1998
Division of Wildlife Conference Room, Las Vegas

Suggestions from the Public

- Evaluate timing of aerial spraying for effectiveness, conflicts with users of WMA.
- Enhance law enforcement presence on area, enforce limits.
- *-Develop trophy fishery on area with use of artificial lures only.
- Plant grove trees along reservoirs for raptors, passerines.
- Noxious plant control.
- Control invasive aquatic plants- milfoil, etc.
- *-Develop informational kiosks and brochures including information on not bringing exotic plants into the area.
- Enhance waterfowl foods on area.
- *-Stock bluegill in Haymeadow and/or Cold Springs reservoirs.
- Reopen access point near the barn on the northeast side of Haymeadow Reservoir.
- *-Provide a handicapped access facility for hunting.
- *-Evaluate need for manpower and funding increases for proper management of the area.
- Enhance dryland farming. Enhance wetlands near plot. Look for water for farming.
- Keep reservoirs full, trout in Dacey Reservoir
- *-Introduce upland game birds, pheasants.
- Evaluate feasibility (Federal Aviation Administration) and need to improve airstrip on area.
- Pave north entrance road to store.

- Grade roads, improve access.
 - Maintain existing facilities, roads, public use areas- no new development.
 - Evaluate equipment use, proper maintenance.
 - *-Evaluate possibility of raven control.
 - Evaluate cormorant predation on fish.
 - Provide trash cans and use volunteers to pick up litter.
 - Evaluate possibility of State Parks sharing in costs for public use facilities.
 - *-Evaluate habitat stamp, fee for nonconsumptive users.
 - Do not provide trash cans at campground.
 - Provide toilet at Hot Springs.
 - *-Enhance wildlife viewing on area: shorebirds on Dacey Reservoir. Develop interpretive brochure.
 - *-Evaluate fee for nonconsumptive users.
 - Evaluate possibility of seasonal law enforcement officer shared with Nye County.
 - Develop Wildlife Heritage and Duck Stamp projects on area.
 - *-Evaluate livestock grazing as a management tool.
 - *-Promote student workers, interns to work on WMAs.
 - Control knapweed invasion on uplands.
 - *-Evaluate need for additional water for area.
- * This suggestion was made at both stakeholder meetings for Kirch WMA.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

NEVADA FISH AND WILDLIFE OFFICE
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NEVADA 89502-7147

February 4, 1999
File No. LEAL

Mr. Terry Crawford
Nevada Division of Wildlife
Post Office Box 10678
Reno, Nevada 89520-0022

Dear Mr. Crawford:

Subject: Comments on the Kirch Wildlife Management Area Conceptual Management Plan Development

We would like to thank you for the opportunity to attend the recent stakeholder meeting for the Kirch W.E. Wildlife Management Area (WMA). At the meeting several issues were discussed for developing a Kirch WMA Conceptual Management Plan (CMP). We would like to comment on some of the issues which were raised at the meeting especially those issues which may impact the federally endangered White River spinedace, found only at Kirch WMA.

One strategy mentioned by the public at the meeting was the desire to stock bluegill into some of the reservoirs found on Kirch WMA. We feel that this may severely impact the population of White River spinedace should the bluegill ever move into the areas upstream of the reservoirs. We believe introduction of bluegill is not a prudent management action and one which we would not support. One of the most dire threats to this population in the past was bass which were introduced into the upstream areas. Because of the predation upon spinedace by the bass, the species was nearly extirpated from the area.

The Nevada Division of Wildlife (Division) spent considerable effort and section 6 funds eliminating bass. Any introduction of bluegill would have the same effect upon the recovering spinedace population and require as much effort to eliminate as the bass if they were inadvertently stocked or moved into the upstream areas. Two barriers exist to upstream fish movement. The downstream of these was believed to prevent all fish migration until this past year when the Division believes it may have been breached during high water. The Division has

Mr. Terry Crawford

File No. LEAL

been unable to assess whether the bass in the downstream reservoirs accessed the area above the downstream barrier. An additional predatory fish in the downstream reservoirs would just compound this problem.

The enhancement of farming was another suggestion at the meeting that we believe would have negative effects upon the spinedace. An irrigation structure at the junction of Flag Springs 2 and 3 prevents White River spinedace from accessing the areas upstream of the structure. The majority of the population is currently found in Flag Spring 2, as well as being important juvenile rearing habitat. We believe that the structure should be removed to allow access to all the springs. Working with Jerry Stein of your staff, we contracted with a consultant to provide opportunities for the restoration of the springs. The report was recently finished and we hope to begin implementation this spring and summer in cooperation with your staff in Las Vegas and at Kirch WMA. While we feel farming further downstream in the system will not significantly impact the spinedace within its current range, any farming or diversion of water above the culvert bridge would detrimentally impact the species.

Another management option being considered is to evaluate livestock grazing as a wildlife management tool. We believe that this is a tool to consider within the area surrounding the three springs. Studies have shown that livestock grazing controlled both by duration and seasonally may have some positive impacts on riparian areas. We would like to discuss and coordinate this option with your staff to see if it may provide additional benefits during restoration of the springs and into the future.

Several topics raised at the meeting focused on the control of invasive weeds. We believe this is very important in terms of ecosystem health and support any efforts to control and/or stop the spread of noxious weeds.

There were several strategies suggested at the meeting which would increase both the funding at Kirch WMA and educational opportunities on site. We believe these strategies could also incorporate the listed spinedace which occurs only at the WMA. It would be a great opportunity to educate the public about Nevada's unique and endemic fauna as well as providing valuable financial assistance. All of the above would be good opportunities to expend section 6 funds.

Mr. Terry Crawford

File No. LEAL

We wish to thank you again for the opportunity to provide comments on the Kirch WMA's CMP and look forward to working with you on the issues mentioned above. Please contact Stephanie Byers at (775) 861-6300 if you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert D. Williams". The signature is written in a cursive style with a long, sweeping underline that extends to the left.

Robert D. Williams
Field Supervisor



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Ely Field Office
HC 33 Box 33500 (702 No. Industrial Way)
Ely, Nevada 89301-9408
<http://www.nv.blm.gov/Ely>



In reply refer to:
6000 (NV-043)

MAR 20 2000

Ms. Laura Richards
Nevada Division of Wildlife
1100 Valley Road
Reno, Nevada 89512


Dear Ms. Richards:

Thank you for the opportunity to review the Draft Conceptual Plan for the W. E. Kirch Wildlife Management Area (WMA). Our comments are as follows:

1. The Plan is well organized and well written. Appendix B is especially useful for the public. Appendix B could be expanded to include responses to all of the issues/suggestions raised at the public meetings.
2. The Ely Field Office of the BLM will plan to discuss expansion of the WMA and updates of agreements once NDOW has determined their needs in this regard.
3. Just for clarification, the purpose of the one mile "withdrawal" around the WMA as it is presently written is to exclude surface occupancy during oil and gas exploration.
4. The Ely Field Office will continue to cooperate as needed and requested in the use of prescribed fire for vegetation management within the WMA.
5. The terminology "BLM allotment cattle" on page two of Appendix B should be changed to "cattle permitted to graze on public lands."
6. The future of the Gap Mountain BLM campground which provides services to recreationists at the WMA will be determined this spring. NDOW has stated that they do not have interest in acquiring this campground and completing development.

If you have any questions, please contact Jacob Rajala of my staff at (775) 289-1845.

Sincerely,


Gene A. Kolkman
Field Manager

From

George & Rea Coons

18 Feb 2000

To Division Habitat Bureau
Attn: Laura Richards

Thankyou for draft of Kirch
Wildlife Management Area
(C M P) which we received
today.

We have no other suggestions
or comments then those made
at the November 1998 meeting
here in Ely. Will be looking
forward to receiving the
revised copy when it is
finished. Please note new

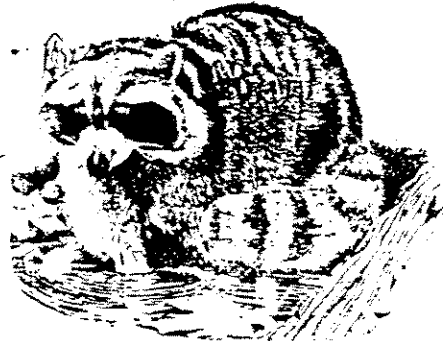
George E. & Rea A. Coons

P. O. Box 955

McGill, NV 89318

775-289-4988

Rea A. Coons



Memo

Date: 2/23/00
To: Laura Richards
Cc: Bill Bradley
From: Jack Coons
RE: Draft Kirch management plan.

First a couple of general impressions:

1. This is an excellent document and you should be commended on the quality and thoroughness of it.
2. I sense a lack of long term vision, what do we want this WMA to look like in 50 years? Ten-year plans should put us on a track to achieve long term goals. Maybe the Commission needs to provide this??
3. None of the public comment was accepted. Refer to the first appendix response to resource concerns. I am not arguing with the agency responses (at this time) but if I were just a stakeholder that took the time to come to the meetings and offered input I would now see that it was rejected. I discussed this a little with Doug and would be willing to talk more about it.

Page 54 add Strategy - Use volunteers to build more goose nesting platforms.

Strategy - Use volunteers to maintain goose nesting platforms.

Page 55 Objective for dabbling duck nesting and brood rearing habitat. I noticed that for the white faced Ibis page 58 we have very specific habitats noted. But I don't see any listed for ducks?

Page 56 add Strategy use volunteers to conduct surveys

Delete Strategy evaluate the need and potential for developing goose food plots. This is something that we should have already completed, the strategy should be to develop these areas.

Page 57 Strategy to create several small feeding sites for Sandhill Cranes..... why not one large area??

Goal: improve upland gamebird populations....what about exotics??

Memo

- Page 58 Strategy Casually monitor Burrowing Owl occurrences..... I have a problem using the word casual....nothing about our mission should be casual.
- Page 59 add Strategy evaluate the introduction of prey species for Largemouth bass and salmonids.
Strategy for trophy fishing opportunities??
- Page 66 Strategy typo error in the third one down from the top. Also why shouldn't we do this for the benefit of the entire complex.
- Page 67 Why not use UNLV or UNR students for Native fish population surveys through and MOU.
- Page 71 Strategy - Expand plantings to west or elm tree fields once successfully established in the dove field plots. This appears to be self defeating if the first crop fails then we don't have to expand. I would just go ahead with the expansion.
- Page 72 Goal - Maintain, protect and improve game fishery habitat on the KWMA for both trout and bass. What about proactive strategies to control aquatic vegetation. There are several methods like the use of barley straw, buriap etc that are cheap effective and can be done through the use of volunteers.
- Page 75 how will these strategies occur and what objectives have we set??
- Page 78 Strategy - Develop a web site that provides users with an update of hunting conditions and opportunities. Good idea however I am not sure it belongs under the watchable wildlife opportunities goal? Shouldn't this also include fishing and or anything else going on ?
- Page 81 Typo in third strategy down from the top....what about Dumpsters??
- Page 82 4th strategy from the top...what about other wildlife besides just native fish?
Add a Strategy to Plan for the replacement of dirt ditches with PVC pipelines??
Use inmate labor on all fence projects?
Do we or should we publish when the road maintenance occurs?
- Page 83 typo at the end of the last strategy
- Page 84 12 man days of LE time is just not enough 1st strategy
- Page 85 Rules for ATV's should be developed for all WMA's
- Page 90 Alternative methods for the control of undesirable emergent vegetation need to be explored.
- In closing this is a great step toward the future, and I am available to answer any questions you should have about the comments..... thanks for listeningJack

Appendix B.

**Stakeholder Meeting Suggestions Incorporated
into the Kirch Wildlife Management Area
Conceptual Management Plan**

- Improve boat access on reservoirs.
- Implement Duck Stamp and Ducks Unlimited projects on Kirch.
- Enhance habitat for game birds.
- Evaluate need to update Bureau of Land Management agreements.
- Evaluate need for predator control for coyotes, racoons, and ravens including Animal Damage Control involvement.
- Develop handicapped access for fishing and hunting.
- Evaluate recreational pressure during holidays (fishing).
- Evaluate livestock grazing as a wildlife habitat management tool.
- Evaluate expanding area through BLM withdrawal, BLM buffer, and acquisition.
- Continue spraying program with Rodeo. Evaluate sources of funding.
- Develop informational kiosks on listed fish and wildlife, area wildlife management.
- Delineate areas for towers and wildlife observation and other areas for fishing and hunting.
- Develop educational opportunities for schools, field trips on area.
- Develop volunteer services on area.
- Evaluate timing of aerial spraying for effectiveness, conflicts with users of WMA.
- Enhance law enforcement presence on area, enforce limits.
- Plant trees for raptors, passerines.
- Noxious plant control.
- Control invasive aquatic plants.

- Develop informational kiosks and brochures including information on not bringing exotic plants into the area.
- Enhance waterfowl foods on area.
- Reopen access point near the barn on the northeast side of Haymeadow Reservoir.
- Evaluate need for manpower and funding increases for proper management of the area.
- Enhance food plots for wildlife.
- Keep reservoirs full, trout in Dacey Reservoir
- Grade roads, improve access.
- Maintain existing facilities, roads, public use areas.
- Evaluate equipment use, proper maintenance.
- Evaluate possibility of raven control.
- Use volunteers to pick up litter. Do not provide trash cans at campground.
- Evaluate possibility of State Parks sharing in costs for public use facilities.
- Provide toilet at Hot Creek Springs.
- Enhance wildlife viewing on area: shorebirds on Dacey Reservoir. Develop interpretive brochure.
- Control knapweed invasion on uplands.
- Evaluate need for additional water for area.

Stakeholder Meeting Comments
Kirch Wildlife Management Area
Response to Resource Concerns

Public Comment: Evaluate February 15 to August 15 waterfowl production closure dates (Is the August 15 date later than necessary?).

NDOW Response: Up to 12 species of ducks breed and raise their young on the area. The first duck nests begin hatching in mid-April and by mid-August, 95% have hatched. Peak of hatch is usually late July through early August.

From the period 1988-1998, brood surveys on KWMA indicated that an average of 13% of broods and 14.5% of young were Class I (just hatched) during the last week of July. To protect these broods and possible late nesters or renesters, NDOW will continue to have the waterfowl production closure until August 15 each year.

Public Comment: Establish either Haymeadow or Cold Springs reservoirs as a trophy fishery with size restrictions, catch and release, and single-barb requirements.

NDOW Response: On Cold Springs Reservoir, creel census over the last eight years has shown the average length of harvested trout to be 13.7 inches. An average of the last three years shows anglers using bait amounted to 44%, 38% of surveyed anglers used lures and 18% fished with flies. Shore anglers averaged 57%, boat anglers averaged 30% and float tube anglers averaged 13% of the anglers on the Cold Springs Reservoir. Largemouth bass in the reservoir are usually in the 8 to 12 inch range with a few reaching 15 to 17 inches.

Three questions were posed to anglers on the creel box survey concerning angler satisfaction while fishing on Cold Springs Reservoir. Of those anglers responding over the last three years, 82.43% indicated they had a positive day of fishing, 77.32% indicated they were satisfied with the size of the fish caught, and 67.73% were satisfied with the number of fish caught (Table 8).

On Haymeadow Reservoir, creel census over the last eight years has shown the average length of harvested trout to be 13.59 inches. An average of the last three years shows anglers using bait amounted to 48%, 28% of surveyed anglers used lures and 24% fished with flies. Shore anglers averaged 50%, boat anglers averaged 29% and float tube anglers averaged 20% of the anglers on Haymeadow Reservoir. Largemouth bass in the reservoir are usually in the 8 to 12 inch range with a few reaching lengths in the 15 to 17 inch range.

Three questions were posed to anglers on the creel box survey concerning angler satisfaction. Of those anglers responding over the last three years, 79.74% indicated they

had a positive day of fishing, 76.74% indicated they were satisfied with the size of the fish caught, and 73.66% were satisfied with the number of fish caught on Haymeadow Reservoir (Table 8).

Due to the high percentage of bait fisherman on Cold Springs and Haymeadow reservoirs (45.6% and 47.79%, respectively), and the high satisfaction ratings by anglers (82% and 80%, respectively), the reservoirs will continue to be managed in their current manner.

Public Comment: Establish permanent duck hunting blinds.

NDOW Response: Due to the extensive area available to hunt waterfowl on KWMA and the relatively light hunting pressure other than opening of duck season, NDOW will not pursue the establishment of permanent duck blinds at this time. The abundance of emergent vegetation (cattails, bulrush) on KWMA allows hunters to quickly build a temporary hunting blind in prime waterfowl hunting locations.

Public Comment: Stock bluegill in Haymeadow and/or Cold Springs reservoirs.

NDOW Response: Due to the presence of White River spinedace (endangered) and several other sensitive species of endemic fish on the Kirch WMA, and the possible impacts this predatory fish that could have on the endemic species, bluegill will not be stocked on the area.

Public Comment: Introduce upland game birds, pheasants.

NDOW Response: Ring-necked pheasants were released onto the area by NDOW in the 1960s and 1970s. Today the population of pheasants on the area remains low. Pheasant habitat is restricted mainly to the historic agriculture fields at Kirch WMA. Scaled Quail also were released on the area in the early 1960s but several severe winters eventually eliminated the population. Due to the limited available habitat and poor success of previously released game birds, this practice will not be implemented on the KWMA.

Public Comment: Evaluate feasibility and need to improve airstrip on area.

NDOW Response: The Nevada Department of Wildlife terminated the airport lease with the BLM in 1987. NDOW was required to disk the landing strip site to break the hardpan to allow revegetation of the site. The airstrip had been for private use, had very light use and was used exclusively by Division employees. It was decided not to renew the lease with BLM due to the annual rental fee of \$3,000 to \$5,000 that would be required of NDOW. There was also safety concerns associated with cattle permitted to graze on public lands crossing the unfenced airstrip. Due to the costs to upgrade this airport landing strip, costly rental fees and maintenance, and safety concerns, NDOW will not pursue this project.

Public Comment: Pave north entrance road to store.

NDOW Response: The road leading into the KWMA is a county road maintained and owned by Nye County. KWMA staff can coordinate with Nye County officials to determine the feasibility and desirability of paving this road.

Appendix C.

SUNNYSIDE, NEVADA (267908)**Period of Record Monthly Climate Summary****Period of Record : 7/ 1/1948 to 12/31/1998**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	44.4	49.2	55.4	64.1	73.8	83.9	91.3	89.0	80.4	69.1	54.1	45.7	66.7
Average Min. Temperature (F)	15.8	21.5	26.5	31.5	39.4	47.2	54.0	51.6	43.2	32.5	23.2	16.2	33.6
Average Total Precipitation (in.)	0.72	0.77	0.95	0.74	0.93	0.57	0.83	0.92	1.00	0.88	0.65	0.62	9.59
Average Total SnowFall (in.)	5.5	2.2	2.8	1.0	0.1	0.0	0.0	0.0	0.0	0.3	2.2	3.1	17.3
Average Snow Depth (in.)	1	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.

Max. Temp.: 59.5% Min. Temp.: 59.8% Precipitation: 67.5% Snowfall: 60% Snow Depth: 58.1%

Check [Station Metadata](#) or [Metadata graphics](#) for more detail about data completeness.Western Regional Climate Center, wrcc@dri.edu

SUNNYSIDE, NEVADA

Monthly Total Precipitation (inches)

(267908)

File last updated on Jun 14, 1999

*** Note *** Provisional Data *** After Year/Month 199902

a = 1 day missing, b = 2 days missing, c = 3 days, ..etc.,

z = 26 or more days missing, A = Accumulations present

Long-term means based on columns; thus, the monthly row may not sum (or average) to the long-term annual value.

MAXIMUM ALLOWABLE NUMBER OF MISSING DAYS : 5

Individual Months not used for annual or monthly statistics if more than 5 days are missing.

Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

YEAR (S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1948	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00	0.89n	0.00m	0.00z	0.00z	0.00z	0.00
1949	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.30c	0.14	0.32	0.00z	0.00z	0.00z	0.76
1950	0.00z	0.00z	0.23	0.11	0.73	0.08	1.73	0.09b	0.90	0.14	0.49	0.13	4.63
1951	0.31	0.30	0.28	1.66	0.63	0.00	0.55	0.88	0.13	0.00z	0.00z	0.00z	4.74
1952	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1953	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1954	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1955	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1956	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1957	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1958	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1959	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1960	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1961	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1962	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1963	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1964	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1965	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00
1966	0.09	0.65	0.18	0.00	0.19	0.08	0.00z	0.06	1.53	0.00	0.00	1.79	4.57
1967	0.55	0.00	0.68	1.71	1.23	1.83	0.82	0.24	2.18	0.00	0.21	0.52	9.97
1968	0.21	1.41	0.27	1.03	0.12	0.19	0.92	1.04	0.02	1.29	0.11	0.41	7.02
1969	2.64	1.12	0.29	0.32	0.00	1.28	2.24	0.07	0.00z	0.40	0.67	0.30	9.33
1970	0.15	0.74	0.96	0.26	0.05	0.37	1.13	1.26	0.14	0.06	1.05	0.76	6.93
1971	0.00	0.55	0.00	0.51	1.62	0.03	0.49	0.54	0.26	0.44	0.21	2.80	7.45
1972	0.00	0.00	0.00	0.31	0.41	1.93	0.06	0.75	1.00	1.64	0.63	0.41s	6.73
1973	0.57	1.21	1.42	0.63	0.48	0.35	0.00	0.95	0.12	0.36	0.28	0.37	6.74
1974	0.78	0.09	0.47	0.17	0.12	0.00	0.54	0.33	0.00	2.51	0.67	0.43	6.11
1975	0.13	0.29	1.73	0.16	1.06	0.22	0.70	1.01	0.07	0.27	0.08	0.01b	5.73
1976	0.00	1.64	0.00c	0.09	0.12	0.00	2.72	0.15	1.20	2.52	0.18	0.00	8.62
1977	0.37	0.00	0.41	0.00	2.39	0.77	0.16	1.07	0.95	0.19	0.18	0.90	7.39

1978	1.10	1.95	2.28	2.81	0.03	0.00	0.09	0.61	1.29	1.37	1.54	0.93	14.00
1979	1.32	0.78	1.55	0.02	0.55	0.11	2.23	1.57	0.00z	0.24	0.27	0.06	8.70
1980	1.52	1.58	1.72	0.69	2.48	0.00z	0.91	0.18	2.88	0.21	0.55	0.06	12.78
1981	0.71	0.36	2.25	2.32	1.21	0.03	1.09	1.11	0.65	2.51	0.14	0.12	12.50
1982	0.41	0.18	2.56	0.33	1.27	0.35	0.44	1.66	3.46	1.45	1.28	0.45	13.84
1983	1.44	0.99	1.52	1.16	0.11	0.16	0.04	3.89	1.25	0.75	1.27	0.79	13.37
1984	0.18	0.41	0.27	1.01	0.10	0.39	4.37	2.80	0.47	0.97	0.32	1.62	12.91
1985	1.07	0.22	0.66	0.27	1.48	0.07	1.75	0.00	0.88	1.27	1.88	0.30	9.85
1986	0.64	0.95	1.50	1.15	0.29	0.06	0.62	1.42	1.23	0.63	0.41	0.02	8.92
1987	0.93	0.33	1.08	1.28	1.48	0.35	2.77a	1.44	0.07	2.74	4.19	0.45	17.11
1988	0.86b	0.07	0.30	2.56	0.42	0.67	0.17	1.32b	0.94a	0.34	0.49	0.54	8.68
1989	0.36	0.54	0.50	0.00	2.17	0.49	0.32	1.89	0.48	0.00	0.19	0.00	6.94
1990	1.68	0.49	0.71	1.27	0.92a	0.75	0.31	0.52	1.84a	1.60	0.25	0.21a	10.55
1991	0.41	0.59	1.10	0.03b	0.00z	0.48	0.21	1.48	1.39	0.99a	0.30	0.37a	7.35
1992	1.06	0.85	2.93	0.06	1.69d	0.16	0.37	1.02	0.15	1.52	0.02	0.79	10.62
1993	2.46h	1.96	0.74a	0.00	0.64	1.21	0.14	0.54	0.15	1.00	0.70a	0.62b	7.70
1994	0.31	0.81	1.08d	1.14c	0.77a	0.05	0.30e	0.76	1.31a	0.59b	1.17i	1.25c	8.37
1995	1.82a	0.56	1.78b	0.91c	3.23e	2.79	0.15	0.00z	0.00	0.08	0.00	0.10h	11.32
1996	0.27a	0.66c	0.75	0.06	0.96	0.09	0.12b	0.30	0.66	0.78a	1.50a	1.09i	6.15
1997	2.54h	0.77b	0.00	0.26	0.85a	2.10b	0.65	0.67	3.69d	0.34	0.85a	0.85	11.03
1998	1.00	3.22c	2.08g	1.73e	1.85b	1.95b	0.60	0.45a	2.42	1.86a	0.36f	0.13c	15.21
1999	0.63b	0.11b	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.74
Period of Record Statistics													
MEAN	0.71	0.75	0.95	0.74	0.93	0.57	0.83	0.92	1.00	0.91	0.65	0.60	9.77
S.D.	0.61	0.69	0.80	0.79	0.82	0.74	0.98	0.81	0.98	0.82	0.81	0.62	3.14
SKEW	1.15	1.58	0.76	1.07	0.94	1.53	1.87	1.68	1.21	0.81	2.80	1.72	0.66
MAX	2.64	3.22	2.93	2.81	3.23	2.79	4.37	3.89	3.69	2.74	4.19	2.80	17.11
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.73
NO													
YRS	33	35	34	35	34	34	36	35	34	34	32	32	21

SUNNYSIDE, NEVADA

Period of Record General Climate Summary - Precipitation

Station:(267908) SUNNYSIDE														
From Year=1948 To Year=1998														
	Precipitation											Total Snowfall		
	Mean	High	Year	Low	Year	1 Day Max.	>=	>=	>=	>=	Mean	High	Year	
	in.	in.	-	in.	-	in.	dd/yyyy or yyyymmdd	# Days	# Days	# Days	# Days	in.	in.	-
January	0.72	2.64	69	0.00	71	1.00	25/1969	5	2	0	0	5.5	27.0	79
February	0.77	3.22	98	0.00	67	1.23	24/1998	5	2	0	0	2.2	12.3	89
March	0.95	2.93	92	0.00	71	0.87	14/1982	6	3	0	0	2.8	11.1	79
April	0.74	2.81	78	0.00	66	1.07	18/1981	4	2	0	0	1.0	7.0	82
May	0.93	3.23	95	0.00	69	1.12	10/1985	5	3	0	0	0.1	1.5	80
June	0.57	2.79	95	0.00	51	1.32	13/1967	3	2	0	0	0.0	0.0	66
July	0.83	4.37	84	0.00	48	1.53	22/1979	4	2	0	0	0.0	0.0	48
August	0.92	3.89	83	0.00	85	1.36	18/1983	5	2	1	0	0.0	0.0	66
September	1.00	3.69	97	0.00	74	1.79	02/1997	4	2	1	0	0.0	0.9	82
October	0.88	2.74	87	0.00	66	1.50	01/1976	4	2	1	0	0.3	3.0	96
November	0.65	4.19	87	0.00	66	1.11	05/1987	3	2	0	0	2.2	18.5	78
December	0.62	2.80	71	0.00	76	0.86	24/1971	4	2	0	0	3.1	22.4	84
Annual	9.59	17.11	87	5.73	75	1.79	19970902	52	27	5	1	17.3	41.2	84
Winter	2.11	5.07	98	0.37	77	1.23	19980224	14	7	1	0	10.8	37.4	85
Spring	2.62	5.92	95	0.21	76	1.12	19850510	16	8	1	0	4.0	11.1	79
Summer	2.32	7.56	84	0.51	96	1.53	19790722	12	6	1	0	0.0	0.0	67
Fall	2.54	7.00	87	0.08	95	1.79	19970902	10	6	2	0	2.5	18.5	78

Table updated on Feb 18, 1999

For monthly and annual means, thresholds, and sums:
 Months with 5 or more missing days are not considered
 Years with 1 or more missing months are not considered
 Seasons are climatological not calendar seasons
 Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May
 Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

SUNNYSIDE, NEVADA

Monthly Average Temperature (Degrees Fahrenheit)

(267908)

File last updated on Jun 16, 1999

*** Note *** Provisional Data *** After Year/Month 199902

a = 1 day missing, b = 2 days missing, c = 3 days, ..etc.,

z = 26 or more days missing, A = Accumulations present

Long-term means based on columns; thus, the monthly row may not sum (or average) to the long-term annual value.

MAXIMUM ALLOWABLE NUMBER OF MISSING DAYS : 5

Individual Months not used for annual or monthly statistics if more than 5 days are missing.

Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

YEAR (S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1948	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1949	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1950	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1951	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1952	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1953	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1954	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1955	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1956	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1957	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1958	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1959	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1960	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1961	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1962	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1963	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1964	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1965	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	----z	9999.00
1966	24.81g	29.54c	41.98f	48.74g	59.70i	65.60i	----z	71.35d	57.69l	45.76j	40.16h	25.95i	50.45
1967	22.31d	35.15h	42.85e	40.72e	53.98d	62.23b	73.90	73.42a	63.29d	52.62f	42.02a	24.92	49.96
1968	29.46c	40.44b	42.24b	44.62b	56.18a	67.22	73.15	66.82	61.87c	50.74h	37.71i	26.44g	53.56
1969	34.60a	31.90d	36.89d	50.26c	61.68c	63.29b	73.58	74.53a	----z	46.50e	38.81f	34.11c	50.73
1970	32.22f	38.88b	37.32l	41.18m	55.52d	64.82e	73.10g	74.36t	58.71i	46.81m	40.33f	27.05i	53.07
1971	28.40g	35.10d	39.89d	47.20g	53.13d	64.75b	73.98d	74.50j	56.67j	43.19j	36.13g	25.58g	53.37
1972	27.78d	36.52	47.75w	51.08x	56.48g	66.20h	73.44f	69.43c	59.02f	48.19e	36.91c	26.25k	43.76
1973	23.68i	33.89	38.34	44.68	59.54d	65.21b	68.92r	67.63a	60.53	50.89d	38.38d	34.43b	49.35
1974	25.75a	33.70c	44.06d	47.78l	57.40j	69.21f	71.66b	67.88e	63.84b	51.39	39.91b	29.69b	47.54
1975	30.48a	32.96a	37.34	39.38f	50.79e	62.40a	72.62c	72.32q	63.69l	47.67h	34.83g	34.25a	45.83
1976	32.63	37.06d	36.50g	45.46c	58.22b	64.78	71.87e	65.95	63.55a	49.06g	41.30e	31.65a	51.25
1977	28.40	38.00c	35.66b	50.98b	49.64b	68.12e	72.11d	71.71b	61.11c	51.67b	40.93a	34.29c	50.22

1978	33.96c	35.08d	44.69	46.52a	52.77i	66.28a	71.31e	68.77a	59.06d	53.98	35.85c	27.42	49.36
1979	23.52	31.38	39.98a	47.33c	58.27c	64.84e	73.25c	68.42e	-----z	54.27	37.40	34.63a	48.48
1980	35.82	39.98	39.10b	48.78	52.39	-----z	72.77	70.00	62.57	51.19	41.47	38.24	50.21
1981	35.66	35.18	39.77	51.77	55.97	70.22	75.03	72.74	63.90	47.63	42.27	36.10	52.19
1982	28.97	34.62	38.77	44.95	55.74	63.78	71.26	72.02	60.47	46.63	37.02	31.60	48.82
1983	32.26	36.38	41.27	40.95	54.02	65.02	71.02	69.82	64.20	51.81	37.32	33.61	49.81
1984	33.32	34.41	40.73	44.95	60.81	64.68	73.11	70.63	63.65	45.37	38.30	26.55	49.71
1985	25.76	29.18	38.69	51.88	58.48a	69.87	74.73	70.34	57.75	50.44	33.88	34.60	49.63
1986	37.85	38.94a	45.98	47.35	56.35	69.23	69.44	72.52	57.43	48.74	40.30	32.24	51.37
1987	26.34	35.36	40.19	51.85	57.82	68.43	69.47	69.84	62.52	53.53	39.12	28.52	50.25
1988	25.96d	37.76	39.92	48.93	55.19	66.37	73.52	69.63	60.77	56.34	39.93	28.32	50.22
1989	23.48	31.75	46.40	54.10	56.81	64.57	74.06	67.95	61.08	49.35	40.62	33.35	50.29
1990	29.18	31.38	43.79	51.73	56.18	66.83	74.02	69.58	64.25	51.42	39.75	24.55	50.22
1991	30.42	39.66	37.89	44.95	-----z	63.30	73.10	70.08	62.52	52.65	39.07	30.02	49.42
1992	25.52	39.86	43.52i	53.08	60.23	64.40	70.23	71.35	61.78	54.02	35.17	25.32	51.00
1993	27.53	32.48	43.60	47.95	57.58	62.43	68.65	68.85	60.05	49.77	33.69d	28.38a	48.41
1994	32.84	33.74a	44.89	48.48	56.79	68.97	74.53n	71.68a	62.07	49.53	28.69q	28.56m	52.11
1995	32.90	44.00j	41.26	47.33a	50.40j	60.40	70.41i	-----z	64.88j	55.10	45.65j	37.47m	47.40
1996	32.61	39.84	44.81	51.87	61.26	71.28j	77.87	72.97	60.80j	49.29j	40.37k	36.31o	54.46
1997	30.25m	36.84	45.02i	46.79m	61.40	67.30	72.08	70.94	63.92	50.08	41.15	31.56	55.03
1998	36.45	34.23	44.60j	45.03a	52.36i	61.32	73.00	72.37	63.31i	46.98	40.03k	31.95j	52.77
1999	36.00g	37.17h	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	9999.00
Period of Record Statistics													
MEAN	30.06	35.36	41.12	47.94	56.69	65.39	72.62	70.32	61.83	50.70	38.77	31.18	50.09
S.D.	4.29	3.19	2.97	3.60	3.17	2.60	1.94	2.06	1.98	2.90	2.51	3.78	1.00
SKEW	-0.03	-0.08	0.14	-0.19	-0.32	0.15	0.16	-0.08	-0.68	0.02	-0.55	-0.22	0.37
MAX	37.85	40.44	46.40	54.10	61.68	70.22	77.87	74.53	64.25	56.34	42.27	38.24	52.19
MIN	22.31	29.18	35.66	40.72	49.64	60.40	68.65	65.95	57.43	45.37	33.69	24.55	48.41
NO													
YRS	28	31	26	26	26	28	27	29	23	25	23	24	12

A large rectangular frame with a double-line border. At each of the four corners, there is a small square marker. The text "Appendix D." is centered within the frame.

Appendix D.



KENNY C. GUINN
Governor

DALE A. R. EROUJAGA
Department Director

STATE OF NEVADA
DEPARTMENT OF MUSEUMS, LIBRARY AND ARTS
STATE HISTORIC PRESERVATION OFFICE

100 N. Stewart Street
Carson City, Nevada 89701-4285

June 1, 1999

RONALD M. JAMES
State Historic Preservation Officer

Ms. Laura B. Richards
Nevada Division of Wildlife
PO Box 10678
Reno, NV 89520-0022

RE: Management Plans for Mason Valley Wildlife Management Area, Lyon Co. and W. E. Kirch Wildlife Management Area, Nye Co.

Dear Ms. Richards:

The Nevada State Historic Preservation Office (SHPO) received a request from the Nevada Division of Wildlife (NDOW) for archaeological site information for the subject areas. The SHPO maintains files for historic buildings and the National Register of Historic Places, and no National Register sites occur within either wildlife management area (WMA). Archaeological site information is maintained by other state agencies and the federal land managing agencies, and we received preliminary input from the Nevada State Museum for the Mason Valley WMA and from the Harry Reid Center, UNLV for the W. E. Kirch WMA. Both areas are characterized by less than 1% inventory and are still largely unknown archaeologically, as is the case for much of the State's holdings. Initial cultural resources surveys and the settings of both WMA's indicate that both areas are highly sensitive for cultural resources because wetlands and riparian habitats are present. For example, a limited inventory in 1996 for the Mason Valley WMA reported 14 archaeological sites and, of these, 3 may be eligible for inclusion on the National Register of Historic Places. All of the known sites on the Mason Valley WMA are listed in C. Cliff Creger, An Intensive Archaeological Survey Inventory for the North Pond Pipeline, 1996 (Please contact me if you have difficulty finding a copy at NDOW). The Kirch WMA is even less well known as very few projects were conducted within its boundaries. UNLV lists only four archaeological sites, and three of these sites are unevaluated for National Register eligibility.

The high sensitivity ranking for both WMA's is based upon our knowledge of wetland and riparian habitats from elsewhere in the state and the Great Basin. The importance of wetlands and water courses to prehistoric and historic Native Americans is best known and documented for the Stillwater Marsh by Margaret M. Wheat, Survival Arts of the Primitive Paiute; Catherine S. Fowler, In the Shadow of Fox Peak; and Christopher Raven and Robert G. Elston (eds.), Preliminary Investigations in Stillwater Marsh.

If the Nevada Division of Wildlife conducts any ground disturbing project that receives federal funds or permits, then the federal agency granting the funds or permits is responsible for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. Because many of the NDOW projects occur within archaeologically sensitive areas, the Nevada SHPO strongly recommends that the NDOW ensure that Section 106 consultation between the

Ms. Laura B. Richards

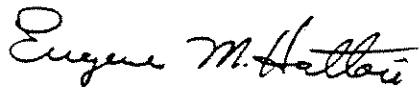
June 1, 1999

Page Two

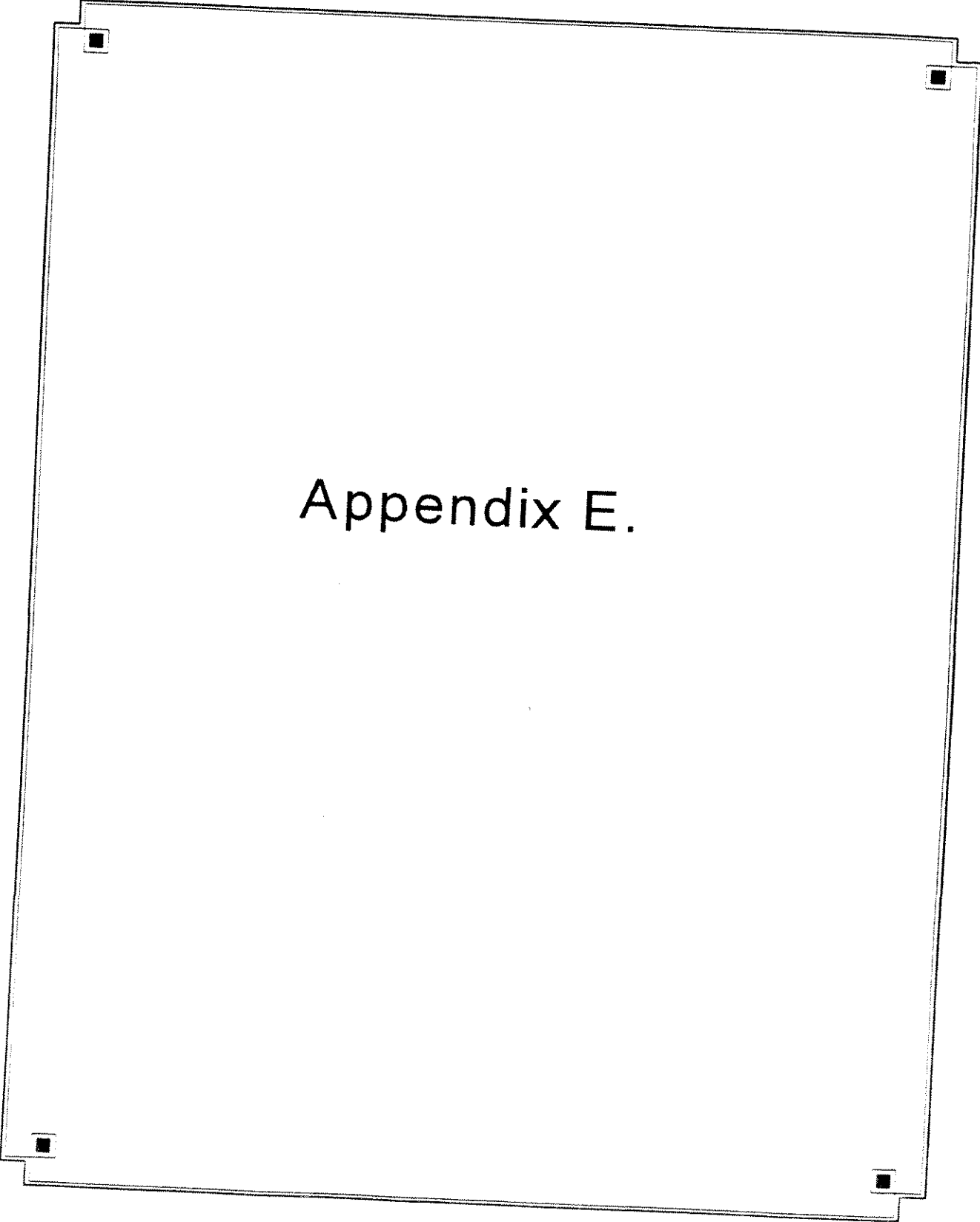
lead federal agency and the SHPO is completed prior to proceeding with the project. Ideally, NDOW should have copies of the Section 106 correspondence within their project files. This recommendation is based upon potential and actual court cases involving state agencies receiving federal matching funds or grants from Fish and Wildlife Service or 404 permits from the Corps of Engineers. Additionally, it is illegal to excavate archaeological sites on State lands without a state antiquities permit (NRS 381), and state law (NRS 383) protects any Native American burials on State lands. Prehistoric Native American burials are likely on both WMA's.

Please contact me at 775.684.3445 if you have any questions concerning this correspondence. To learn more about Section 106, call me or refer to the Nevada State Historic Preservation Office Web page www.clan.lib.nv.us.

Sincerely,



Eugene M. Hattori
Archaeologist



Appendix E.

Nevada Natural Heritage Program
Department of Conservation and Natural Resources
1550 East College Parkway, Suite 145 • Carson City, Nevada 89706-7921
voice: (775) 687-4245 fax: (775) 687-1288 web: www.state.nv.us/nvnhp/

7 May 1999

Laura Richards
Division of Wildlife
PO Box 10678
1100 Valley Road
Reno NV 89520-0022

RE: Data request received 29 April 1999

Dear Ms. Richards,

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or sensitive plant and animal taxa recorded within and near the W. E. Kirch Wildlife Management Area. We searched our database and maps for the following:

Township 5N	Range 60-61E	Section all
Township 6N	Range 61E	Section all
Township 7N	Range 61-62E	Section all

The enclosed printout lists the taxa recorded within and near the given area. We do not have complete data on various raptors that may also occur in the area; for more information contact Gary Herron, Nevada Division of Wildlife at (775) 688-1500. Note that all cacti, yuccas, and Christmas trees are protected by Nevada state law (NRS 527.060-.120), including taxa not tracked by this office.

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,



Carrie A. Carreño
Data Manager/Program Biologist

Sensitive Plant and Animal Taxa Recorded near the W. E. Kirch WMA
 Compiled by Nevada Natural Heritage Program for the Nevada Division of Wildlife
 7 May 1999

Scientific name	Common name	Usfws	Blim	Usfs	State	Grank	Lowrange	Section	Lat	Long	Prec	Last
PLANTS												
<i>Asclepias eastwoodiana</i>	Lastwood milkweed	<C2	N	S		G2Q	006N061E	8	382317N	1150816W	M	6/4/79
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	005N061E	33	381446N	1150804W	S	6/1/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	006N061E	1	382446N	1150431W	S	5/31/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	006N061E	3	382441N	1150629W	S	6/3/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	006N061E	4	382422N	1150725W	S	6/3/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	006N061E	11	382332N	1150510W	S	5/31/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	006N061E	11	382311N	1150538W	S	5/31/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	006N061E	18	382245N	1150910W	S	6/2/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	006N061E	18	382306N	1150922W	S	5/31/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	006N061E	19	382132N	1150915W	S	6/2/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	006N061E	22	382211N	1150608W	S	5/31/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	006N061E	30	382104N	1150943W	S	6/2/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	007N061E	3	382924N	1150612W	S	6/2/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	007N061E	17	382817N	1150827W	S	5/10/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	007N061E	36	382524N	1150404W	S	5/31/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	007N061E	36	382500N	1150422W	S	5/31/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	007N061E	25,36	382550N	1150419W	S	5/31/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	007N062E	6	382934N	1150310W	S	6/2/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	007N062E	31	382502N	1150313W	S	6/30/80
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	007N062E	16-17	382800N	1150118W	S	6/9/94
<i>Cryptantha welschii</i>	White River calseye	<C2	N			G3	007N062E	19-20,29-30	382638N	1150310W	S	6/8/94
<i>Frasera gypsicola</i>	Sunnyside green gentian	<C2	S		CE	G1	006N061E	1	382451N	1150434W	S	5/11/94
<i>Frasera gypsicola</i>	Sunnyside green gentian	<C2	S		CE	G1	007N061E	36	382500N	1150414W	S	5/11/94
<i>Frasera gypsicola</i>	Sunnyside green gentian	<C2	S		CE	G1	007N061E; 007N062E	36; 31	382515N	1150343W	S	6/3/94
<i>Frasera gypsicola</i>	Sunnyside green gentian	<C2	S		CE	G1	007N062E	19-20,30	382637N	1150239W	S	6/8/94
<i>Phacelia patishii</i>	Parish phacelia	<C2	N			G2G3	007N061E	26,35	382535N	1150447W	S	1995
<i>Townsendia jonesii</i> var. <i>tumulosa</i>	Charleston grounddaisy	<C2	N	S		G4T3	007N061E	36	382545N	1150416W	M	6/25/85
INVERTEBRATES												
<i>Pyrgulopsis breviloba</i>	Flag springsnail					G1	007N062E	33	382527N	1150114W	S	1998-PRE

Scientific name	Common name	Usfws	Blim	Usfs	State	Grank	Lowrange	Section	Lat	Long	Prec	Last observed
INVERTEBRATES												
<i>Pyrgulopsis breviflora</i>	Flag springsnail					G1	007N062E	33	382522N	1150120W	S	9/1/73
<i>Pyrgulopsis lata</i>	Butterfield springsnail					G1	007N062E	28	382625N	1150042W	S	6/28/92
<i>Pyrgulopsis marcida</i>	Hardy springsnail					G2	007N062E	28	382625N	1150042W	S	1998-PRE
<i>Pyrgulopsis merriami</i>	Pahranaagat pebblesnail	<C2	N			G1	006N061E	18	382259N	1150907W	S	6/28/92
<i>Pyrgulopsis sathos</i>	White River Valley springsnail					G1G2	007N062E	33	382527N	1150114W	S	6/28/92
<i>Pyrgulopsis sathos</i>	White River Valley springsnail					G1G2	007N062E	33	382522N	1150120W	S	1998-PRE
<i>Tryonella clathrata</i>	grated tryonella	<C2	N			G2	006N061E	18	382259N	1150907W	S	6/28/92
FISHS												
<i>Catostomus clarki intermedius</i>	White River desert sucker	<C2	P	YES	YES	G3G4I1I2 Q	007N062E	32,33	382526N	1150126W	S	6/26/91
<i>Coitus</i> sp.	White River sculpin					G1	007N062E	28	382625N	1150042W	S	8/20/91
<i>Crenichthys baileyi thermophilus</i>	Moorman White River springfish	<C2	N	YES	YES	G2I1	006N061E	18	382259N	1150907W	S	8/19/92
<i>Rhinichthys osculus</i> ssp.	White River speckled dace	<C2				G5I2I3	007N062E	28	382625N	1150042W	S	7/23/91
<i>Rhinichthys osculus</i> ssp.	White River speckled dace	<C2				G5I2I3	007N062E	28	382609N	1150046W	S	9/25/91
<i>Rhinichthys osculus</i> ssp.	White River speckled dace	<C2				G5I2I3	007N062E	29-30,32- 33	382541N	1150151W	S	6/29/91
<i>Rhinichthys osculus</i> ssp.	White River speckled dace	<C2				G5I2I3	007N062E; 007N061E; 006N061E	30; 25,35- 36; 2	382538N	1150403W	S	6/28/91
<i>Rhinichthys osculus velifer</i>	Pahranaagat speckled dace	<C2	P	YES	YES	G5I1	005N060E	26	372858N	1151236W	S	1986-09
<i>Lepidosteus albigallis</i>	White River spinedace	IE	S	YES	YES	G1	007N062E	32,33	382526N	1150126W	S	1996-09
BIRDS												
<i>Charadrius alexandrinus nivosus</i>	Western Snowy Plover											
<i>Avocrychus exilis hesperis</i>	Western Least Bittern	<C2	N	YES	YES	G4I3	006N061E	11	382355N	1150547W	G	5/8/83
<i>Avocrychus exilis hesperis</i>	Western Least Bittern	<C2		YES	YES	G5TU	006N061E	11	382355N	1150547W	G	1983
<i>Avocrychus exilis hesperis</i>	Western Least Bittern	<C2		YES	YES	G5TU	006N061E	21	382137N	1150707W	M	5/19/83

Appendix F.

**BIRD SPECIES OCCURRING
ON THE KIRCH
WILDLIFE MANAGEMENT AREA**

PODICIPEDIFORMES

Podicipedidae (Grebes)

Horned Grebe
Eared Grebe
Western Grebe
Clark's Grebe
Pied-billed Grebe

PELECANIFORMES

Pelecanidae (Pelicans)

American White Pelican

Phalacrocoracidae (Cormorants)

Double-crested Cormorant

CICONIIFORMES

Ardeidae (Herons, Egrets, Bitterns)

Great Blue Heron
Green Heron
Cattle Egret
Great Egret
Snowy Egret
Black-crowned Night Heron
Least Bittern
American Bittern

Threskiornithidae (Ibises)

White-faced Ibis

Cathartidae (New World Vultures)

Turkey Vulture

ANSERIFORMES

Anatidae (Swans, Geese, Ducks)

Tundra Swan
Trumpeter Swan
Canada Goose
Greater White-fronted Goose
Snow Goose
Ross's Goose
Mallard
Gadwall
Northern Pintail
Green-winged Teal
Blue-winged Teal
Cinnamon Teal
American Wigeon
Northern Shoveler
Wood Duck
Redhead
Ring-necked Duck
Canvasback
Greater Scaup

Lesser Scaup
Common Goldeneye
Barrow's Goldeneye
Bufflehead
Oldsquaw
White-winged Scoter
Ruddy Duck
Hooded Merganser
Common Merganser
Red-breasted Merganser

FALCONIFORMES

Accipitridae (Hawks, Eagles)

Northern Goshawk
Sharp-shinned Hawk
Cooper's Hawk
Northern Harrier
Red-tailed Hawk
Red-shouldered Hawk
Swainson's Hawk
Rough-legged Hawk
Ferruginous Hawk
Broad-winged Hawk
Golden Eagle
Bald Eagle
Osprey

Falconidae (Falcons)

Prairie Falcon
Peregrine Falcon
Merlin
American Kestrel

GALLIFORMES

Phasianidae (Quail, Pheasants, Partridges)

Scaled Quail
Gambel's Quail
White-winged Pheasant
Chukar

GRUIFORMES

Rallidae (Rails, Gallinules, Coots)

Virginia Rail
Sora
American Coot
Common Moorhen

Gruidae (Cranes)

Sandhill Crane

CHARADRIIFORMES**Charadriidae (Plovers)**

Semipalmated Plover
Snowy Plover
Killdeer

Recurvirostridae (Avocets)

American Avocet
Black-necked Stilt

Scolopacidae (Sandpipers)

Common Snipe
Long-billed Curlew
Whimbrel
Spotted Sandpiper
Solitary Sandpiper
Greater Yellowlegs
Lesser Yellowlegs
Willet
Baird's Sandpiper
Least Sandpiper
Western Sandpiper
Stilt Sandpiper
Semipalmated Sandpiper
Pectoral Sandpiper
Long-billed Dowitcher
Short-billed Dowitcher
Marbled Godwit
Dunlin
Sanderling
Red Phalarope
Wilson's Phalarope
Red-necked Phalarope

Laridae (Gulls, Terns)

Herring Gull
California Gull
Ring-billed Gull
Franklin's Gull
Bonaparte's Gull
Thayer's Gull
Common Tern
Forster's Tern
Caspian Tern
Black Tern

COLUMBIFORMES**Columbidae (Pigeons, Doves)**

Rock Dove (Domestic Pigeon)
White-winged Dove
Mourning Dove

CUCULIFORMES**Cuculidae (Cuckoos, Roadrunners)**

Yellow-billed Cuckoo
Greater Roadrunner

STRIGIFORMES**Tytonidae (Barn Owls)**

Common Barn Owl

Strigidae (Owls)

Western Screech-owl
Flammulated Owl
Great Horned Owl
Burrowing Owl
Long-eared Owl
Short-eared Owl
Northern Saw-whet Owl
Northern Pygmy-Owl
Elf Owl

CAPRIMULGIFORMES**Caprimulgidae (Goatsuckers)**

Whip-poor-will
Common Poorwill
Common Nighthawk
Lesser Nighthawk

APODIFORMES**Apodidae (Swifts)**

Vaux's Swift
White-throated Swift

Trochilidae (Hummingbirds)

Black-chinned Hummingbird
Costa's Hummingbird
Anna's Hummingbird
Broad-tailed Hummingbird
Rufous Hummingbird
Allen's Hummingbird
Calliope Hummingbird

CORACIIFORMES**Alcedinidae (Kingfishers)**

Belted Kingfisher

PICIFORMES**Picidae (Woodpecker)**

Northern Flicker

PASSERIFORMES

Tyrannidae (Flycatchers)

Eastern Kingbird
Western Kingbird
Cassin's Kingbird
Ash-throated Flycatcher
Say's Phoebe
Willow Flycatcher
Dusky Flycatcher
Gray Flycatcher
Cordilleran Flycatcher
Western Wood Pewee
Olive-sided Flycatcher

Laniidae (Shrikes)

Northern Shrike
Loggerhead Shrike

Vireonidae (Vireos)

Solitary Vireo
Warbling Vireo

Corvidae (Jays, Magpies, Crows)

Scrub Jay
Black-billed Magpie
Common Raven
Common Crow

Alaudidae (Larks)

Horned Lark

Hirundinidae (Swallows)

Violet-green Swallow
Tree Swallow
Bank Swallow
Northern Rough-winged Swallow
Barn Swallow
Cliff Swallow
Purple Martin

Paridae (Chickadees, Titmice)

Mountain Chickadee
Juniper Titmouse

Aegithalidae (Bushtit)

Bushtit

Sittidae (Nuthatches)

White-breasted Nuthatch
Red-breasted Nuthatch
Pygmy Nuthatch

Certhiidae (Creepers)

Brown Creeper

Troglodytidae (Wrens)

House Wren
Winter Wren
Bewick's Wren

Marsh Wren
Canyon Wren
Rock Wren

Regulidae (Kinglets)

Golden-crowned Kinglet
Ruby-crowned Kinglet

Sylviidae (Gnatcatchers, Kinglets)

Blue-gray Gnatcatcher

Turdidae (Thrushes, Solitaires, Bluebirds)

American Robin
Hermit Thrush
Swainson's Thrush
Western Bluebird
Mountain Bluebird
Townsend's Solitaire

Mimidae (Mockingbirds, Thrashers)

Northern Mockingbird
Brown Thrasher
Sage Thrasher
Gray Catbird

Sturnidae (Starlings)

European Starling

Motacillidae (Pipits)

American Pipit

Bombycillidae (Waxwings)

Cedar Waxwing

Ptilonotidae (Silky Flycatchers)

Phainopepla

Parulidae (Warblers)

Virginia's Warbler
Yellow-rumped Warbler
Black-throated Gray Warbler
MacGillivray's Warbler
Common Yellowthroat
Yellow-breasted Chat
Wilson's Warbler
American Redstart

Thraupidae (Tanagers)

Western Tanager

Emberizidae (Sparrows, Towhees, Juncos)

Green-tailed Towhee
Spotted Towhee
Abert's Towhee
Lark Bunting
Savannah Sparrow
Grasshopper Sparrow
Lark Sparrow
Black-throated Sparrow
Sage Sparrow
Dark-eyed Junco
American Tree Sparrow
Chipping Sparrow
Brewer's Sparrow
Harris' Sparrow
White-crowned Sparrow
Golden-crowned Sparrow
White-throated Sparrow
Lincoln's Sparrow
Song Sparrow

Cardinalidae (Grosbeaks, Buntings)

Black-headed Grosbeak
Lazuli Bunting
Dickcissel

Icteridae (Meadowlarks, Blackbirds, Orioles)

Western Meadowlark
Yellow-headed Blackbird
Red-winged Blackbird
Bullock's Oriole
Brewer's Blackbird
Great-tailed Grackle
Common Grackle
Brown-headed Cowbird

Fringillidae (Grosbeaks, Finches)

Evening Grosbeak
Cassin's Finch
House Finch
Pine Siskin
American Goldfinch
Lesser Goldfinch

Passeridae (Old World Sparrows)

House Sparrow

MAMMAL SPECIES OCCURRING ON KIRCH WILDLIFE MANAGEMENT AREA

SORICIDAE

Merriam's Shrew
Northern Water Shrew

Sorex merriami
Sorex palustris

GEOMYIDAE

Botta Pocket Gopher

Thomomys bottae

VESPERTILIONIDAE

Western Small-footed Myotis
Long-legged Myotis
Fringe-tailed Bat
California Bat
Small-footed Bat
Yuma Myotis
Silvery-haired Bat
Western Pipistrelle
Big Brown Bat
Red Bat
Hoary Bat
Spotted Bat
Townsend's Big-eared Bat
Pallid Bat

Myotis ciliolabrum
Myotis volans
Myotis thysanodes
Myotis californicus
Myotis subulatus
Myotis yumanensis
Lasionycteris noctivagans
Pipistrellus hesperus
Eptesicus fuscus
Lasiurus blossevillii
Lasiurus cinereus
Euderma maculatum
Corynorhinus townsendii
Antrozous pallescens

HETEROMYIDAE

Little Pocket Mouse
Great Basin Pocket Mouse
Long-tailed Pocket Mouse
Dark Kangaroo Mouse
Ord Kangaroo Rat
Chisel-toothed Kangaroo Rat

Perognathus longimemt
Perognathus parvus
Chaetodipus formosus
Microdipodops megacep
Dipodomys ordii
Dipodomys microps

CASTORIDAE

Beaver

Castor canadensis

MURIDAE

Northern Grasshopper Mouse
Western Harvest Mouse
Canyon Mouse
Deer Mouse
Desert Woodrat
Montane Vole
Sagebrush Vole
House mouse

Onychomys leucogaster
Reithrodontomys megalot
Peromyscus crinitus
Peromyscus maniculatus
Neotoma lepida
Microtus montanus
Lagurus curtatus
Mus musculus

MOLOSSIDAE

Brazilian Free-tailed Bat

Tadarida brasiliensis

MUSTELIDAE

Short-tailed Weasel
Long-tailed Weasel
Spotted Skunk
Striped Skunk
Badger

Mustela erminea
Mustela frenata
Spilogale gracilis
Mephitis mephitis
Taxidea taxus

ERETHIZONTIDAE

Porcupine

Erethizon dorsatum

CANIDAE

Kit Fox
Gray Fox
Coyote

Vulpes macrotis
Urocyon cinereoargenteus
Canis latrans

LEPORIDAE

White-tailed Jackrabbit
Black-tailed Jackrabbit
Nuttall's Cottontail
Desert Cottontail

Lepus townsendii
Lepus californicus
Sylvilagus nuttallii
Sylvilagus auduboni

FELIDAE

Mountain Lion
Bobcat

Felis concolor
Lynx rufus

CERVIDAE

Elk
Mule Deer

Cervus canadensis
Odocoileus hemionus

ANTILOCAPRIDAE

Pronghorn

Antilocapra americana

SCIURIDAE

Townsend's Ground Squirrel
Rock Squirrel
Antelope Ground Squirrel
Least Chipmunk
Cliff Chipmunk

Spermophilus townsendii
Spermophilus variegatus
Ammospermophilus leucurus
Tamias minimus
Tamias dorsalis

FISH SPECIES OCCURRING ON THE KIRCH
WILDLIFE MANAGEMENT AREA

SALMON AND TROUTS (Salmoniformes)

Rainbow Trout

Oncorhynchus mykiss

CARPS AND MINNOWS (Cyprinidae)

White River Spinedace

Lepidomeda albivallis

White River Speckled Dace

Rhinichthys osculus velifer

SUCKERS (Catostomidae)

White River Desert Sucker

Catostomus clarki intermedius

BULLHEAD CATFISHES (Ictaluridae)

Black Bullhead

Ameiurus melas

LIVEBEARERS (Poeciliidae)

Mosquitofish

Gambusia affinis

KILLIFISHES (Cyprinodontidae)

Moorman White River Springfish

Crenichthys baileyi thermophilus

SUNFISHES (Centrarchidae)

Largemouth Bass

Micropterus salmoides

REPTILE AND AMPHIBIAN SPECIES
EXPECTED TO OCCUR ON THE KIRCH
WILDLIFE MANAGEMENT AREA

IGUANIDAE

Zebratail Lizard
Long-nosed Leopard Lizard
Mojave Black-collared Lizard
Desert Spiny Lizard
Great Basin Fence Lizard
Northern Sagebrush Lizard
Side-blotched Lizard
Northern Desert Horned Lizard
Mountain Short-horned Lizard

Callisaurus draconoides
Gambelia wislizenii
Crotaphytus bicinctores
Sceloporus magister
Sceloporus occidentalis longipes
Sceloporus graciosus graciosus
Uta stansburiana
Phrynosoma platyrhinos platyrhinos
Phrynosoma hernandesi

SCINCIDAE

Great Basin Skink

Eumeces skiltonianus utahensis

TEIIDAE

Great Basin Whiptail

Cnemidophorus tigris tigris

COLUBRIDAE

Regal Ringneck Snake
Western Racer
Red Coachwhip
Desert Striped Whipsnake
Mojave Patch-nosed Snake
Great Basin Gopher Snake
California Kingsnake
Western Long-nosed Snake
Wandering Garter Snake
Southwestern Black-headed Snake
Night Snake

Diadophis punctatus regalis
Coluber mormon
Masticophis flagellum piceus
Masticophis taeniatus taeniatus
Salvadora hexalepis mojavensis
Pituophis catenifer deserticola
Lampropeltis getulus californiae
Rhinocheilus lecontei lecontei
Thamnophis elegans vagrans
Tantilla hobartsmithi
Hypsiglena torquata

CROTALIDAE

Great Basin Rattlesnake

Crotalus viridis lutosus

AMBYSTOMATIDAE

Tiger Salamander

Ambystoma tigrinum

ASCAPHIDAE

Great Basin Spadefoot Toad

Spea intermontana

BUFONIDAE

Boreal Toad

Bufo boreas boreas

HYLIDAE

Pacific Tree Frog

Hyla regilla

RANIDAE

Northern Leopard Frog
Bullfrog

Rana pipiens
Rana catesbeiana

Appendix G.

SUMMARY OF KIRCH WILDLIFE MANAGEMENT AREA WATER RIGHTS

According to records on file with the State Water Engineer, of the Division of Water Resources, there are two Proofs of Appropriation and nine certified water rights on the W.E. Kirch Wildlife Management Area.

Proof of Appropriation of Water No. 01351, is a claim of vested rights submitted by W.N. McGill for the Adams-McGill Company to appropriate water from Hot Creek. The document states that 2,900 acres were irrigated, of which 966.3 acres were claimed as harvest acreage. This proof claims a priority of 1888.

Proof of Appropriation of Water No. 0801, submitted by Jewett W. Adams, claims a priority of 1874 for 1,380 acres of land to be irrigated from Hot Creek.

Certificate No. 1868 is for 3,330 acre feet per annum. There is no definite amount of water to be diverted from White River Slough; however, the 3,330 acre feet is the cumulative amount to be impounded over a 12 month period in Adams-McGill Reservoir. Lands to which water is appurtenant (i.e. an accessory) total 832.5 acres.

Certificate No. 1869, with a date of priority of January 11, 1915, appropriates water in the amount of 1.929 cfs or 817.36 acre feet per season from the White River Slough. The water is applied to 192.9 acres.

Certificate No. 1870, with a dated priority of January 11, 1915, appropriates 0.773 or 327.54 acres feet per season to 77.3 acres.

Certificate No. 1871, with a dated priority of January 11, 1915, appropriates 1.233 cfs or 522.45 acre feet per season from White River Slough. The water is applied on 123.3 acres.

Certificate No. 1872, with a dated priority of January 11, 1915, appropriates 1.222 cfs or 443 acre feet per season from Hot Creek. The water is applied to 122.2 acres.

Certificate No. 7451, filed in behalf of the Nevada Fish and Game Commission, claims a priority of October 30, 1962, for 507 acre feet annually from White River for irrigation and storage in Tule Reservoir. Water is applied to 218 acres of land.

Certificate No. 7468, filed in behalf of the Nevada Fish and Game Commission, claims for wildlife propagation and recreation, 1,120 acre feet annually to be impounded by means of a dam. This Certificate claims a priority of January 20, 1967.

Certificate No. 6662, in the name of the Nevada Fish and Game Commission, claims a priority of May 14, 1962 for 680 acre feet annually for irrigation. The lands to which water is appurtenant total 173.54 acres.

Certificate No. 6663, in the name of the Nevada Fish and Game Commission, claims for wildlife propagation and recreation, 3,040 acre feet storage per annum in Dacey Reservoir. Source of water is from Moorman Wash and its tributaries. This certificate claims a priority of May 14, 1962.

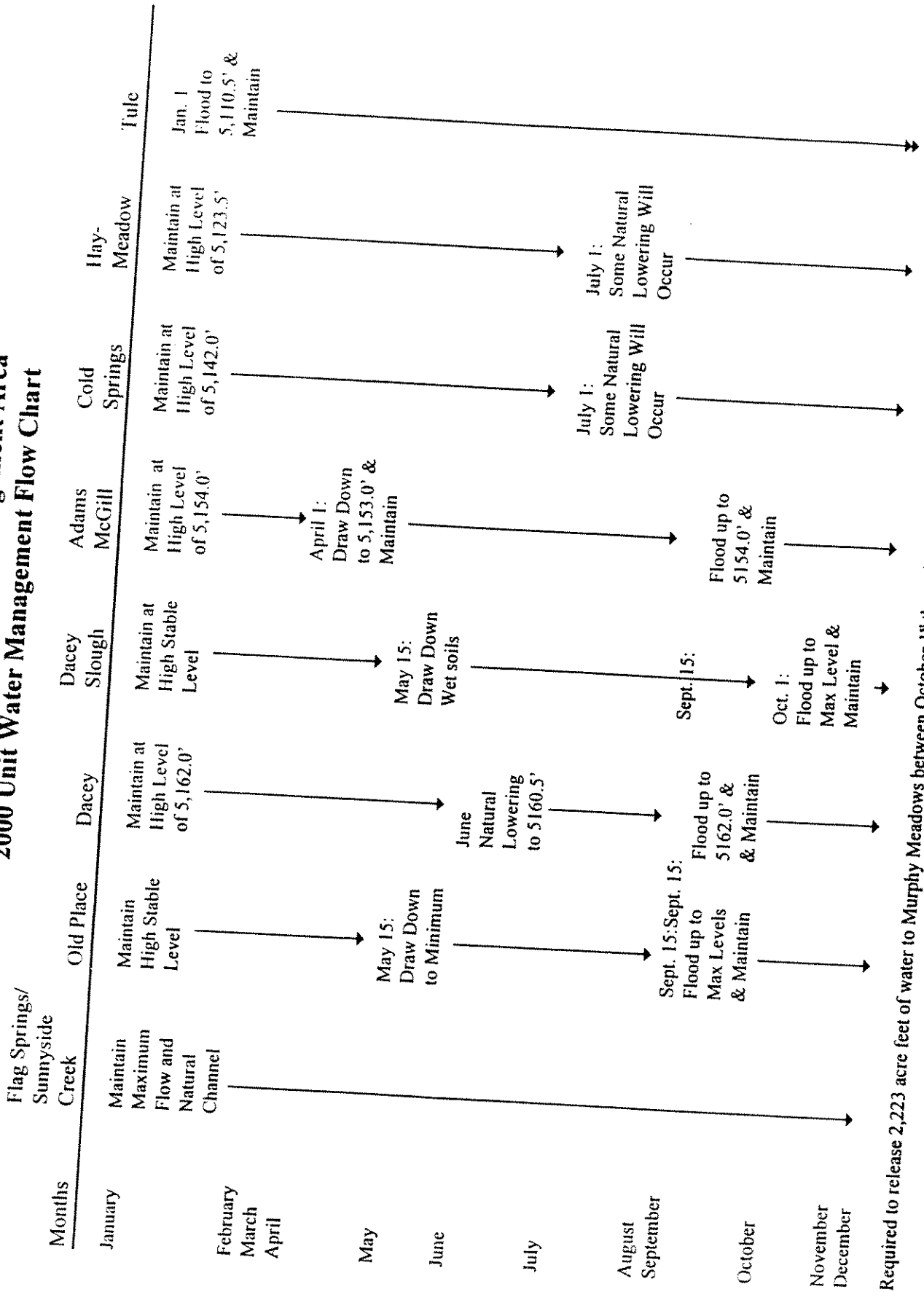
Permits for Appropriation of Water

The Nevada Department of Fish and Game application for permit to appropriate waters, Serial No. 26295 request's 80 cfs and 2,000 acre feet of water to be stored in a series of shallow impoundments and ponds, to be used by wildlife, fish and recreational purposes. The source of this water is from Sunnyside Creek and White River Channel. Lands to which application of water is appurtenant total 600 acres. Application was approved and permit submitted on August 23, 1972, by the State Water Engineer.

The Nevada Department of Fish and Game application for permit to appropriate waters, Serial No. 26332 requests 80 cfs and some 3,000 acre feet annually, or when available, to be stored in a series of impoundments and shallow ponds created by dams and low spreader dikes. Water thus applied will be used by wildlife, fish and for recreational purposes. Lands to which water is appurtenant totals 1,440 acres.

Appendix H.

Wayne E. Kirch Wildlife Management Area 2000 Unit Water Management Flow Chart



Required to release 2,223 acre feet of water to Murphy Meadows between October 1st through June 1st.

Appendix I.

CONCEPTUAL MANAGEMENT PLAN
WAYNE E. KIRCH WILDLIFE MANAGEMENT AREA
WILDLIFE IMPLEMENTATION SCHEDULE (Page 1)
LEVEL B ACTIVITIES: FYs 2000-2007

Level B Activity*	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Complete Bypass Ditch		X-F**						
Install ADA Facilities With Public Works		X-F						
Control Vegetation With Hand Applied Herbicides	X-F	X-R	X-R	X-R	X	X	X	X
Control Russian Olive and Tamarisk		X-R	X-R	X-R	X	X	X	X
Control White Top and Russian Knapweed Survey, Evaluate, & Implement		X	X	X	X			
Kiosk Development and Extensive Maint.			X-R					
Repair Headquarters Water System		X-F						
Develop Campground Host Facilities			X-R					
Purchase Chemicals for Aerial Spraying			X-R					
Aerial Spray Contract				X-R			X	
Install Outhouse at Hot Springs			X-R					
Replace Shop Doors			X-R					
Install Troughs in Waterlane			X-R					

CONCEPTUAL MANAGEMENT PLAN
WAYNE E. KIRCH WILDLIFE MANAGEMENT AREA
WILDLIFE IMPLEMENTATION SCHEDULE (PAGE 2)
LEVEL B ACTIVITIES: FY's 2000-2007

Level B Activity*	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Fish Salvage Adams McGill Reservoir (Feb-March)			X					
Drain Old Place and Adams McGill Reservoir (April)			X					
Develop Nesting Islands (July-September)								
Collect ABR Seed (August-September)					X-R			
Seed Adams McGill & Old Place with ABR (Nov-Dec)				X	X			
Fill Adams McGill and Old Place (December)					X			
Develop Boat Launch Site At Dacey Reservoir					X			
Develop Food Plots					X			
Equipment Purchases		X-F	X-R	X-R	X		X	

*Level B Activity-Level B project implementation is contingent upon funding availability by fiscal year. Projects not completed in a given physical year may be moved into following years as appropriate. Project ranking may change based on Comprehensive Management System considerations.

**X proposed projects for a given year.
X-F projects which are currently funded.
X-R projects which funding has been requested.
FY is fiscal year, which extends from July 1st through June 30th.

KWMA Conceptual Management Plan
Fisheries Management Implementation Schedule

Creel Census

Contact creel census will be conducted every year on a scheduled and standardized basis encompassing the entire angling season, including assessment of ice fishing angler activity in winter months. The recommended annual creel needs by water are as follows:

Dacey Reservoir	6 days	August- October
Adams-McGill Reservoir	10 days	May - September
Cold Springs and Haymeadow Res.	52 days each	Year-round
Tule Reservoir	Encounter surveys as needed	

Volunteer creel information boxes will be inspected, re-stocked, and data forms collected at least monthly in conjunction with other activities on the area.

Population inventory survey

Conducted once annually in spring (March-April) at each identified reservoir. Dacey Reservoir will be surveyed in even numbered years, beginning in 2000, primarily using gill nets and ocular survey until boat access issues are resolved. Adams-McGill, Cold Springs and Haymeadow reservoirs will be surveyed each year, primarily using electrofishing gear. Tule Reservoir is not scheduled for routine survey because of the limited and sporadic nature of the fishery.

Largemouth bass spawning and recruitment survey

Conducted annually in May through mid-June at Adams-McGill Reservoir. This incorporates water temperature monitoring. Cold Springs and Haymeadow reservoirs will be surveyed in alternate years beginning with Haymeadow Reservoir in 2001. Water temperatures during the bass spawning and recruitment period will be monitored each year at those two reservoirs, through 2002, to establish baseline seasonal water temperature data.

Largemouth bass age and growth evaluation

Conducted every five years at a minimum, beginning in 2002, at all reservoirs except Tule. Scale samples for analysis will be collected in spring months in conjunction with creel census, fish population survey, and other activities.

Aquatic vegetation transect surveys

Surveys will be conducted once annually on all reservoirs except Tule Reservoir, in August, using established methodology.

Water quality analysis

Water quality parameters will be evaluated at least once each year, in conjunction with other survey and management activities, on all reservoirs except Tule Reservoir

Water level management

Fisheries personnel will assist management area personnel in monitoring reservoir water surface levels annually on an as needed basis. Collected data will be incorporated into assessment of water level effects on sport fisheries and used in making recommendations to the area annual water management plan.

Fish stocking (rainbow trout)

Hatchery-reared rainbow trout will be stocked in Cold Springs and Haymeadow reservoirs twice annually, in spring and fall months, at rates sufficient to maintain catch rates and growth consistent with the quality fishery concept standard guidelines. Numerical recommendations for stocking will be developed annually based on data collected from angler creel census and fish population sampling.

Fish stocking (largemouth bass)

Conducted only on an 'as-needed' and opportunity basis, as specific reservoirs demonstrate a need for bass augmentation and bass become available from other KWMA waters due to water conditions and maintenance activities.

Monitoring of fishing events

Organized fishing events will be monitored on an 'as-needed' basis annually as they are scheduled and conducted on KWMA reservoirs.

Regulation review and modification

Conducted every other year beginning in 2001

SEE IMPLEMENTATION SCHEDULE TABLE ATTACHED

**KIRCH WMA CONCEPTUAL MANAGEMENT PLAN
FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE**

Location	Activity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Dacey Reservoir	Fish population survey										
	Contact creel census	X									
	Largemouth bass stocking	X	X								
	Regulation review			X					X		
	Fish population survey	X									X
Adams-McGill Reservoir	Contact creel census	X	X								
	Bass spawning and recruitment survey	X	X	X							
	Temperature monitoring	X	X	X							
	Maintain volunteer creel boxes	X	X	X							
	Bass growth analysis	X	X	X							
	Water management evaluation	X	X	X							
	Regulation review	X	X	X							
Cold Springs Reservoir	Fish population survey	X									
	Contact creel census	X	X								
	Bass spawning and recruitment survey	X	X	X							
	Temperature monitoring	X	X	X							
	Maintain volunteer creel boxes	X	X	X							
	Bass growth analysis	X	X	X							
	Water management evaluation	X	X	X							
	Rainbow trout stocking	X	X	X							
	Black bullhead assessment	X	X	X							
	Regulation review	X	X	X							
	Fish population survey	X									
Haymeadow Reservoir	Contact creel census	X	X								
	Bass spawning and recruitment survey	X	X	X							
	Temperature monitoring	X	X	X							
	Maintain volunteer creel boxes	X	X	X							
	Bass growth analysis	X	X	X							
	Water management evaluation	X	X	X							
	Rainbow trout stocking	X	X	X							
	Black bullhead assessment	X	X	X							
	Regulation review	X	X	X							
	Fish population survey	X									
	Contact creel census	X	X								
Tule Reservoir	Bass spawning and recruitment survey	X	X	X							
	Temperature monitoring	X	X	X							
	Maintain volunteer creel boxes	X	X	X							
	Bass growth analysis	X	X	X							
	Water management evaluation	X	X	X							
	Rainbow trout stocking	X	X	X							
	Black bullhead assessment	X	X	X							
	Regulation review	X	X	X							
	Random creel census	X	X	X							
	Install volunteer creel box	X	X	X							
	Regulation review	X	X	X							

Appendix J.

General Regulations on Wildlife Management Areas

Removal of persons from area- The Division or an authorized agent may remove a person from a wildlife management area for disorderly conduct, intoxication or any other conduct which endangers the area, a person, wildlife or livestock. (NAC 504.110)

Control of vehicular travel- Vehicular travel within a wildlife management area may be controlled for operation of the area, for public use and to benefit the public and wildlife resources. Such control may include specifying parking areas, closing interior roads or trails to vehicular travel and prohibiting travel beyond designated points. (NAC 504.115)

Firearms: Limitations; use- The discharging of a rifle or pistol is prohibited on the Overton, Key Pittman, W.E.Kirch, Scripps, and Mason Valley wildlife management areas; and on the Franklin Lake Wildlife Management Area during the waterfowl season. (NAC 504.135).

The use of shotguns capable of holding more than three shells is prohibited on all wildlife management areas unless it is plugged with a one piece filler, incapable of removal without disassembling the gun so its total capacity does not exceed three shells. (NAC 504.135).

Deer may be hunted on the Mason Valley and W. E. Kirch wildlife management areas only by persons using shotguns and rifled shotgun slugs. (NAC 504.135)

The use or possession of shells for a shotgun containing shot larger than standard-sized T is prohibited on the Overton, Key Pittman, W.E.Kirch, Scripps and Mason Valley wildlife management areas. (NAC 504.135).

Campfire and Bonfires prohibited; exceptions- Except as provided in the adjacent table, campfires and bonfires are prohibited in wildlife management areas. (NAC 504.140).

Restrictions on camping- Except as provided in the adjacent table, camping is prohibited on wildlife management areas. Where camping is allowed, camping facilities, including house trailers, must not be stored, parked or maintained on a wildlife management area for more than 8 days, or left on an area for occasional occupancy by a person or group of persons associated with the facility. The erection, fabrication or maintenance of a permanent dwelling or building on a wildlife management area is prohibited. (NAC 504.145)

Restriction on lease of concession site- The Division may lease a concession site in a wildlife management area to any person if the lease is not detrimental to the area or the best interest of the public, or in conflict with any lease or agreement setting aside the management area. (NAC 504.150).

Denial of use of area for abuse or littering of area- The Division may deny further use of the wildlife management area to any person who abuses or litters the area. (NAC 504.155).

Construction and use of hunting blinds- Except as indicated in number (5) of this section, a person may construct a hunting blind on any wildlife management area if the Division has no obligation to protect a privately constructed blind or to arbitrate the use or priority of use of such blind. 1) A blind to be constructed must be temporary and portable and constructed of lumber, screen and vegetation, except on the Overton and Mason Valley wildlife management areas where blinds are to be constructed entirely of vegetation. 2) A group of persons may construct a blind only after the Division project manager has approved the plans for the blind. Sunken blinds and barrels and boxes used as sunken blinds must be covered when not in use to prevent the entrapment of animals. 3) The use of a sink box is prohibited. 4) A blind may not be locked or reserved for the use of a particular person or group of persons. 5) The Division may prohibit the construction of a hunting blind if it is detrimental to a wildlife management area or portion thereof. (NAC 504.160).

Trapping on Wildlife Management Areas- Trapping on specific wildlife management areas is allowed only as follows: Persons having permits to do so may trap on the Overton, Key Pittman, W.E. Kirch, Scripps, Humboldt, Fernley, Mason Valley, and Alkali Lake wildlife management areas. Permits will be issued through a drawing process and may contain designations of specific trapping areas, dates or other restrictions to ensure compatibility with other public activities. Persons may trap on the Franklin Lake Wildlife Management Area. (NAC 504.170).

On the Mason Valley Wildlife Management Area, deer may be hunted only with a shotgun no larger than 10 gauge and no smaller than 20 gauge using rifled slugs; or a longbow and arrow. Deer may not be hunted during the season set for the general hunt for deer except on: 1) Saturdays, Sundays and Wednesdays; 2) October 31, Nevada Day; 3) November 11, Veteran's Day; and 4) Thanksgiving Day. Deer may be hunted with longbow and arrow during the season set for the archery hunt for deer. (NAC 503.170).

See Big Game, Furbearer, Upland Game Bird and Migratory Game Bird sections for additional information on hunting on Wildlife Management Areas.

Regulations on Specific Wildlife Management Areas

Area	Trespass	Use of Vessels	Use of Campfires and Bonfires	Camping
1. Overton WMA (Clark Co.)		Vessels are prohibited on all ponds. Vessels are allowed on the portion of the area inundated by Lake Mead, except that on Overton Hunt Days, vessels may be used only by persons authorized to hunt waterfowl.	Permitted in those sites designated for camping.	Permitted with the site designated for camping
2. W.E. Kirch WMA (Nye Co.)	Trespass prohibited from Feb. 15 through Aug. 15 in the upper portion of Adams-McGill, Cold Springs, and Haymeadow reservoirs, and all of Dacey and Tule reservoirs.	Vessels must be operated at a speed that leaves a flat wake, but in no case may exceed 5 nautical miles per hour.	Permitted within the Hot Creek Campground.	Permitted within the Hot Creek Campground.
3. Key Pittman WMA (Lincoln Co.)	Trespass prohibited from Feb. 15 through Aug. 15 in the portion of Nesbitt Lake north of the old fence line.	All vessels and floating devices are prohibited during the waterfowl season. Vessels must be operated at a speed that leaves a flat wake, but in no case may exceed 5 nautical miles per hour.	Not permitted.	Not permitted.
4. Mason Valley WMA (Lyon Co.)	Trespass prohibited from Feb. 15 through Aug. 15 in the eastern portion of the main developed pond area, as posted.	All vessels are prohibited from Feb. 15 through July 14 each year, except on Hinkson Slough, Bass, Crappie, Bluegill and North ponds and the Walker River. Vessels must be operated at a speed that leaves a flat wake, but in no case may exceed 5 nautical miles per hour.	Permitted in those sites designated for camping.	Permitted at sites designated by the Division.
5. Humboldt WMA (Pershing and Churchill cos.)		All vessels are prohibited on the ponds 5 days before the opening day of waterfowl season. Airboats are prohibited on the Humboldt Sink until 1 hour after the legal shooting time on the opening day of the waterfowl season. Airboats are prohibited on the Toulon portion of the area during the waterfowl season.	Permitted within the Quilici Landing Campground.	Permitted.
6. Fernley WMA (Churchill Co.)			Permitted.	Permitted.
7. Scripps WMA (Washoe Co.)	Trespass prohibited from February through June in that portion of the area which lies south of Little Washoe Lake.		Not permitted.	Not permitted.
8. Alkali Lake WMA (Lyon Co.)			Not permitted.	Not permitted.
9. Franklin Lake WMA (Elko Co.)			Not permitted.	Not permitted.

Appendix K.

**Proposed Budget for
Kirch WMA**

Below is a summary of the approximate estimated costs for development and maintenance to implement the wildlife goals, objectives and strategies over the next four years on KWMA. A detailed narrative is found in the following pages of this section. KWMA CMP Wildlife and Fisheries Management Implementation Schedules are found in Appendix I.

**Four Year Program Narrative
Summary of Estimated Total Costs
FYs 2001 through 2004**

ACTIVITY	2001	2002	2003	2004	4 YEAR TOTAL
DEVEL. & MAINT.	\$270,302	\$132,677	\$63,277	\$65,477	\$531,733
SALARY	\$80,500	\$88,550	\$97,405	\$107,145	\$373,600
TOTALS	\$350,802	\$221,227	\$160,682	279,767.00	\$905,333
Wildlife Restoration Funds	75%	75%	75%	75%	75%
Sport Fish Restoration Funds	25%	25%	25%	25%	25%
Man Days	376	376	376	376	1,504

**Kirch Wildlife Management Area
Four Year Program Narrative
FYs 2001-2004**

01 BUILDINGS:

01.2 MAINTENANCE:

Install linoleum in office, bath and bunkhouse. Utilize volunteers for restoration of barn and corrals, milk barn and school house left from the original homestead. Replace the carpet and the linoleum at the south residence. Paint the interior of both residences, the office, shop, and the bunkhouse. Complete annual maintenance on the residences and the HQ buildings and water system as needed. Replace the storm door on the north residence. Repair HQ water system. This section also includes utilities, building insurance, materials and supplies for building and grounds maintenance.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
01.2	Storm door	\$150.00	\$150.00	2001
	HQ water system	\$7,000.00	\$7,000.00	2001
	Linoleum and carpet in so. residence	\$3,500.00	\$3,500.00	2004
	linoleum in office, bunkhouse & bath	\$2,000.00	\$2,000.00	2004
	Interior paint	\$800.00	\$800.00	2004
	Inmate labor for general cleanup	\$500.00	\$1,500.00	2002-04
	Annual maintenance All buildings & grounds	\$1,000.00	\$4,000.00	2001-04
	Annual maintenance residences	\$300.00	\$1,200.00	2001-04
	Utilities	\$2,800.00	\$11,200.00	2001-04
	Insurance	\$1,260.00	\$5,040.00	2001-04

02 DAMS, DIKES AND LEVEES

02.2 MAINTENANCE:

Complete annual maintenance to maintain integrity of dams and dikes which includes the cleaning of structures, replacing dam boards, etc.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
02.2	Annual maintenance	\$250.00	\$1,000.00	2001-04

03 CANALS AND CHANNELS:

03.1 DEVELOPMENT:

Complete the by-pass ditch in the Old Place Unit which includes the addition of two control structures allowing for water control onto upper Adams McGill Reservoir.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
03.1	By-pass ditch	\$12,000.00	\$12,000.00	2000-01

03.2 MAINTENANCE:

Complete annual maintenance on the canals and channels which includes repairs to control structures, replacing boards, hand spraying weeds, and cleaning and repairing ditches. Cleaning ditches requires the rental of an excavator for two weeks each year.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
03.2	Annual ditch maint.	\$500.00	\$2,000.00	2001-04
	Herbicide-Rodeo	\$2,500.00	\$12,500.00	2001-04

05 ROADS:

05.1 DEVELOPMENT:

No development proposed at this time.

05.2 MAINTENANCE:

The 20 miles of roads need to be graded four to five times a year taking advantage of rainfall and the subsequent ground moisture. The target dates for grading is just prior to Memorial Day weekend, 4th of July weekend, Labor Day weekend, and the opening of waterfowl season. Several of the problem sections of road will be identified, prioritized, and

improved each year with the addition of Type 2 gravel and/or improved drainage. The cattle guards and culverts are checked annually and cleaned as needed.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
05.2	All roads	\$1,500.00	\$6,000.00	2001-04

07 FENCES:

07.2 MAINTENANCE:

Contract and replace approximately 2.5 miles of the boundary fence which is still the original fence. Maintain 50 miles of boundary fence and replace or install boundary markers where needed. Remove the old cross fencing left over from the original ranch as time permits using inmate labor. Annually identify needs and add walk throughs for improved public access until needs are satisfied.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
07.2	Repair 2.5 miles of fence	10,000.00	\$10,000.00	2001
	50 miles of perimeter fence-maintenance & walk throughs	\$400.00	\$1,600.00	2001-04
	Inmate labor	\$1,000.00	\$3,000.00	2002-04

08 PUBLIC USE FACILITIES:

08.1 DEVELOPMENT:

Complete Phase 2 of the Hot Springs Development which will include an interpretive trail, a cement deep vault toilet, a graveled parking area, another kiosk for endemic fish information, repair/replace the perimeter fence and add a cross fence, and a handicap accessible gate. Install three outhouses (cement-deep vault SST's) one each at Haymeadow, Cold Springs and Adams-McGill. Evaluate and if feasible build two boat launch dirt ramps and parking areas at Tule Reservoir and near the old barn at Haymeadow Reservoir.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
08.1	Phase 2 Hot Springs development	\$25,000.00	\$25,000.00	2002
	Replace outhouses at Cold Springs	\$14,000.00	\$14,000.00	2002

08.2 MAINTENANCE:

All public facilities will be maintained as needed. The campground will be mowed monthly or as needed during late spring, summer and early fall. Outhouses will be cleaned weekly or twice weekly during high use periods and pumped annually. Road counters and field boxes will be repaired. Make annual repairs to the drip system and plant 30 trees each year in the campground. Parking areas, boat launch sites, and the campground will have litter removed monthly from March through November. Volunteers will be encouraged to assist. Maintain and improve boat launch facilities as needed.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
08.2	Road Counters	\$750.00	\$750.00	2001
	Annual maintenance	\$500.00	\$2,000.00	2001-04
	Pump outhouses annually	\$800.00	\$3,200.00	2001-04
	Drip system & trees	\$300.00	\$600.00	2001&04

11 SIGNS:

11-1 Development:

Install new signs as needed. Double the kiosk at the campground. Add brochure distribution boxes at main kiosk and campground kiosk. Construct new kiosk at DOT rest stop two miles north of the management area.

<u>Job#</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
11.1	Brochure boxes	\$300.00	\$300.00	2001
	Kiosk Campground	\$1,500.00	\$1,500.00	2003
	New signs	\$100.00	\$400.00	2001-04

11.2 MAINTENANCE:

Maintain or replace existing signs and kiosks as needed. The latest regulations, information and posters pertinent to the area will be posted at area kiosks.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
11.2	All sign maint.	\$250.00	\$1,000.00	2001-04

13 FARMING:

13.1 DEVELOPMENT & MAINTENANCE:

Continue dry land farming with a native seed mixture on the 25 acre HQ field. If successful, expand to "elm field".

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
13.1	Dove field	\$300.00	\$900.00	2002-04
	Fall plant 15 acres	\$300.00	\$900.00	2002-04

15 VEGETATION CONTROL:

15.1 DEVELOPMENT & MAINTENANCE:

Noxious vegetation will be controlled by aerial and hand-applied herbicide or with water control and/or burning. The herbicide Rodeo will be applied aerially once every two years at a cost of \$110.00 per acre as identified in the Implementation Schedule for Habitat Management. Five units averaging 800 acres each will be burned once every five years per the plan. The herbicide Garlon will be used to control Tamarisk annually. Herbicides will be used to control knapweed and other noxious weeds on the area. Photo plots will be used for emergent vegetation evaluation annually. Wetland enhancement projects will be incorporated in the GIS Resource Inventory to conduct comparative analysis every five years. Invasive and noxious weeds will be monitored annually. Aquatic vegetation surveys will be conducted every August to monitor and establish trends. Management practices will be reviewed and augmented every five years.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
15.1	Aerial spray 300 acres	\$32,000.00	\$64,000.00	2003&04
	Tamarisk control	\$300.00	\$1,500.00	2001-04
	Knapweed control	\$3,000.00	\$15,000.00	2001-04
	Prescribed burns	\$500.00	\$2,000.00	2001-04

17 FIRE BREAKS:

17.1 DEVELOPMENT & MAINTENANCE:

Construct or maintain fire breaks as needed for prescribed fire control.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
17.1	Fire breaks	\$200.00	\$800.00	2001-04

22 NEST STRUCTURES:

22.1 DEVELOPMENT:

Develop nesting islands at Tule and Adams McGill reservoirs.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
22.1	Islands-Adams McGill	\$1,000.00	\$1,000.00	2003
	Islands-Tule	\$1,000.00	\$1,000.00	2004

22.2 MAINTENANCE:

Maintenance and monitoring of goose platforms will continue. Those platforms which continue to have no use will be removed.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
22.2	All platforms/nest structures	\$100.00	\$300.00	2002-04

26 PAYMENT IN LIEU OF TAXES:

26.1 DEVELOPMENT:

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
26.1	Taxes	\$1,100.00	\$4,400.00	2001-04

28. WATER LEVEL MANAGEMENT:

28.1 DEVELOPMENT:

Water flows and levels will be maintained at optimum levels to maintain a maximum amount of wetland habitat. An annual water management plan will be submitted and followed. Water levels, flows, and temperatures will be monitored and recorded bi-monthly. Wetlands will be managed for optimum food plots and nesting vegetation with water control.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
28.1	All wetlands	\$200.00	\$800.00	2001-04

28.2 IRRIGATION

Units will be dried and flooded and fields irrigated per the Water Management Plan for optimum habitat enhancement.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
28.2	Irrigation	\$ 200.00	\$800.00	2001-04

29. PROJECT ADMINISTRATION:

29.1 DEVELOPMENT:

Perform all the necessary tasks for the smooth operation of the wildlife management area. Revision of the CMP will be done every five years. Required meetings will be attended. Weekly, monthly and annual reports will be completed. Projects will be coordinated or implemented per the contract or plan. Inform the Public Information Officer weekly of the conditions on the management area. Develop or amend Memorandums of Understanding with government agencies, local government, and private organizations and land owners. This job includes per-diem, post office box rental and postage, film and development, office supplies, uniform allowance, and training.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
29.1	In-state travel	\$360.00	\$1,440.00	2001-04
	Uniform allowance	\$600.00	\$2,400.00	2001-04
	Film and development	\$200.00	\$800.00	2001-04
	PO box rental & postage	\$32.00	\$128.00	2001-04
	Office supplies	\$150.00	\$600.00	2001-04
	CDL physical & drivers license renewals	\$75.00	\$300.00	2001-04
	Training	\$200.00	\$600.00	2002-04

30 MANAGED PUBLIC HUNT:

30.1 DEVELOPMENT:

Conduct various wildlife population and hunter bag check surveys on the area. Conduct predator population and estimated predation studies. Implement controls as warranted.

Conduct goose pair survey about March 30th, conduct duck pair survey around May 15, conduct three goose brood surveys from March through May, conduct three duck brood surveys from May through July, conduct two waterfowl surveys per month during August through January and one per month from February through May, and conduct waterfowl bag checks during the waterfowl hunting season.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
30.1	Surveys	\$100.00	\$400.00	2001-04

32 COOPERATIVE RESEARCH:

32.1 DEVELOPMENT:

Assist U.S. Fish and Wildlife Service with the spinedace rehabilitation and recovery at and below Flag Springs. Assist other agencies and divisions as requested.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
32.1	All activities	\$100.00	\$400.00	2001-04

34 MISC. APPROVED ACTIVITIES

34.1 MISC. APPROVED ACTIVITIES

This job includes public assistance and other jobs which do not fall under the other jobs listed.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
34-1	All misc. jobs	\$100.00	\$400.00	2001-04

60 EQUIPMENT:

60.1 DEVELOPMENT:

Trade in '93 Chevy 3/4-ton 4x4 pickup for a new 3/4-ton pick-up, purchase a reciprocating saw (Sawzall), a palm sander, an electric boat motor with battery, a 13' shallow draft boat with 15 hp motor and trailer, a 4-WD 4 wheeler with utility trailer and a 1/4" VSR drill motor. Trade in grader for a 4-WD unit (used) which is still currently in production and parts for repair are readily available. Purchase a 4-WD tire backhoe with an extended boom.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
60.1	1/4" VSR drill	\$75.00	\$75.00	2001
	Palm Sander	\$50.00	\$50.00	2001
	13' boat w/motor & trailer	\$45,000.00	\$45,000.00	2001
	Grader	\$180,000.00	\$180,000.00	2001
	Backhoe	\$45,000.00	\$45,000.00	2002
	3/4-T 4x4	\$19,000.00	\$19,000.00	2002
	Sawzall	\$300.00	\$300.00	2002
	4 wheeler	\$7,000.00	\$7,000.00	2003

60.2 MAINTENANCE:

Perform regular scheduled maintenance on vehicles and equipment. Repair equipment as needed. Also included in this job is mileage and insurance. Oil changes, lubes, and most minor repairs will be completed by area personnel to ensure extended equipment life and safety during operation. Repairs beyond the ability of the area personnel will be referred to the complex Mechanic or at his recommendation be repaired by a private business. The shop will be equipped with adequate tools to

perform the basic day to day equipment, vehicle, and facility maintenance.

<u>JOB #</u>	<u>WORK ITEMS</u>	<u>UNIT COSTS</u>	<u>TOTAL COSTS</u>	<u>YEAR</u>
60.2	Repair & maint.	\$3,000.00	\$12,000.00	2001-04
	Mileage	\$3,000.00	\$12,000.00	2001-04
	Insurance	\$1,300.00	\$5,200.00	2001-04