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## 2.01 SITE HISTORY

The known history of land use at WSNA begins with Native Americans during the Early Agricultural period (AD1-550). Though hunting and gathering certainly occurred during the Archaic period (5500 BC-AD 1), it was not until the early inhabitants began agriculture that land use took on new meaning. In the upper Muddy River, agriculture can trace its origins as far back as AD 20-220 from a radiocarbon dated corn cob. Cultivating maize, squash, and gourds was commonplace along the Muddy River and its tributaries during this period.

The Southern Paiutes continued to use and live around the WSNA when the Dominguez-Escalante Party charted the Spanish Trail.

The Spanish Trail passes about eight miles to the southeast (1776). The Coyote Spring Rockshelter on WSNA shows a period of use through the Early Historical (AD 1600-1830) and Settlement (1830-1900) periods where the shelter was possibly used by the Paiutes to escape Spanish slave raids that were common along the Spanish Trail.

Along with early American explorers, Mormon pioneers were among the first new arrivals to view the upper Muddy River area. Though the majority of settlements were established in the lower Muddy River drainage, the town of West Point (about five miles down river) was established in 1868 and persisted until the flood of 1870.

Around that time, the Muddy Springs band of Paiute Indians was led by Chief Rufus. Their home would have included Big Muddy Spring and the surrounding area of WSNA.

The first recorded settlement on the WSNA was by the Texas outlaw Alexander Dry. He built a stone cabin with an arrowweed thatched roof near a spring on WSNA in the late 1870s. He also ran a herd of cattle, the beginning of grazing and its cumulative impacts to the property.



Advent of maize farming in upper Muddy River (Basket maker II).

AD 100 - 300



Southern Paiutes - victims of Spanish slave trade.

1776-1850s



Mormon settlement along Muddy River.

1860s



Mormon settle West Point (closest settlement to Warm Springs).

1867

Texan outlaw Alexander Dry (Dri) homesteaded on WSNA. He built and lived in a stone cabin next to a spring until he was shot by the outlaw Jack Longstreet in 1882.

Ca. 1870



The Home Ranch established.

Early 1900s

School house moved to Big Muddy Spring.

1920



Howard Hughes purchases Warm Springs Ranch. Ranching and agricultural practices continue.

1971

1776

Spanish priests Garces, Dominguez, and Escalante encounter Southern Paiutes. Their route becomes the Old Spanish Trail.

1866

Chief Rufus of the Muddy Springs Band of Paiutes joins with other tribal chief and Mormon leaders to end hostilities.

1870

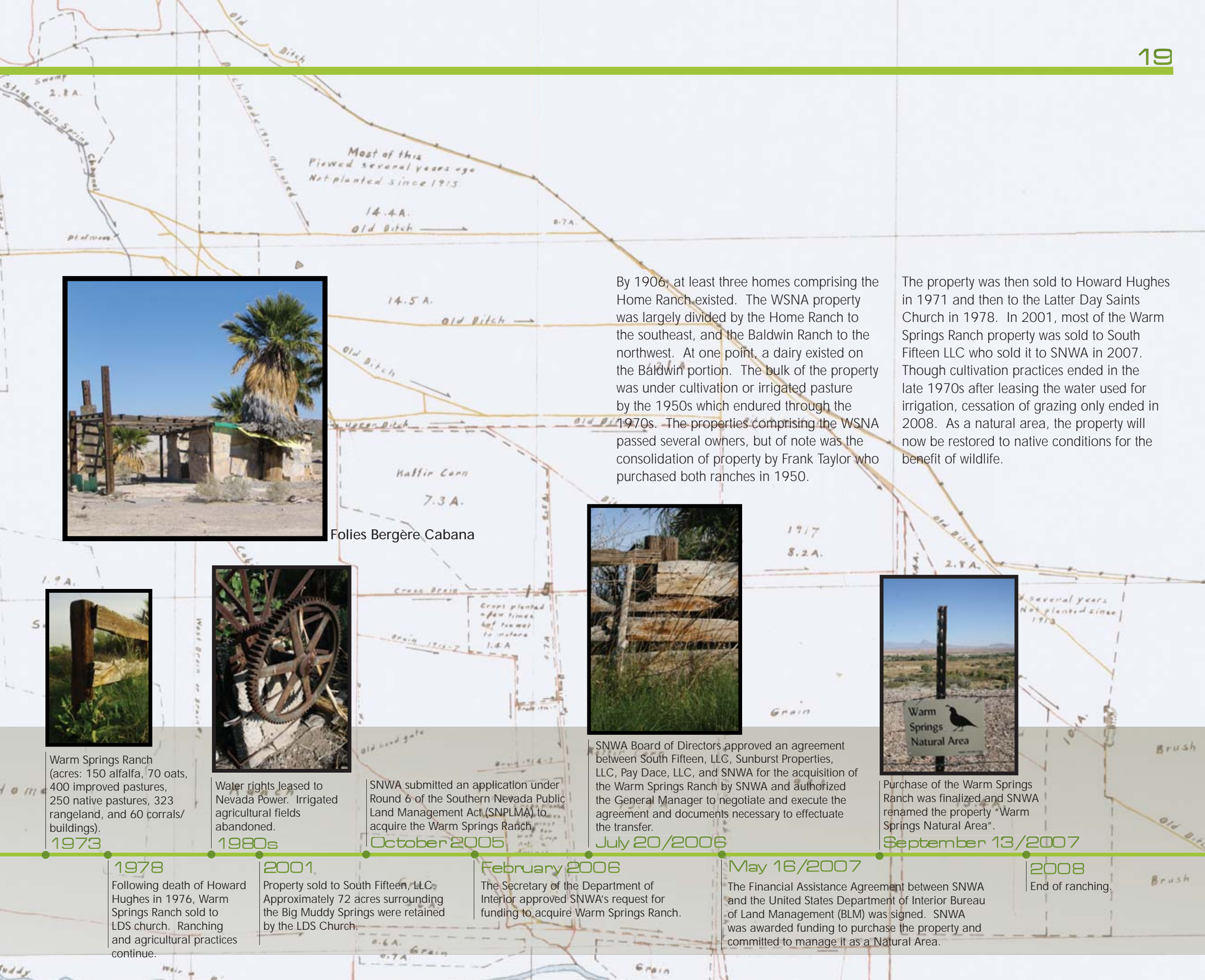
Town of West Point abandoned following a flood and occupied by Paiutes.

1906

Warm Springs schoolhouse along the Muddy River at WSNA.

1950

Francis Taylor acquired Baldwin and Home Ranches and other smaller parcels and he named the 1,200 acres the "Warm Springs Ranch." He built the "Big House" otherwise known as the Taylor Mansion aside Big Muddy Spring and began extensive pasture improvements.



Folies Bergère Cabana



Warm Springs Ranch (acres: 150 alfalfa, 70 oats, 400 improved pastures, 250 native pastures, 323 rangeland, and 60 corrals/buildings).  
1973



Water rights leased to Nevada Power. Irrigated agricultural fields abandoned.  
1980s



SNWA Board of Directors approved an agreement between South Fifteen, LLC, Sunburst Properties, LLC, Pay Dace, LLC, and SNWA for the acquisition of the Warm Springs Ranch by SNWA and authorized the General Manager to negotiate and execute the agreement and documents necessary to effectuate the transfer.  
July 20/2006



Purchase of the Warm Springs Ranch was finalized and SNWA renamed the property "Warm Springs Natural Area".  
September 13/2007

By 1906, at least three homes comprising the Home Ranch existed. The WSNA property was largely divided by the Home Ranch to the southeast, and the Baldwin Ranch to the northwest. At one point, a dairy existed on the Baldwin portion. The bulk of the property was under cultivation or irrigated pasture by the 1950s which endured through the 1970s. The properties comprising the WSNA passed several owners, but of note was the consolidation of property by Frank Taylor who purchased both ranches in 1950.

The property was then sold to Howard Hughes in 1971 and then to the Latter Day Saints Church in 1978. In 2001, most of the Warm Springs Ranch property was sold to South Fifteen LLC who sold it to SNWA in 2007. Though cultivation practices ended in the late 1970s after leasing the water used for irrigation, cessation of grazing only ended in 2008. As a natural area, the property will now be restored to native conditions for the benefit of wildlife.

1978  
Following death of Howard Hughes in 1976, Warm Springs Ranch sold to LDS church. Ranching and agricultural practices continue.

2001  
Property sold to South Fifteen, LLC. Approximately 72 acres surrounding the Big Muddy Springs were retained by the LDS Church.

February 2006  
The Secretary of the Department of Interior approved SNWA's request for funding to acquire Warm Springs Ranch.

May 16/2007  
The Financial Assistance Agreement between SNWA and the United States Department of Interior Bureau of Land Management (BLM) was signed. SNWA was awarded funding to purchase the property and committed to manage it as a Natural Area.

2008  
End of ranching.

Environmental stewardship efforts are underway to recover the Moapa dace, restore habitat, and manage the property as a Natural Area.

**HOME RANCH et al**  
NEAR  
**MOAPA NEVADA**  
T. 14 S. R. 65 E. M. D. B + M.  
by  
L. Tanner  
Scale 400 Ft = One Inch  
1918



NE NE Sec. 21

NE NE Sec. 22

NE NE  
Sec. 21

## 2.02 CULTURAL RESOURCES

Imagine crossing Nevada’s harsh desert on horseback or wagon in the heat of summer, with its miles and miles of barren soil and scrubby creosote. Then off in the distance you see a lush strip of green surrounding a flowing stream. Here, in what is today the Moapa Valley, tired settlers found water to quench their thirst, forage for their animals, shade from the heat, and warm pools to bathe tired feet. The area’s flowing springs fed plants, animals, and people for thousands of years—both Native American and Euroamerican.

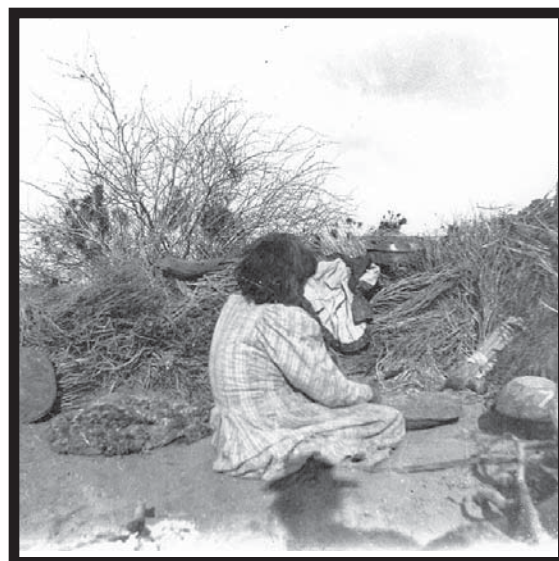
Rich cultural heritage is preserved in the numerous archaeological sites found throughout the Warm Springs Natural Area. The archaeological record tells us that Southern Paiute people and their ancestors lived in the Moapa Valley for thousands of years before the first American settlers arrived. The archaeological survey of the area identified prehistoric habitations, trails, artifact scatters and rock shelters located on the terraces above the floodplain. Archaeologists believe that pithouse villages, like those found elsewhere in the Southwestern United States, probably lie buried in the Valley’s deep soils. Springs, fertile soils, lush vegetation, and plentiful wildlife created a unique desert oasis. The wild grasses and seeds that the first Euroamerican settlers fed to their livestock were the staple foods of the area’s Southern Paiute occupants.

Before Native Americans began small-scale subsistence farming in the region 2,000 years ago, they collected and ate the plentiful edible foods. Thick stands of mesquite trees produced nutritious seed pods that were ground, made into cakes, and stored in caches. Grass seeds, wolf berries, cactus fruit, and Indian spinach (Prince’s plume) are just a few of the numerous wild plants that the Native Americans collected to supplement their crops of corn, beans, and squash. Bighorn sheep and smaller animals such as quail, doves, rabbits, and mice were hunted with traps or bows and arrows. Occasionally, large family groups gathered to hunt jackrabbits by chasing them into large handmade nets that could be hundreds of yards in length. The Southern Paiute people and their ancestors developed cultural practices and traditions that enabled them to grow and prosper for thousands of years. Outlaws, like Alexander Dry, hid in the Warm Springs area and raised stolen cattle in the late 1800s.

The first Euroamericans to settle the region were members of the Church of Jesus Christ of the Latter Day Saints—the Mormons. Their descendants, including Ute Perkins and his large family, still occupy the Moapa Valley today. Historic corrals, irrigation canals, fences, and house foundations found throughout the WSNA are a reminder of the region’s early ranching and farming families, like the Perkins, who struggled and fought to settle the American West. The Perkins family leased the Home Ranch, located in the WSNA for six years, between 1923 and 1929. The family raised cattle and hogs, cultivated hay and grain, and grew fruit trees on the ranch, and the only source of power was a water wheel until the 1930s. Although all of the buildings once occupied by the Perkins family on the Home Ranch burned in a 1987 fire, the oral histories, written stories, and photos provide abundant information about what early pioneer life was like in the area.



Moapa Paiute House



Las Vegas Paiute Encampment 1900



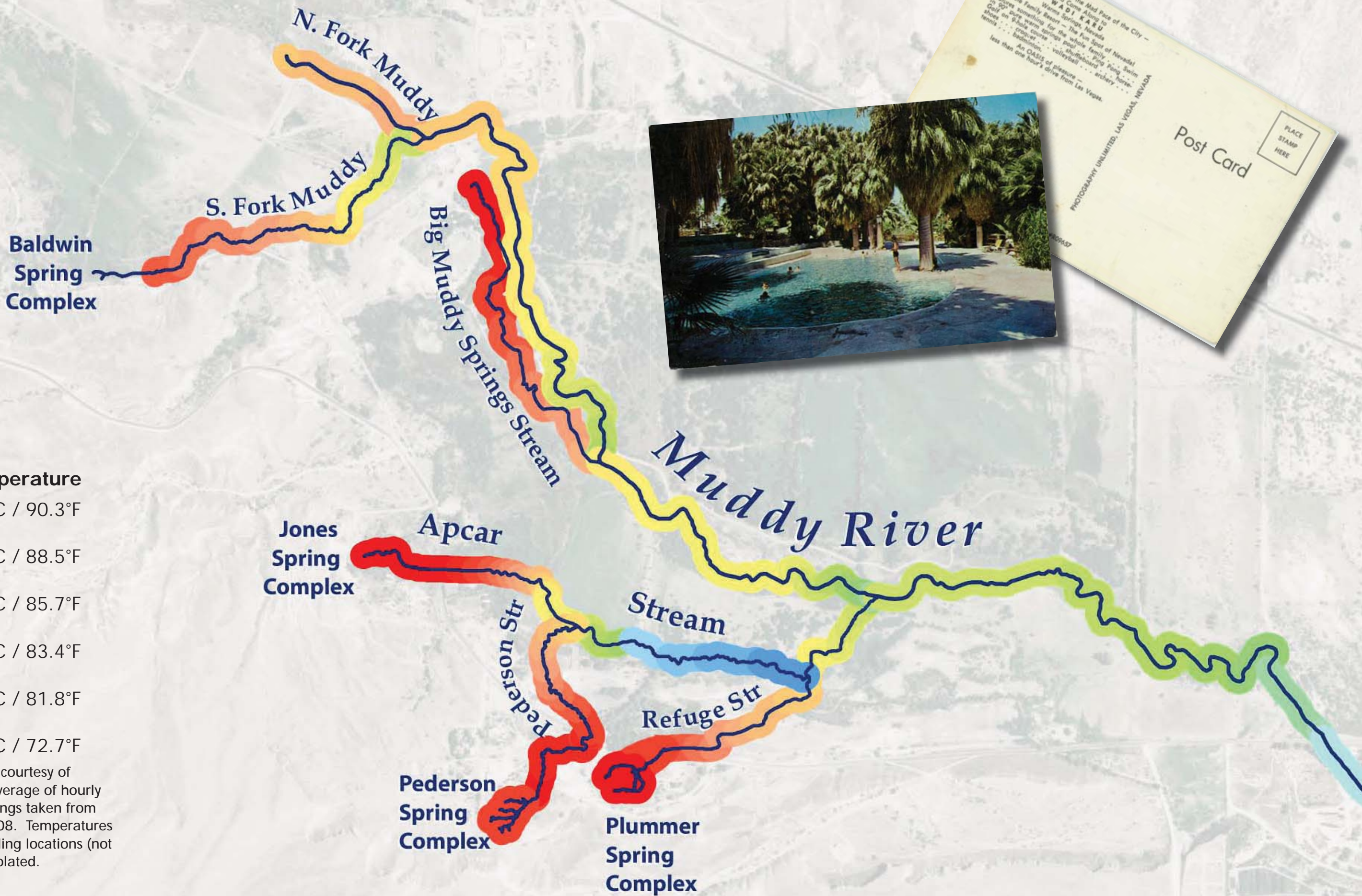
Water wheel



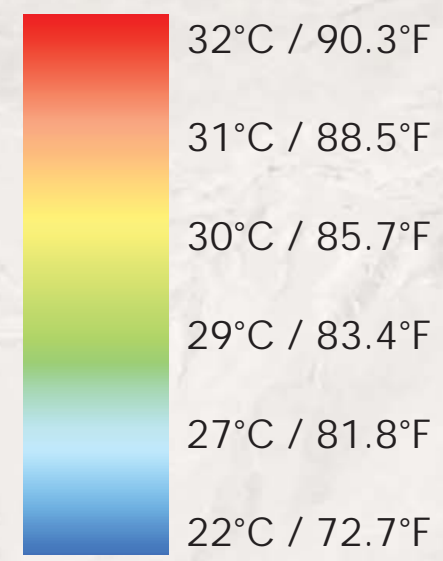
Warm Springs Ranch 1941 station wagon (“Woodie”)



# Cardy Lamb Springs



## Stream Temperature



Temperature data courtesy of USGS and is an average of hourly temperature readings taken from 3/7/08 to 12/11/08. Temperatures between 17 sampling locations (not shown) are interpolated.



## 2.03 HYDROLOGY AND WATER DEVELOPMENT

More than any other feature of the landscape, the hydrology of the Warm Springs area is key to the landscape. The unique hydrology is the reason Native Americans, ranchers, and people with recreational interests were drawn to the property and also the reason the property supports an endangered fish. The hydrology ties together a unique natural environment with the rich cultural, historic, and socioeconomic uses of the Warm Springs Natural Area. All are juxtaposed through time due to the thermal waters which emanate from more than twenty regional springs, numerous seeps and wetlands in the area. The springs then form warm-water tributaries, which become the headwaters of the Muddy River. The thermal spring water wells up at about 90°F from a deep carbonate aquifer. As the water flows downstream it cools and becomes less favorable to the existence of the endangered Moapa dace and the other thermophilic species.

### Hydrology

There are five major spring complexes in the area. Two of these are on the Warm Springs Natural Area: Cardy Lamb and Baldwin Springs. The largest spring, producing over 4.8 million gallons per day, is Big Muddy Spring located on the LDS Recreation Area. The remaining springs - Pederson and Plummer Springs - are located on the Moapa Valley National Wildlife Refuge. Two lesser spring complexes of note, are Twin Springs on the Warm Springs Natural Area and Jones Springs on the Moapa Valley National Wildlife Refuge. A number of other unnamed springs and seeps also occur in the area (Beck et al. 2006).

The Warm Springs area is located near the southern end of the White River regional groundwater flow system and is believed to be the largest and one of the most southerly outflows from this groundwater system. The aquifers in this area are generally composed of Paleozoic carbonate rocks and Tertiary sedimentary rocks. Recharge in this system is primarily from precipitation in the high mountain ranges of eastern Nevada (Eakin 1966).

The US Geological Survey, irrigation districts, the US Bureau of Reclamation, the State of Nevada, SNWA and others have collected water levels and stream gage data throughout the system as far back as 1913. Six continuous-record stream gaging stations and 11 partial-record stations in the area are cooperatively maintained by SNWA and the USGS (Beck et al. 2006).

### History of Water Development

From European settlement in the late 1800s to about the 1950s, water use in the area consisted of a few ranches that derived their water from individual springs or wells. In the 1950s, the ranches eventually merged into one large ranch with an intricate system of irrigation ditches.

### Water Companies

In 1954, the Moapa Valley Water Company and the Overton Water District entered into a joint agreement to divert water from the Warm Springs area to residences, businesses, and dairy establishments to the south. For this purpose, water was developed from the Baldwin Springs complex. In 1960, a pump

house was also built on Jones Spring and the landowner, Francis Taylor, donated water rights and one acre of land to the Moapa Valley Water Company. Frederick Apcar soon bought the surrounding 45 acres for his own private recreational use, concreted one of the springs and built a large swimming pool on the site. A new pump house was constructed on the Jones Spring in 2004 by the Moapa Valley Water District (Beck et al. 2006).

### Recreational Facilities

Other recreational facilities were built to take advantage of the 90°F water for swimming. At the Pederson Springs, the 7-12 Warm Springs Resort was built in the 1950s. This resort had two swimming pools, one of which was built directly over a spring and the other was fed with piped spring water. The Desert Oasis Warm Springs Resort had a swimming pool, ponds, spa and water slide all fed by the Plummer Springs. Other recreational swimming facilities included a large spring fed pond and swimming pool on the LDS property fed by Big Muddy Springs. In the early 1980s the LDS Church constructed a very large swimming pool at the Cardy Lamb Springs (Beck et al. 2006).

### Power Plant

In the mid-1960s, the Reid Gardner coal-fired power plant was constructed about three miles downstream of the Warm Springs area. Initially, water for the plant was obtained from the Muddy River near the plant and from several wells in the Warm Springs area on the Lewis Property. By the early 1970s, Nevada Power (now NV Energy) constructed a diversion dam and a pumping station on the Muddy River just above Warm Springs Road.

Water is pumped from the river and piped to power plant. In the 1980s, the power plant was expanded and Nevada Power purchased water rights from the LDS Church and other private landowners in the Warm Springs area. Currently, NV Energy seasonally operates about 12 alluvial wells in the Warm Springs area and the surface water diversion on the river. Generally, the surface water is used in the winter months and the wells are pumped in the summer months (Beck et al. 2006).



### Moapa Valley National Wildlife Refuge

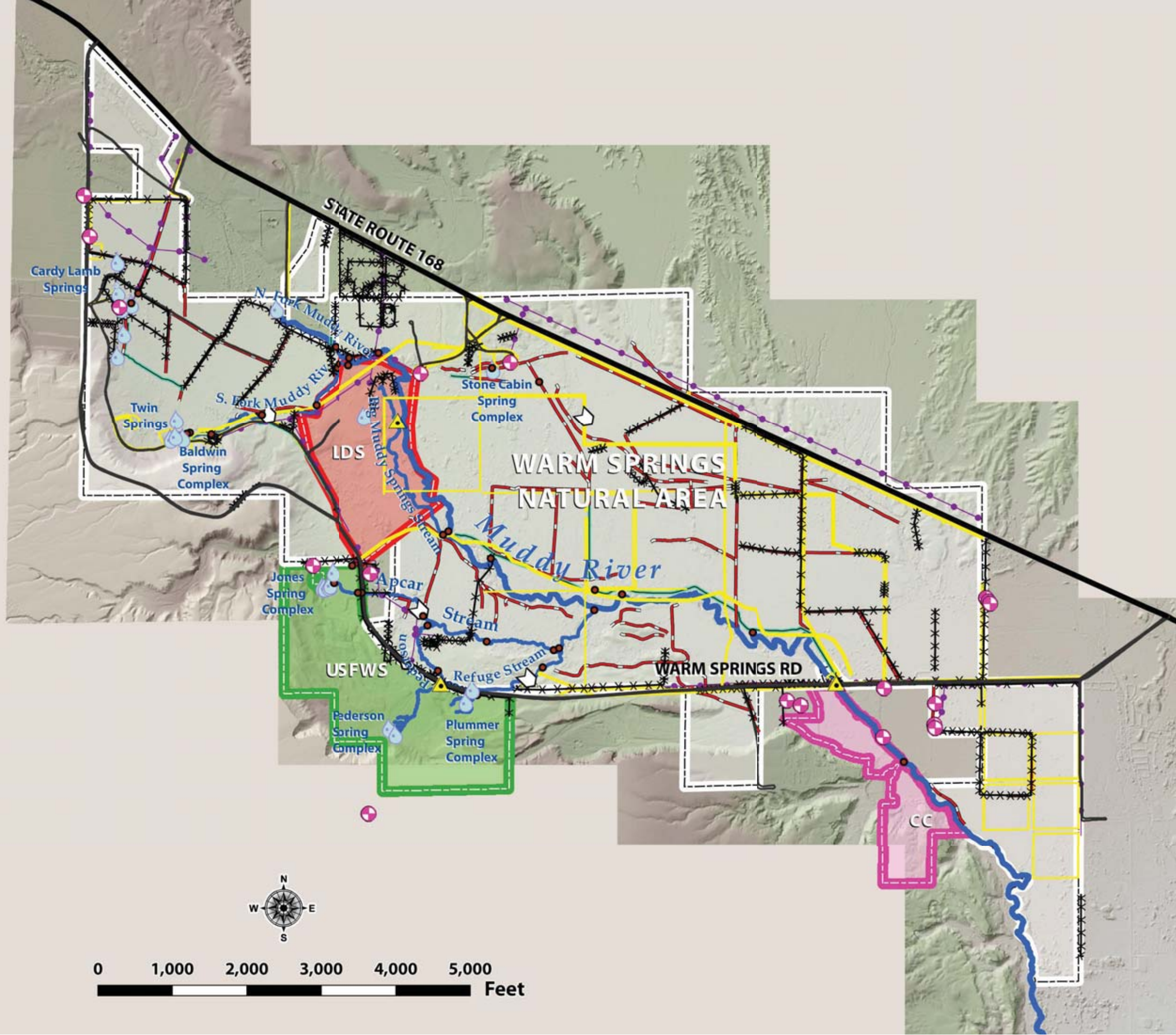
In 1979, the Moapa Valley National Wildlife Refuge was created from most of the 7-12 Warm Springs Resort and a small portion of the Desert Oasis Warm Springs Resort. By the late 1990s most of the swimming pools and other recreational infrastructure from the old 7-12 Warm Springs Resort had been removed and restored for the Moapa dace. The Desert Oasis Warm Springs Resort operated until 1994 when a fire closed the resort. After the fire, the resort remained closed until it was purchased by Del Webb and turned over to the Moapa Valley National Wildlife Refuge. In 2001, the US Fish and Wildlife Service (USFWS) expanded the Wildlife Refuge by purchasing 45 acres of land around Jones Spring (Apcar unit). The USFWS removed the swimming pool that Frederick Apcar had installed and begun restoring the stream below the pump house (Beck et al. 2006). In 2007, USFWS removed all the palm trees from the Apcar unit and restored the stream channel in Spring 2009.





FACILITIES  
INFRASTRUCTURE  
LEGEND

-  Flume
-  Gage
-  Spring
-  Well
-  Easement
-  Pipe
-  Overhead Electrical
-  Concrete Ditch
-  Irrigation Pipe
-  Rivers and Streams
-  Roads
-  Fences
-  Warm Springs Natural Area
-  LDS Recreational Area
-  US Fish and Wildlife Service
-  Clark County



**2.04 FACILITIES MANAGEMENT**



Water diversions



Irrigation ditches



Historic structures



Municipal water source/  
water treatment plant



Historic recreation



County road



Existing fencing



Non-historic structures



Production wells



Pipeline easements



Overhead easements



Easement maintenance



Fence maintenance

Acquisition of the Warm Springs Natural Area by SNWA in 2007 included not only property assets but also a requirement to accommodate entities with easements on the property. Easements for water and power conveyance traverse the property servicing Moapa Valley Water District, NV Energy, and Overton Power Company. Gaging stations to monitor stream flows exist on several stream reaches and have monitoring requirements by federal and state agencies. County roads and State Highway 168 overlay a portion of the property. Because the property was previously used mainly for agriculture, irrigation ditches and fencing are ubiquitous features found throughout the Natural Area. To improve the aesthetics and decrease habitat segregation, much of the fencing and ditch works will be removed. Any features of historic significance will be preserved.

**EXISTING PROPERTY USES**

**RIGHTS-OF-WAY**

**Moapa Valley Water District**

- Baldwin Spring box
- Baldwin Spring treatment plant
- Baldwin Spring pipeline
- Jones Spring pipeline

**NV Energy**

- LDS East (Stone Cabin Spring) Well
- LDS Central (Willow Spring) Well
- LDS West Well
- Pipelines

**Overton Power Lines**

**Roads**

- Clark County roads
- State Highway 168

**WATER RIGHTS/MONITORING**

**Water Monitoring Activities**

- Iverson Flume (USGS)
- South Fork Flume (NV Energy)
- Apcar Flume (NDWR)
- Cardy Lamb Spring (NV Energy)

**Water Rights**

- Twin Springs
- Cardy Lamb Spring
- Irrigation Company Water



Historic agriculture