



A Home for the Moapa Dace

The National Wildlife Refuge System is a 95-million acre network of federal lands and waters managed by the U.S. Fish and Wildlife Service to conserve and protect fish, wildlife, plants and their habitats. The Moapa Valley National Wildlife Refuge, established September 10, 1979, is the first refuge created to protect an endangered fish, the Moapa dace.



Moapa dace



The "Blue Goose" insignia, designed by Ding Darling, is the symbol of the National Wildlife Refuge System. Moapa Valley NWR is part of a nationwide system of over 520 refuges set aside for the conservation and management of fish, wildlife and plant resources for the benefit of present and future generations.

With less than four inches of rain per year, water is a unique and rare resource in the dry Mojave Desert. Plants and animals balance on the edge of existence. The Warm Springs area, historically known as the Moapa Valley, is a desert oasis with five major thermal springs. Two of these springs are on the Refuge.

Where does the water come from? Water moves through the White River Ground-water Flow System, which stretches to the northwest from Coyote Springs to Ely. The "fossil water" in this aquifer takes thousands of years to move underground towards Warm Springs where it is forced to the surface.

Above ground, the water on average 88° F, bubbles up into springs and streams and emerges forming the beginning, or headwaters, of the Muddy River. The entire population of Moapa dace are found here and nowhere else in the world. No longer than a human finger, the olive-yellow dace fight for survival in this harsh desert environment.

Past

History of the **Moapa Valley**

For thousands of years, people have used the Moapa Valley with minimal impacts to the wildlife. Anasazi villages stretched from the Warm Springs area to the Virgin River centuries before European Americans arrived.

By 1200 A.D., Southern Paiutes



inhabited Warm Springs. The area remains an important element of modern Paiute culture among the nearby Moapa Band of Paiutes and Las Vegas Paiutes.

Southern Painte Men. 1873 © Nevada Historical Society

In the late 1800's, Mormon ranchers, farmers, and tradesman populated the Moapa Valley. Years passed and development continued as streams were diverted and channelized. Throughout the early 1900's, the dace were still common. In 1963, the population rapidly declined after the introduction of the shortfin mollie, a non-native fish. By 1967, the Moapa dace was federally listed as endangered.

Non-native shortfin mollie



The area that is now the Refuge was operated as a resort with snack bars and recreational vehicle hook-ups. The springs and streams were chlorinated and concreted into swimming pools. Only a few hundred dace remained by 1977. When it was purchased from a willing seller in 1979, there were no dace left on-site.

Present

Why are they endangered?



The Moapa dace population is declining. Endangered means the entire population is close to extinction—never existing on Earth again—and indicates something in the environment changed.

Water is their home. Adult dace lav eggs year-round near the springheads and use the warm water to incubate their eggs. After hatching, the juveniles move into the stream and eventually, as adults, can migrate into the Muddy River. The omnivorous dace feed on both plant and animal material. When it is time to reproduce, similar to salmon, they swim back upstream.

As the human population grows

changed the habitat. Sometimes

making it unsuitable for the dace

such as tilapia, mosquito fish, and

conditions. This competition for

threatens the dace's survival.

their increased need for water has

this results in less water overall or cooling and pooling of the water

to feed or breed in. Non-native fish

shortfin mollies thrive in these altered

available habitat (food, shelter, space)



tilapia

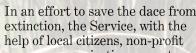
Removing cattails—part of

process.

the restoration

Non-native

In an effort to save the dace from extinction, the Service, with the





organizations, county, state, and federal officials, started the long and difficult process of reconstructing and restoring this unique habitat.



Restored channel

Future

Restoration aids native species

Moapa pebblesnail

© USGS, Reno Field Station



Moapa riffle beetle

 $@USGS, Reno\ Field\ Station\\$



 $\begin{array}{c} Palms\ bring\ fire\\ risk \end{array}$

© Shawn Goodchild, FWS

Desert larkspur



Channel restoration
improves the feeding
and spawning habitat
for the dace and
other native species.
Based on research, logs,
boulders, soil and rock are
strategically placed in springs and
streams to provide pools, riffles
and runs. Through careful
planning, native species, such
as the Moapa dace, White River
springfish, Moapa riffle beetle
and Moapa pebblesnail, who had

and Moapa pebblesnail, who had barely survived, were reintroduced to the Refuge. Barriers were built to keep competitors, such as the tilapia, out.

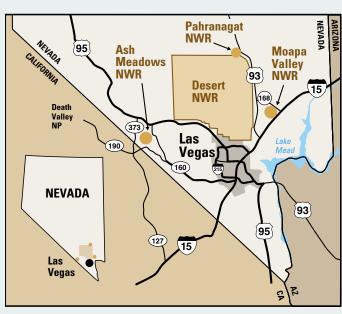
Palm trees along the stream channels are removed to keep streams flowing

and reduce the risk of wildfire. As restoration continues, ash trees, willows, screwbean mesquites, and other native plants will take their place. These restoration efforts increase the chances for the survival of native aquatic species.

Due to ongoing work and removal of unsafe structures, the Refuge is currently closed to the public. It is expected that the Refuge will be open in the future. Working together with the community, Moapa Valley National Wildlife Refuge will once again be flourishing with native plants and animal life...to be enjoyed by all.



Visit Nearby Refuges



National Wildlife Refuges of Southern Nevada

Desert National Wildlife Refuge



The largest refuge in the lower 48 states with over 1.6 million acres holds many opportunities. Drive through scenic desert bighorn sheep habitat, watch birds at Corn Creek, view the endangered Pahrump poolfish, hike in the backcountry or spend a night camping under the stars. 702/879-6110

Ash Meadows National Wildlife Refuge



© Tom Baugh

Pahranagat National Wildlife Refuge



© Dave Menke, FWS

Silvery blue pupfish dart between swaying strands of dark green algae. A haven for rare wildlife, the 23,000 acres of spring-fed wetlands and alkaline desert uplands support a great number of endemic plants and animals.

775/372-5435

This "valley of shining waters" borders the Mojave and Great Basin deserts and offers a resting spot for migratory birds, waterfowl and people. Enjoy this desert oasis while camping, fishing, hunting or observing wildlife. 775/725-3417

