

U.S. Fish & Wildlife Service

Ash Meadows

National Wildlife

Refuge



*Warm water from
underground bubbles
up through sand into
clear spring pools.*

*Silvery blue pupfish dart
between swaying strands
of dark green algae.*

*Pebbled streams gurgle
from hillside springs,*

*sheltering snails smaller
than a grain of rice. Birds
bicker in nearby mesquite
trees. A lizard scurries
along the white powdery
ground into shadows cast
by a clump of rare Ash
Meadows blazing star.*



A Rare Haven in the Desert

Ash Meadows National Wildlife Refuge is a haven for rare native wildlife and for people. In a world of dwindling natural areas, especially wetlands, the Refuge protects a unique piece of the Earth. Here you can escape the rush and blare of the city, admire the beauty of desert and wetlands, marvel at the variety of plant and animal life, and know it will be here for generations to come.

Ash Meadows National Wildlife Refuge was established June 18, 1984. Managed by the U.S. Fish and Wildlife Service, the Refuge protects threatened and endangered species, many of which occur nowhere else in the world. It encompasses over 23,000 acres of spring-fed wetlands and alkaline desert uplands. The name Ash Meadows refers to the abundance of ash trees once found in the area.

Yerba mansa at Crystal Springs
© John & Karen Hollingsworth

Endemic = found here and no where else



*Alkali mariposa
lily*

© Gina Glenne

*Threatened
Ash Meadows
naucorid (right)*

© Pete Rissler, USGS

Why Save Endangered Species?

*Threatened Ash
Meadows milkvetch*

© Shawn Goodchild,
FWS

Ash Meadows has the greatest concentration of endemic life in the United States and second greatest in all of North America. At least 25 endemic species have adapted to live in and around the waters of Ash Meadows.

Approximately 10,000 years ago, large lakes and rivers were common in southern Nevada. As the climate warmed, these waters began to dry up, recede, and separate. This left behind isolated species within and around small bodies of water.

Of these endemic species, five are listed as endangered and seven threatened with extinction. This is due to habitat destruction and competition with non-native species.



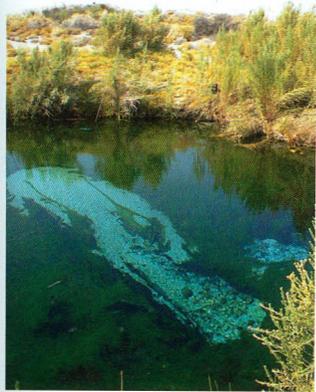
The purpose of the Endangered Species Act is to protect threatened and endangered species and to conserve them in the wild. Ash Meadows National Wildlife Refuge has the most threatened and endangered species of any National Wildlife Refuge.

Endangered means there is still time. When a species becomes endangered, it indicates something is wrong with the ecosystem. The measures we take to save endangered species help ensure the world we leave for our children is at least as healthy as the world our parents left for us.



Water

Water is the key natural resource that makes Ash Meadows a unique ecosystem in the dry Mojave Desert.



Fairbanks Spring
(above);
Crystal Spring
(below)

© John & Karen Hollingsworth

Where does it come from? Over 100 miles to the northeast, water enters a vast underground aquifer system. This water, also known as “fossil water”, takes thousands of years to move through the ground. A geological fault acts as an “underground dam” blocking the flow of water and forcing it to the surface into 30 seeps and springs.

Over 10,000 gallons per minute flow year round, most of which come from seven major springs.

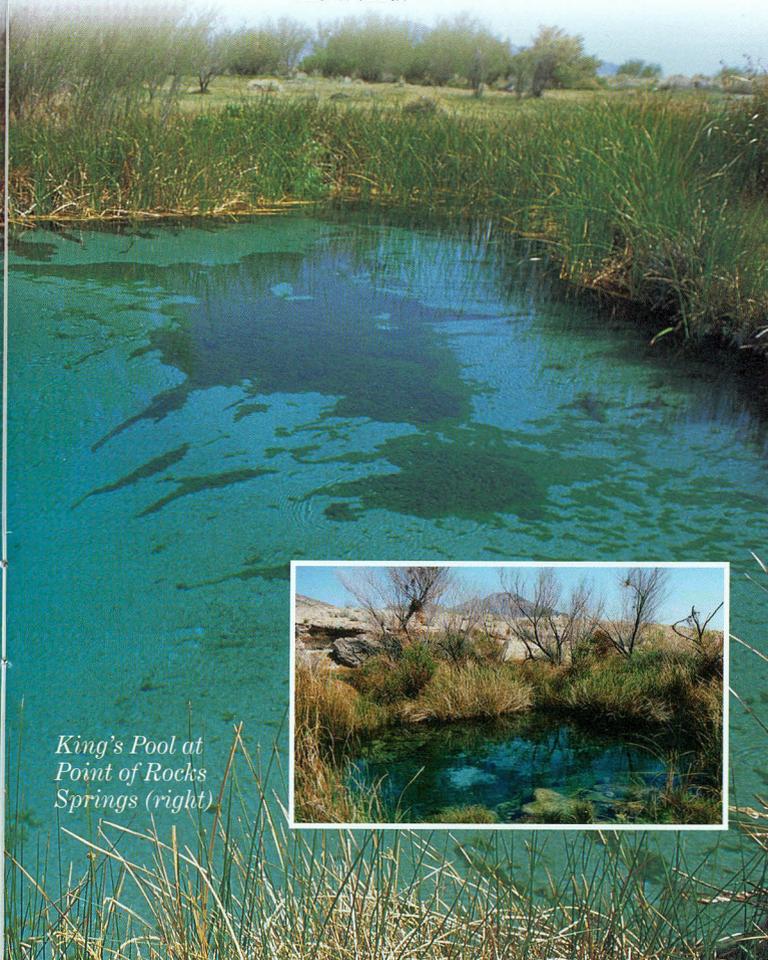
Habitats of the Refuge



Riparian area
© Beth St. George, FWS

Wetlands, springs, and small streams are scattered throughout the Refuge. Sandy dunes, rising up to 50 feet above the landscape, appear in the central portions. Mesquite and ash groves flourish near wetlands and stream channels. Saltbush dominates large portions of the Refuge in dry areas while alkali meadows are found closer to water. Creosote bush habitat occurs along the east and southeastern portions of the Refuge.

Because it is such a unique environment, Ash Meadows National Wildlife Refuge has been listed as a Wetland of International Importance with the Ramsar Convention, an international treaty of 154 countries. The goal of this convention is to conserve special wetlands throughout the world.



*King's Pool at
Point of Rocks
Springs (right)*



Wildlife on the Refuge

Wildlife Observation



As temperatures exceed 100° F, summer flowers such as this threatened spring-loving centaury blooms along the boardwalk.

©John and Karen Hollingsworth

The best seasons for wildlife viewing are spring and fall. In the heat of summer, many animals are active after dark. Some animals hibernate in the winter. Being patient, coming early in the day and quietly observing from a respectful distance will allow you to see more wildlife. Protect yourself and the homes of wildlife by watching where you step. Never put your hands or feet where you cannot see them, such as in crevices or dense brush.

Our boardwalks identify species, and interpret natural and cultural history of the Refuge.

Mammals



Blacktail jackrabbit

Antelope ground squirrel

Alden M. Johnson
© California Academy of Sciences

Watch for over 27 species of mammals such as blacktail jackrabbits and kangaroo rats. In the spring, baby desert cottontails hop along the boardwalk. These rabbits have adapted to handle the hot summers. Their light-colored fur keeps them cool, while their large ears help release heat, like a car's radiator.

In summer, antelope ground squirrels are often seen with their white tails up over their backs, acting like a sunshade to keep them cool. This unique desert animal's

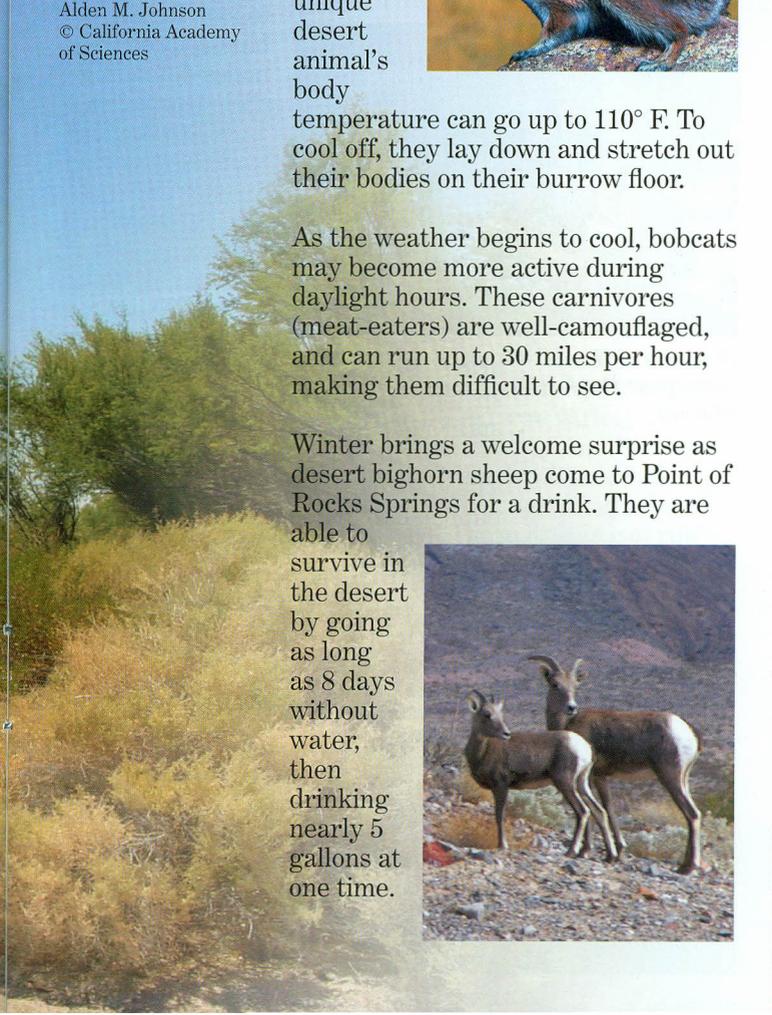
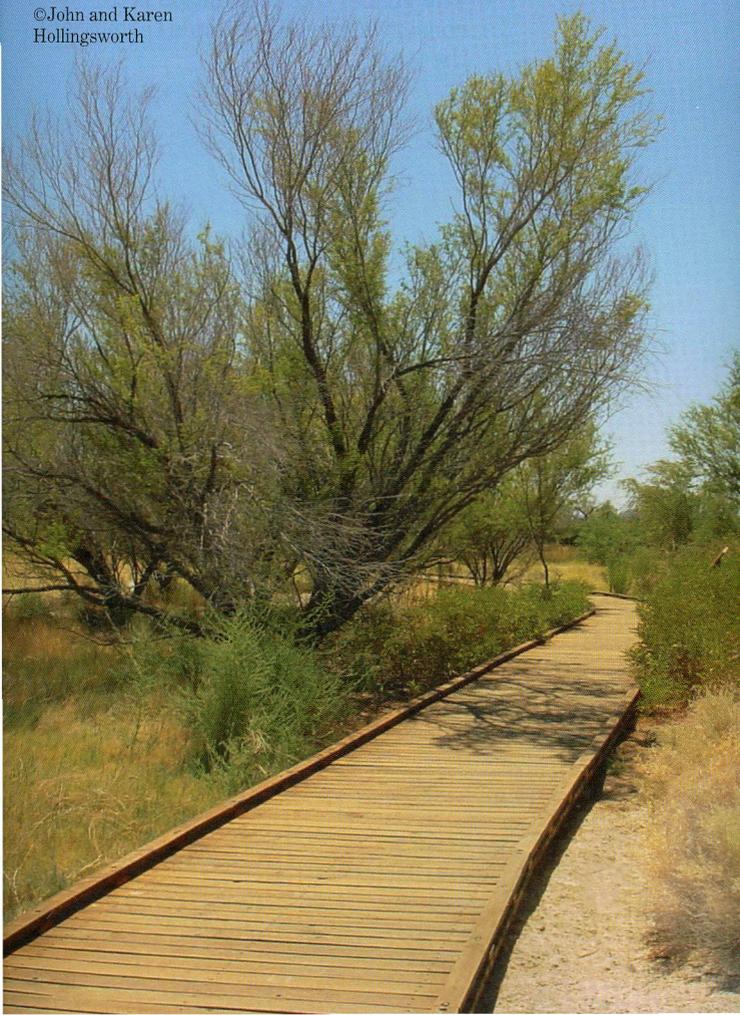
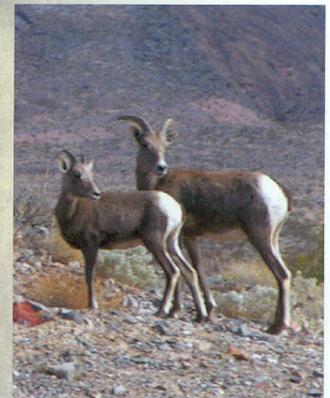


body

temperature can go up to 110° F. To cool off, they lay down and stretch out their bodies on their burrow floor.

As the weather begins to cool, bobcats may become more active during daylight hours. These carnivores (meat-eaters) are well-camouflaged, and can run up to 30 miles per hour, making them difficult to see.

Winter brings a welcome surprise as desert bighorn sheep come to Point of Rocks Springs for a drink. They are able to survive in the desert by going as long as 8 days without water, then drinking nearly 5 gallons at one time.





Endangered Ash Meadows Amargosa pupfish
© Gary A. Monroe

Native Fish

There are four native fish species found on the Refuge. The easiest fish to see is the endangered Ash Meadows Amargosa pupfish. Walk around King's Pool at Point of Rocks, to look for the blue-colored males defending their territories. They are larger than the greenish females and most colorful during the spring and summer breeding season. These tiny fish can

also be seen year-round at all major springs and streams such as Crystal and King's Pool.

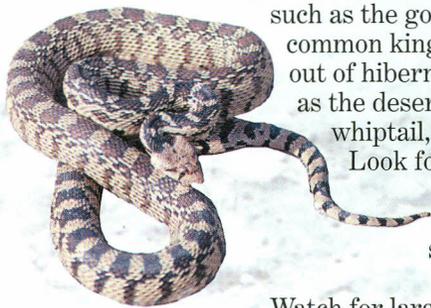
The endangered Warm Springs pupfish habitat is less than one square mile. These amazing omnivores (animals that eat both plant and animal material) can survive in an inch or less of water. They have adapted to live in water as warm as 90°F.

Unlike the pupfish, endangered Ash Meadows speckled dace like to live in faster and cooler streams. They can grow to almost four inches and may live up to four years.

Endangered Ash Meadows speckled dace



Reptiles and Amphibians



Gopher snake
© David St. George, FWS

Over twenty reptile and five amphibian species have been counted on Ash Meadows. In spring, snakes, such as the gopher snake and common kingsnake, are seen coming out of hibernation. Lizards, such as the desert spiny and western whiptail, also begin to emerge. Look for the most commonly seen reptile, the side-blotched lizard, sunning itself on rocks.

Watch for large chuckwalla lizards feeding on buds, flowers and fruits of a variety of desert plants. Chuckwallas, when alarmed, run into rock crevices and inflate their bodies by gulping air. This wedges them in place and makes it hard for a predator to capture them.



Chuckwalla
© David St. George, FWS



Side-blotched lizard
© Gina Glenne, FWS

During the heat of mid-summer, many reptiles and amphibians become nocturnal, but a large variety of lizards can still be seen on the Crystal Springs Interpretive Boardwalk. Watch for the fast sprinting zebra-tailed lizard. These lizards can run up to 18 miles per hour standing on just their two back feet. Please don't try to pick them up. They have adapted to make their tail break off to escape predators. By late fall, as temperatures drop to the 40s, larger lizards and snakes begin to hibernate.

Zebra-tailed lizard





Greater roadrunner

© R.D. Wilberforce, Cornell Laboratory of Ornithology

Birds

Ash Meadows is one of the last remaining oases in the Mojave Desert, frequented by a wide diversity of migratory birds. Over 239 different species of birds have been recorded on the refuge.

Birds are most visible during spring migration (April-May) and fall migration (mid-August-September). Look for



Bewick's wren

© Stan Pavlov,
Cornell Laboratory of
Ornithology

roadrunners and phainopepla at Refuge Headquarters and Point of Rocks.

A year-round resident, the topnotted Gambel's quail, is the most arid land-adapted quail. Quails are generally monogamous (one mate for life).

Their family group is usually two adults and up to 16 young. Watch for their covey (a large social group usually of 40 or more individuals) foraging for plants and sometimes insects in early morning or late afternoon.

Walk around the wetlands in the winter to see the largest variety of water birds. You can often see the brightly colored mountain bluebirds hovering in the drab winter landscape searching for insects.

Gambel's quail

© L. Page Brown,
Cornell Laboratory of
Ornithology

Plants and Flowers



Endangered Amargosa niterwort

© Gina Glenne, FWS

Along the roads in late spring, look for the bright yellow desert prince's plume (below). This plant, high in selenium, can poison animals grazing on its leaves. Native Americans boiled the plant to remove the selenium and used it as a spinach-like food.

© Gina Glenne, FWS

The average rainfall in Ash Meadows is three inches per year. In years of abundant rainfall, the Refuge may have a spectacular show of over 330 species of flowers and shrubs in bloom. The threatened Ash Meadows milkvetch and threatened Ash Meadows sunray begin flowering early in spring. Walk around the slopes of Point of Rocks to see some of our eight species of cacti.



Threatened Ash Meadows sunray

© Gina Glenne, FWS

The most common tree on the refuge is screwbean mesquite. In the hot summer months, animals and people use it as shade. The tree gets its name from the coiled or "screw" shaped pods found in bunches during summer. Native Americans cured the pods and ground them into flour.



© Beth St. George, FWS

How do the plants survive the heat? Many desert annuals avoid the heat and drought by surviving as seeds in the soil, often for decades, until favorable conditions occur. When the time is right they quickly sprout, flower and drop seed.



Humans Leave Their Mark

Early History

Native Americans lived in Ash Meadows for thousands of years, settling around spring pools and meadows. Families owned and managed mesquite groves to enhance the size and taste of the nutritious seed pods. For hundreds of years, Native Americans cultivated corn, beans, squash, and sunflowers in small fields irrigated with spring water. From their Ash

Meadows homes they traveled to the mountains to gather pinyon pine nuts, hunt mountain sheep, and exchange news with friends and relatives.

Many descendants of the prehistoric Ash Meadows Native Americans live today among the nearby Pahrump Southern Paiute and Timbisha Shoshone of Death Valley. The old archaeological sites, historic home locations, mesquite groves, and crystal pure water of Ash Meadows remain important elements of modern Paiute and Shoshone culture.

The Amargosa Valley is also rich in pioneer history. Many settlers were interested in the prospects of mining or farming.

Maintaining a healthy desert ecosystem



Replanting after wildfire.

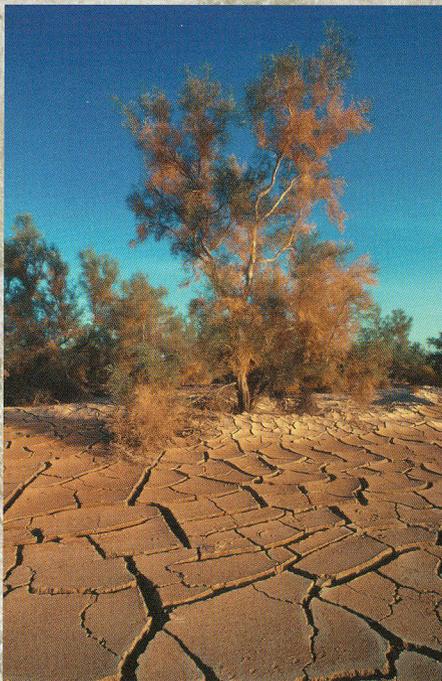
Humans used Ash Meadows for thousands of years with minimal impacts to the wildlife. Large-scale disturbance began in the early 1960's when Carson Slough was drained and mined for peat. It was once the largest wetland in Southern Nevada, teeming with ducks and wading birds, pupfish and speckled dace, snails, and insects.

Development continued in the 1970's and early 1980's as more streams were diverted and channelized. In the "blink" of evolutionary time, wetlands were drained, earth moved, and roads developed.

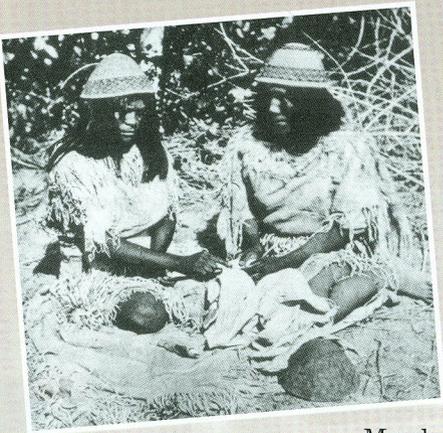
The sensitive endemic species barely survived this habitat destruction and today are continually threatened with new challenges. One of the biggest challenges for native species is competition with over 100 non-native plants and animals, such as crayfish, bass, and salt cedar trees, for the available habitat—food, water, shelter and space.

Non-native salt cedar trees use a lot of water and add salt to the soil, making it difficult for native plants to survive. The Refuge strives to replace salt cedar with natives.

© Jeff Foott



The Refuge has started the difficult process of reconstructing and restoring this unique habitat. We work to increase public knowledge and understanding through environmental education and wildlife-related recreational opportunities. Ash Meadows, with your help, will once again be a wetland flourishing with endemic plant and animal life.



Southern Paiute women, 1873
© Nevada Historical Society

Later History

Jack Longstreet settled in Ash Meadows from 1894 to 1899. This infamous prospector, gunman, and horse breeder used spring water to cool his stone cabin. The restored cabin stands near Longstreet Spring.



© Nevada Historical Society, ca. 1920



Devil's Hole*

The entire population of the Devil's Hole pupfish live in a water-filled cavern cut into a rocky hillside where they've been isolated for 10,000 to 20,000 years. The pupfish, which are less than one inch in length, primarily feed and spawn on a small rock shelf near the surface.

In 1952, Devil's Hole became part of Death Valley National Monument.



Endangered Devil's Hole pupfish
© Tom Baugh

Ten years later, the National Park Service began monitoring the water levels and by 1967 the Devil's Hole pupfish was officially listed as endangered. Water levels in Devil's Hole dropped in the late 1960's to early 1970's as Ash Meadows was intensively farmed and developed. In 1976, the U.S. Supreme Court ruled to limit groundwater pumping to guarantee enough water to cover part of the rock shelf needed by the fish.

By the early 1980's, the U.S. Fish and Wildlife Service listed two more fish as endangered and designated 21,000 acres around Devil's Hole essential habitat. This area protected the groundwater needed for the pupfish and other listed species to survive. By 1984, the Service purchased the nearby land and designated it Ash Meadows National Wildlife Refuge.

Amargosa Pupfish Station*

The Amargosa Pupfish Station was developed within Ash Meadows to provide a safe and secure environment for the Devil's Hole pupfish. The Amargosa Pupfish Station consists of two sites: School Springs and Point of Rocks. The School Springs site was established in 1980 and Point of Rocks in 1991 to provide "back up populations" should the species go extinct within its natural habitat, Devil's Hole.

** In order to protect pupfish and people, access is not allowed.*

Enjoying the Refuge

Hours

The Refuge is open daily from sunrise to sunset. Please contact the Refuge Headquarters for current information.

Refuge Access



All motorized vehicles and drivers must be properly licensed and are restricted to designated roads.

During wet fall and winter months, roads may be flooded. Some roads are unimproved and impassable for passenger cars. Please contact the Refuge Headquarters for current information.

Restrooms and Trash



Non-flush toilets and trash cans are provided outside the Refuge Headquarters. Littering is strictly prohibited. Please help us put litter in its place by taking it with you when you leave the Refuge.

Pets



Pets must be leashed at all times, except when used in association with legal hunts. During the hot summer months, please do not leave pets in vehicles; we suggest you leave them home. Please help protect our fragile soil and habitats by keeping pets out of the water and on the boardwalk.

Hunting



Hunting is permitted in designated areas subject to all applicable state, federal and Refuge regulations. Please refer to the hunting flyer or contact the Refuge Headquarters for more information. Only species listed on the flyer may be hunted.

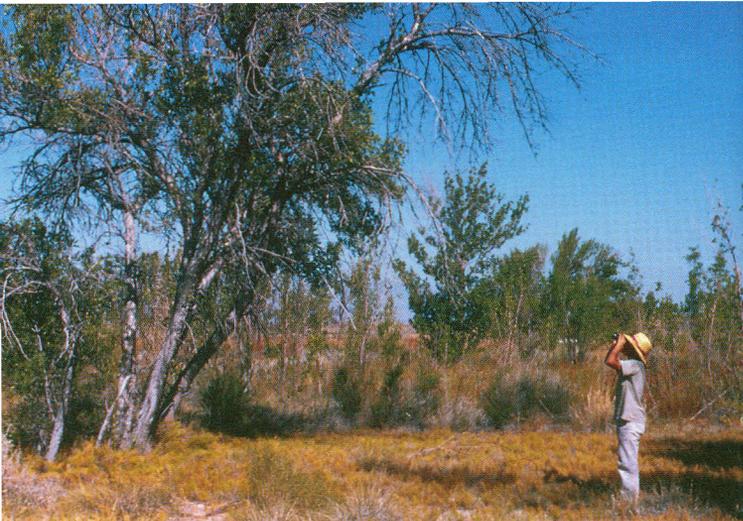
Picnicking



A small picnic facility is available at Refuge Headquarters and Point of Rocks.



Merriam's kangaroo rat
© Jeff Foott



© David St. George,

Boating



Only non-motorized boats or boats with electric motors are permitted on the Refuge, and only on Crystal and Peterson Reservoirs. Watercraft must be in compliance with all applicable state and federal rules. Help protect your boats and Nevada's waters by checking for aquatic hitchhikers, such as the quagga mussel. For more information, visit <http://100thmeridian.org>.



*Threatened
Ash Meadows
gumplant*

© Gina Glenne, FWS

Hiking



Year round hiking is permitted along designated refuge roads and trails. The boardwalks provide an up-close view of the springs, fish, and plants of Ash Meadows without disturbing the fragile habitat.



*Fall represents
change as the ash
and cottonwood
trees turn yellow.*

© Beth St. George, FWS

Regulations Protect Visitors

Fishing



Due to the presence of endangered fish, fishing is prohibited. Fish that are not native to the area compete with and/or eat our native endangered fish. Placing fish in the springs, streams, or other water on the Refuge is in violation of state and federal laws.

Swimming



Swimming in or entering spring pools and streams is strictly forbidden. The endangered fish rely upon algae for food and as a place to lay their eggs. Swimming destroys the fragile algae. Please help conserve this valuable habitat.

Camping & Fires



Camping and overnight parking are prohibited. The nearest public campgrounds are located in Death Valley National Park.

No open fires, wood cutting, or collecting permitted.

Animal and Plant Life, Artifacts



Disturbance of cultural resources of any kind is strictly prohibited. Artifacts, such as arrowheads, grinding stones and rock art, are protected under Federal law. Collecting or attempting to collect animals, plants or other natural objects is prohibited.

Firearms



Carrying, possessing or discharging firearms and/or explosives (including fireworks) is prohibited. Contact Refuge Headquarters for regulations regarding firearms during hunting.

OHVs



Operation of all Off-Highway Vehicles (OHVs) is prohibited on the refuge. To protect the fragile habitat, wildlife, and plants, please park in designated parking areas.

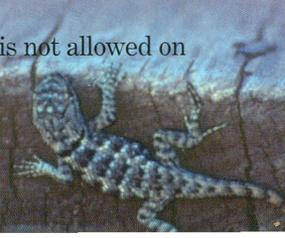
Horseback Riding



Horseback riding is not allowed on the Refuge.

*Desert
spiny lizard*

© David St. George,
FWS



Safety Tips Be Prepared

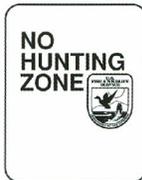
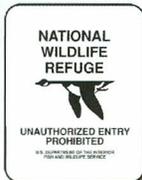
The desert is a harsh, unpredictable environment where conditions can be extreme! Few visitor facilities exist, cell phone coverage is very limited and water is not available...so be prepared! Don't travel or hike alone. Leave your travel plans with someone and carry a first-aid kit.

Protect yourself from the sun by wearing a hat, light-colored clothing and using sunscreen. Avoid extreme midday heat and always drink plenty of water — don't ration it! During the summer, a person can require at least one gallon of water per day.

Weather

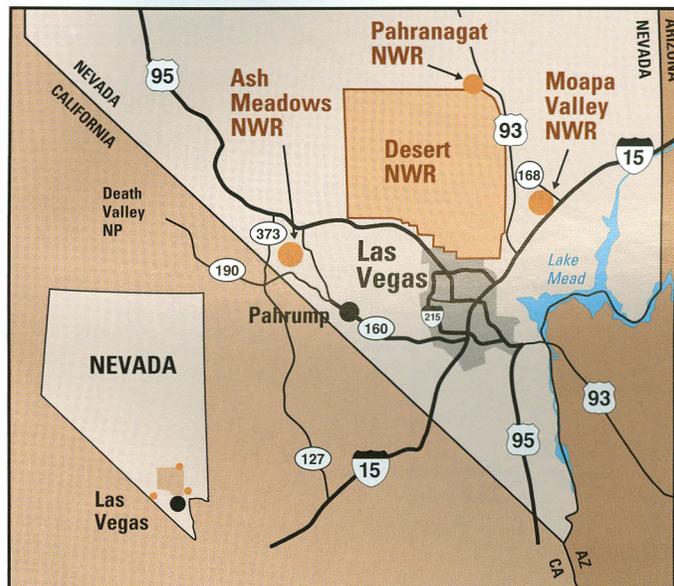
Summer temperatures regularly exceed 100° F (38° C), broken by occasional quick, severe thunderstorms. By mid-September the temperature will drop into the 90's. Winter temperatures are in the 60's with occasionally up to one inch of rain.

Signs Protect Visitors and Resources



Beavertail cactus
© Beth St. George, FWS

Visit Nearby Refuges



Desert National Wildlife Refuge



The largest refuge in the lower 48 states with over 1.6 million acres. Drive through scenic desert bighorn sheep habitat, get a glimpse of the endangered Pahrump poolfish or the many bird species at Corn Creek Field Station, hike in the backcountry, or spend a night camping under the stars. 702/879-6110

Moapa Valley National Wildlife Refuge



Warm water springs from the hillsides giving life to the Moapa Valley. Refuge staff and their partners work to restore habitat for the endangered Moapa dace. The Refuge is currently closed to the public until all safety hazards are removed. 707/879-6110

Pahrangat National Wildlife Refuge



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

© Dave Menke, FWS

Ash Meadows National Wildlife Refuge



Refuge Headquarters

— Primary Refuge Roads (gravel)

- - - Secondary Refuge Roads (call for conditions if wet)

▬ Refuge Boundary

□ Private Land

■ Death Valley National Park



To Crystal/NV 160
(Impassable during wet weather)

West Spring Meadows Road

Crystal Spring
Boardwalk

Devils
Hole

3 Miles to
NV 373/CA 127

Horseshoe Marsh

Crystal
Reservoir

Kings
Pool

Point of Rocks

Boardwalk/
Restroom (2007)

N

0 Miles 1
0 Kilometers 1.6

7 Miles to
Death Valley
Junction

Bell Vista Road

22 Miles to Pahrump

**Ash Meadows
National Wildlife Refuge
Refuge Manager
Ash Meadows NWR
HCR 70, Box 610Z
Amargosa Valley, NV 89020
775/372-5435**

**Nevada Relay Service
TTY 1 800/326 6868
Voice 1 800/326 6888**

**Federal Relay Service
TTY and Voice 1 800/877 8339**

<http://www.fws.gov/desertcomplex/ashmeadows>

**Visit the U.S. Fish & Wildlife Service
on the internet at
<http://www.fws.gov>**

**For Refuge information
1 800/344 WILD**

**This information is available in alternative format
upon request. Contact the refuge at 775/372 5435.**

**Visitors/persons with disabilities may request
reasonable accommodations by calling the
Refuge Manager.**

March 2007

