



## Hatching Fish in the Desert

Beneath the hottest, driest place in the Western Hemisphere is a relatively large ground water system which encompasses 15,800 square miles in southern Nevada and California. Devils Hole, located within the boundaries of Ash Meadows NWR, is a window into this vast aquifer system and is one of the few places where the water from this system is exposed to the surface. It is also home to one of the rarest fish in the world, the Devils Hole pupfish (*Cyprinodon diabolis*).

Based on spring and fall counts from the early 1970's to the mid-1990's, the Devils Hole pupfish population typically fluctuated between 100-300 in spring and 200-500 in fall. In April 2014, 92 of these inch-long iridescent blue fish were observed in Devils Hole, their only natural habitat. Devils Hole pupfish have "much to teach scientists about adaptation to adverse conditions," the Service's Nevada Fish and Wildlife Office website says. "It has adapted to survive in very warm water with very low oxygen content."

Construction of a new state-of-the-art facility known as the Ash Meadows Fish Conservation Facility was completed in 2013 to fulfill objectives identified in the Ash Meadows Recovery Plan. One of those objectives is to establish one or more "refuge" populations at the facility to reduce the likelihood of Devils Hole pupfish becoming an extinct species, which is a conservation strategy referred to as "spreading of risk." Another objective is to conduct research that aids in the conservation of threatened and endangered aquatic species in the greater Death Valley ecosystem, such as Devils Hole pupfish. The facility is complete with an office and a propagation room, as well as a 100,000 gallon refuge tank that emulates many of the unique habitat features of Devils Hole. The facility was paid for with Southern Nevada Land Management Act funds.

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"The Devils Hole pupfish is a species that indirectly protects many other endangered species and unique environments," says Darrick Weissenfluh, a U.S. Fish and Wildlife Service biologist who is leading a collaborative effort to establish a refuge population of the endangered fish at the Ash Meadows Fish Conservation Facility, located within Nevada's Ash Meadows National Wildlife Refuge.

Photo by Olin Feuerbacher

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In 2013 and for the first time in history, biologists collected Devils Hole pupfish eggs from Devils Hole and successfully hatched 33 larvae. Of those, 29 survived to adulthood. Those fish were recently release into the facility's refuge tank and numerous spawning events have been observed. Biologists expect to observe reproduction in the coming months when early life stage surveys (ELS) are implemented. The facility is not open to the public but visitors to Ash Meadows NWR will discover exhibits, including video footage, at the new Visitor Center when construction is completed.



Devils Hole has been managed by Death Valley National Park since 1952



## VOLUNTEER SPOTLIGHT

Here's to all volunteers, those dedicated people who believe in all work and no pay.

– Robert Orben.

It is summer time and it is HOT! Our volunteers usually head for the hills this time of year to escape the heat but this year we got lucky.

According to their friends and children, Paul and Oleta McDonald became slightly insane when they decided to spend the summer at Ash Meadows. What prompted them to do such a thing? It was strongly suggested by law enforcement but don't panic – they are good friends with our law enforcement officer who thought they would love it here and so far they do (so does Bear, the volunteer greeter and watch dog).

Paul and Oleta started volunteering for the US Forest Service as campground hosts on the Oregon coast, then spent three summers at Hart Mountain National Antelope Refuge in southeastern Oregon, followed by two winters at the Buenos Aires National Wildlife Refuge in Arizona and one winter at Imperial National Wildlife Refuge outside of Yuma, Arizona. So far they have logged over 13,000 hours of volunteer service. Here at Ash Meadows they help keep the visitor service open on weekends and holidays. Thank you!



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Michelle Hinds also decided to dedicate her time and energy to our refuge, and we really appreciate her help. She is a Nevada native, and a recent graduate of Johns Hopkins University with Master's Degree in Environmental Science & Policy. The majority of her career was spent as a

legislative liaison and legal researcher. Military orders required her and her husband, US Navy Chief, to move to Pacific Missile Range Kauai and she put her legal career on hold. Living on the island she realized the Hawaiian islands are considered the "endangered species capital of the world," with that she aspired to volunteer. She volunteered for the Surfrider Foundation, Save our Seas, NOAA, Hawaii DLNR Monk Seals Program and Hanalei National Wildlife Refuge.

Immediately upon relocating back to Nevada, she sought out her local wildlife refuge, Ash Meadows National Wildlife Refuge. She says, "Exploring Ash Meadows is so enlightening! It really is an oasis in the Mojave Desert. Since I've become a volunteer at Ash Meadows I've gleaned incredible knowledge and hands on experience like methods of proper abatement of invasive salt cedars and restoring the pupfish habitat that has become overwhelmed by introduced predators.

*"Exploring Ash Meadows is so enlightening! It really is an oasis in the Mojave Desert".*

A few weeks ago, I was invited to the Devils Hole Pupfish aquarium/ observation lab where Olin and Ambre, staff wildlife biologists, allowed me to tour the new facility. I am so delighted at this opportunity to learn and assist in the methods of saving this amazing fish. I'm proud to be a part of preserving a fish that is perhaps one of the most geographically isolated organisms in the world and highly adapted to a very unique environment that is an undertaking like no other to recreate. Again, that is why I am proud to assist all of the brilliant biologists. I look forward to the years ahead and observing the fruits of our labors".

***The future of Ash Meadows National Wildlife Refuge is in your hands!  
YOU can benefit wildlife habitat and help people working here.  
Individuals and groups of all ages are welcome.  
Scheduling is flexible. Call to become a volunteer today! 775-372-5435***

## A fond farewell

Please join us in wishing Sharon McKelvey the very best as she explores the wonderful world of retirement. As the refuge manager for ten years, Sharon was instrumental in making the refuge a haven for wildlife through her restoration initiatives. The staff in the visitor center receives compliments, almost daily, from visitors who are amazed by the beauty of this place and the amazing job that was done on our boardwalks.

*Sharon, thank you for your hard work, dedication to this refuge and the countless hours you spent revitalizing this desert oasis.*



# CREATURE FEATURES

Those funny, whacky and beautiful creatures that call Ash Meadows home have been especially photogenic this year.



The hoot of a Long-eared owl can sometimes be heard up to .7 miles away. The oldest on record was at least 12 years old, banded in New York and later found in Ontario, Canada (source: allaboutbirds.org)

The Leopard Lizard gets its name because of its dark spots and just like a leopard it is an ambush predator. It hides in the bush waiting for prey to come within range.



To defend themselves against predators, short-horned lizards can inflate their bodies up to twice their size, resembling a spiny balloon. If this doesn't work, they shoot blood from their eyes which can travel up to 3 ft. It is meant to confuse predators but also contains a chemical that is noxious to dogs, wolves and coyotes.

The refuge is open from Sunrise to Sunset every day  
Visitor Center Hours of Operation:  
Monday-Friday 8:00a.m. - 4:30p.m.  
Open holidays / weekends when staff or volunteers  
available

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