

By Mike Oetker and Nicole Osborn

# Living with Drought and Fire



Jeremy Voeltz/USFWS

*The damage done, a rainbow arcs over burnt-out woods in the Apache Sitgreaves National Forest. The Wallow fire was the largest fire to ever burn in Arizona.*

Here in the Southwest, the havoc that prolonged drought can cause to both people and wildlife can be catastrophic. Add uncontrolled fires to the mix, and things really get out of hand. The summer of 2011 will long be remembered as the year of droughts and fires—massive wildfires. Few people did not hear about the fires that swept across Arizona, New Mexico, Texas, and Oklahoma in 2011; they caused devastating damage as they burned. For the people who live right here in the Southwest, the problem was literally right outside our doors.

Standing on our front porches, we could smell the smoke sometimes coming from hundreds of miles away, but as if it was right in our own backyards. Ash billowed more than 20,000 feet into the sky, looking more like thunderheads than smoke.

It started in Texas. The spring of 2011 was the driest on record. More than 1.6 million acres burned in Texas this year. As summer progressed, wildfires broke out in New Mexico and Arizona. The single largest wildfires recorded in Arizona and New Mexico history occurred this

year. Arizona's Wallow fire that crept into New Mexico reached nearly 540,000 acres. The Los Conchas fire reached more than 156,000 acres. This year alone, wildfires burned more than four million acres in four states.

As the problem of drought magnified with every new fire, many wondered what would happen to the fish and wildlife—especially those that have been labeled as threatened or endangered by the U.S. Fish and Wildlife Service because of their already dwindled populations.



Shauna Hedwall/USFWS

*The Little Colorado spinedace is listed as “threatened” under the Endangered Species Act. This fish was pulled from Rudd Creek in east central Arizona.*

The task at hand can seem so daunting. Luckily for anglers and conservationists who care about fish, we were already in action. Biologists plan and train for management situations involving drought and fire; we are well equipped to handle these adversities. The dangers for threatened and endangered fish are no doubt daunting, but for the dedicated men and women working in conservation, what to do in an emergency is almost second-nature.

Case in point: the Mimbres River. The Mimbres rises in the pine-studded Black Range and Mogollon Mountains of southwestern New

Mexico. It’s a place naturally arid. Throw drought in the mix, and the native fish suffer. The Mimbres is home to Chihuahua chub, a deep-bodied minnow that lives nowhere else in the U.S. With the Mimbres River drying, the Fisheries Program biologists along with the U.S. Forest Service and the New Mexico Department of Game and Fish staff collected Chihuahua chub and moved them to the Dexter National Fish Hatchery and Technology Center in Dexter, New Mexico. Biologists found chubs within two boulder-outcrop pools, in water less than three feet and evaporating fast. The chubs are doing well since their arrival at Dexter. There they will remain in

quarantine until the drought is over or they may be added to the refuge population at the hatchery to boost the genetics of captive fish already held there.

Wildfires can impact aquatic species in several ways, but the most severe impacts are after the fire is contained and snuffed out. Rain and wind push ash into the streams smothering fish and aquatic insects. The summer monsoon rains in Arizona and New Mexico can be a blessing or a curse. The much needed rain, if light, can help sprout seedlings and suppress fires. Heavy downpours devastate fish habitat with churning slugs of ash slurry pouring down stream beds.



Such was the case with New Mexico's Las Conchas fire, and Arizona's Wallow fire.

In times like these, excellent working relationships become very crucial to getting work done. Biologists from state, tribal, and federal agencies have been cooperating at all levels to protect a number of sensitive species and ensure their survival. After the Wallow fire in Arizona, biologists rescued the threatened Apache trout, loach minnow, and the Little Colorado spinedace. Roundtail chub, Three Forks Springsnail, bluehead sucker, Little Colorado sucker, and California floater mussel—all rare species—were salvaged from the wild. The threatened Chiricahua leopard frog was also a rescue priority, but none were found.

In New Mexico, several endangered species were rescued from the distress of drought including the endangered Pecos bluntnose shiner, the Rio Grande silvery minnow, and of course, Chihuahua chub. The Rio Grande cutthroat trout, a candidate for listing under the Endangered Species Act, will also likely be salvaged from the affects of the Las Conchas and Pacheco wildfires. Because roads do not always go to the lakes and rivers where these native fish dwell, especially in wilderness areas, some fish have had to be carried out on mules, or sometimes even helicopter to National Fish Hatcheries that would become their temporary homes. This was the case for the threatened Gila chub and the headwater chub, a candidate for threatened status. Biologists took mules into the Gila Wilderness to collect these rare species.

The National Fish Hatchery and Technology Center in San Marcos, Texas has recently provided a refuge for seven threatened or endangered species: the Texas blind salamander; San Marcos salamander; fountain darter; Texas wild-rice; Comal Springs riffle beetle; Comal Springs dryopid beetle; and Peck's cave

amphipod, all to ensure the species' survival under the most dramatic drought conditions recorded. The Edwards Aquifer is one of the most productive artesian aquifers in the world. Located on Edwards Plateau, it flows through 180 miles of porous limestone and discharges about 900,000 acre-feet of water a year. It is the primary source of drinking water for more than two million people, including the seventh largest city in the nation, San Antonio. It serves the domestic, agricultural, industrial, and recreational needs of the area. The Edwards Aquifer is also the source of the two largest springs remaining in Texas: Comal and San Marcos springs. These waters provide habitat for listed species and provide fresh water inflows to the rivers that support the bays and estuaries on the Gulf Coast, including the wintering grounds for the last remaining wild flock of whooping cranes, found at the Aransas National Wildlife Refuge.

In Texas and Oklahoma, state and federal agency biologists have rescued peppered chub, Arkansas River shiner, and sharpnose shiner

from drying rivers. Because of past droughts and natural or man-made disasters, we already hold a number of species in captivity—just in case. The Big Bend gambusia lives only in one location in the wild, Big Bend National Park, but we keep it at Dexter National Fish Hatchery, too. The Clear Creek gambusia lives only in one privately owned pond, and we keep it in captivity at Inks Dam National Fish Hatchery.

Let us all hope that we do not have another year like this one, with both drought and incredible fire danger. But if we ever find ourselves in this situation again, we have the benefit of experience and know-how behind us. ♦

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*U.S. Fish and Wildlife Service biologists take threatened Little Colorado spinedace from Arizona's Rudd Creek in the face of wildfire.*

Shaula Hedwall/USFWS