

Burrowing Owls Rescue

How Burrowing Owls Were Rescued and Safely Relocated to Sites in Downtown Phoenix

It amazes me how few people have seen burrowing owls. When I talk about them, their usual response is "but owls are only out at night!" Well, these animated little critters actually spend a good deal of their time outside their burrows during the day, especially in the early morning, and late in the day just before the sun sets. The next response I usually get is "well, I don't get out to wilderness areas very often." How about downtown Phoenix? Yes, there are burrowing owls in downtown Phoenix at the Rio Salado Habitation Restoration Area which is accessible from a number of trailheads from 7th Ave to 16th St just south of I-17 on the Salt River. You might ask "why are there burrowing owls at Rio Salado in the middle of downtown Phoenix?" Herein lies a story of how some very dedicated people and organizations played a key role not only in saving the lives of these oh so cute birds but in providing them new homes and a new neighborhood to live in.



Burrowing owls range in height from 7.5 to 10 inches tall, so they're certainly not Arizona's largest (or smallest) owl. As their name implies, they live underground in burrows typically dug originally by small mammals such as prairie dogs, California ground squirrels or foxes. They are opportunistic when it comes to diet. If it moves, then it's a candidate to be eaten. Their typical diet includes beetles, grasshoppers, spiders, small birds, amphibians, reptiles and small mammals. They have been known to successfully hunt mourning doves and cotton-tailed rabbits.

Burrowing owls prefer habitat that is open, with low ground cover. This type of habitat can be found in open grasslands as well as agricultural areas. Historically, the Phoenix area hadn't been well suited for burrowing owls, but with the advent of the Central Arizona Project, it turned into highly desirable habitat. The canal that brought water to support local agriculture also brought small burrowing mammals, and lots of insects and other suitable food sources.



However, the Phoenix area turned into a trap for burrowing owls, as it became one of the fastest growing metropolitan areas in the country, consuming vast tracts of agricultural land and producing sprawling suburbs. During its peak building boom, between 2005 and 2007, several square miles of agricultural land was converted to housing per month. This was one of THE largest land use changes in the western United States.

So why did this cause Phoenix to become a trap for burrowing owls? They had arrived due to the abundant agricultural land, and an available population of burrowing mammals to create their homes, along with plenty of food sources. When the agricultural land was developed into housing however, the burrowing owls' homes were bulldozed over, sometimes burying them in the process. If the owls somehow escaped the bulldozers, they still lost their homes and had to find new ones, and those in turn had the potential for development into housing in the near future.



What can be done to help out these lovable creatures with the big yellow eyes that seem to stare right through you? This problem is not limited to Phoenix or Arizona. This problem exists in most of the western states as well as Mexico and Canada. Different regions have tried various solutions, most with limited success. California has a large number of burrowing owl conservancy groups working on the problem. Unfortunately for California however, due to its bureaucracy, gaining the permits necessary to capture and relocate the owls to land suitable for their habitat is monumental. Most of California's efforts have been centered on natural burrows, which means not only finding suitable land, but ensuring there are sufficient numbers of burrowing mammals to provide homes for the owls. Canada is in dire straits; it's losing its burrowing owls at an alarming rate. In British Columbia the owls are completely gone and efforts have refocused to captive breeding to try reintroduction.

Arizona has taken a different approach. First and foremost, they have an organization called Wild At Heart that has been rescuing and rehabilitating raptors statewide since its inception in the early 1990s. Wild At Heart has committed to capturing owls found on land scheduled for development, and then providing temporary homes and food for the owls for up to nine months until new burrows can be built. Rather than relying on burrowing mammals to provide sufficient numbers of burrows, Wild At Heart, and in particular Greg Clark, has opted to provide artificial burrows for these owls.

When Clark first presented his ideas at some of the owl conservation meetings, he was met with skepticism. The plan was not deemed feasible. It would be too expensive. The burrows wouldn't last. Clark is a volunteer at Wild At Heart, but during the week, he's employed as an engineer. For those of you not familiar with the engineering mindset, it is basically "any problem can be solved" and this is exactly the mindset that he used to attack this problem. First, he developed an artificial burrow to prove not only that it could be done, but that the owls would live in them. The next step in the engineering process is to increase quality, which in this case meant hardening the entrance to protect against predators' attempts to dig into the burrow. The third step in the engineering process is to reduce the cost to a point that it is reasonable on an industrial scale – which turned out to be between \$25 to \$35 per burrow. The process of making all of this real is complicated. All the materials have to be prepared in advance, the tools organized, and the holes dug in advance. Untrained volunteers show up, get trained/educated, put 100 burrows in place, are thanked for their efforts, and go home and later a backhoe carefully buries the burrows. Voila, burrowing owl condos.

So now let's return to the subject of burrowing owls in downtown Phoenix. At the national level, Toyota sponsored a grant called Together Green in coordination with the National Audubon Society. The goals of the grant were conservation, and engaging a diverse audience. Wild At Heart approached the Audubon Center at the Rio Salado Habitat Restoration Area with a plan to safely trap burrowing owls in harm's way and move them to Wild At Heart's facility for temporary housing. They would work with volunteers to construct artificial burrows there. Cathy Wise at Audubon, along with Greg Clark from Wild At Heart, in cooperation with the City of Phoenix (which owns most of the land at the Rio Salado Habitat Restoration Area) set out to develop artificial burrow habitats for the owls at five distinct locations within the boundaries of Rio Salado. No one knew whether Rio Salado would be an attractive site for the burrowing owls as it is located right in the heart of downtown Phoenix. It turned out that there were already a small number of burrowing owls near one of the proposed sites in Rio Salado, so the general habitat area was deemed suitable.

The whole endeavor took the cooperation of multiple organizations/agencies and each one brought something special to the problem. Toyota provided the funding, the City of Phoenix provided the land, Wild At Heart provided the capture, temporary housing and the artificial burrow knowhow. Audubon's key role was engaging with the public. As Cathy Wise stated, "this was a great [public] outreach opportunity". As Cathy found out, most volunteers "never knew what a burrowing owl was", so there was a real need for education of the public. So Audubon hosted a poster contest, working closely with the Phoenix Center for the Arts. Fifty entry posters were voted for on Facebook and the favorites were made into notecards (available at the Sonoran Audubon gift shop).

The night before the first gathering of volunteers to construct the artificial burrows, Wise fretted "are we doing the right thing?" Were the birds going to be ok? The next day, Clark, in his practical way, told Cathy "They fly... If they feel threatened, if things aren't right, they'll fly away".

That first day early in 2013, 200 volunteers showed up to help. They were expecting at most 50. Well, they learned their lesson for the next session, to cap the volunteers at 50. Nonetheless, Wise and company put everyone to work and they installed the first set of artificial burrows. Once the burrows were completed, tents were made to cover the new burrow complex and the owls were then placed inside the tents for 30 days. They were fed on a daily basis thru a slot in the tent, helping to minimize human contact. At the end of the 30 days, the tent was removed and the owls either stayed or left. As Cathy Wise stated "the important thing is that they were alive to make that choice".

As of late 2017, Rio Salado Habitat Restoration Area has had over 1000 volunteers help to create 253 artificial burrows at five sites. Over 100 burrowing owls were captured and later released to the Rio Salado artificial burrows.



Everyone involved, and even those outside the project, deemed the effort a success. But how do you measure success? Clark's pragmatic answer was "the owls are alive", meaning that if no action had been taken, the owls probably would have died.

Wise wasn't not sure if the owls would stay at Rio Salado. They were banded at Wild At Heart and all five of the Rio Salado sites have stayed occupied, but not necessarily all the burrows. Part of the strategy employed by Clark was to provide more burrows than necessary so that even if the owls were not actively using a burrow to live in, they had a place to escape to if threatened.

To obtain more scientific data, some burrows were fitted with cameras. They discovered there were a lot of mated pairs and the expected resulting eggs, but not a whole lot of young. While they do not have answers to this question yet, the US Fish & Wildlife Service has helped to provide funding for New Mexico State University to study Rio Salado and three other locations to gather data on the artificial burrow population. Dejeanne Doublet, a graduate student from NMSU, is finishing up the first of what is to be a two year project studying the owls. She has fitted some of the owls with tiny transmitters that she and her assistant Jenohn Wrieden track with a telemetry antenna to determine if the owls are staying or leaving the sites and the survival rate of the adult owls. They gather and analyze data regarding nest initiation, number of eggs being laid and hatchlings produced as well as the number of owls that actually leave the nest (fledge).

It's still very early in the study, but some preliminary findings are interesting. Not only do the artificial burrows house the rescued owls and their offspring, but also they also provide shelter for what are called "recruited" owls, local owls that have found the burrows and moved in. They're also finding that

at Rio Salado, although owls may lay 8-12 eggs, they are only getting 1-3 fledglings while studies of burrowing owls in natural habitats with similar egg batches will yield 5-7 fledglings. No conclusions have been reached yet as to the cause of this disparity. Predation is the number one suspect with evidence of coyotes near the burrows and lizards and snakes in the area. Could stress from the relocation be another factor?

I'm a wildlife photographer, which also means an amateur birder. I'd felt that there's so much knowledge about bird species, we must know almost everything there is to know. As I researched this article, I was surprised to learn how much we do NOT know. While many burrowing owls migrate, not all do. The farther north burrowing owls live (e.g., Canada), the farther south they migrate (e.g., Mexico). No one knows why. Making researchers' studies more difficult is the fact that once a burrowing owl reaches a year of age, it's virtually indistinguishable from an adult owl. If they spot an unbanded bird, it could be an offspring of one of the mated pairs or a recruited owl.

So what's next for Cathy Wise and Greg Clark? The Rio Salado site is pretty much maxed out, so it's on to other sites in Laveen, San Tan and Maricopa. These satellite sites, as Wise calls them, offer an interesting challenge as volunteers will have to travel further to help. To address this issue, there will be an owl outreach program starting this fall. Classroom priority will be given to the Laveen and Maricopa sites; they're the next in line to receive burrowing owls from Wild At Heart.

If you're interested in learning more about burrowing owls, come on down to the Rio Salado Habitat Restoration Area and walk the trails. There are interpretive signs that explain how big these little guys are, what they eat and why they are in trouble. And of course there are the burrows and owls themselves. Be wary, as they are so cute, they will steal your heart. If you wish to volunteer, contact Cathy at cwise@audubon.org.

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