Project Perch's mission is to protect and nurture the Burrowing Owl in SE Florida.
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Project Perch's BuOw Blog 21 **Friday, November 19, 2014**

The Year the Burrows Collapsed

School returned in the fall of 2013 and the Prolific Pair's burrow had collapsed. It was an artificial burrow and the grass sunk right behind the pipe. We assumed it was the mower. We weren't sure if it was a total collapse and thought maybe the burrow could still be used or repaired by the owls. Luckily, right before school started we had moved another artificial burrow nearby from another location where it had never been used. So the Prolific Pair moved there. They excavated a nesting chamber in the new burrow, laid eggs and raised owlets. Father owl would hang out often in the entrance of the old collapsed burrow, especially once the owlets were older and space was at a premium.

In the winter, another school called with a collapsed burrow and this time it was definitely the mower. This burrow was a large natural burrow right along the fence line and the tire had not only collapsed a good section of the tunnel but the nesting chamber as well. The owls built another burrow in the corner of a drainage ditch so it was quick to flood. In April we rebuilt their original burrow with an artificial pipe. The owls checked it out but would not move back home. They would not have babies that nesting season. There were also no owlets the year before and we wondered if the burrow had suffered a partial collapse then and we didn't notice until the mower's tire completely destroyed it.

At the end of the school year, a third school called with another collapse; we couldn't believe it. This natural burrow was in a sandy area. Luckily the owls had already nested and their owlets were fledged. So even though the burrow suffered at least a partial collapse, the owls and owlets weren't inside and weren't totally dependent on it and so they dispersed from the burrow. By the time school returned, the owls had built a new burrow out on the athletic field.

Burrow Collapse: A Leading Cause of Nesting Failures

We knew that burrow collapse was a cause of nesting failure, but why were we seeing so many this year? We debated that it was because we were monitoring more owl burrows. Owl burrows had always been collapsing at this rate, but we just weren't witness to it.

When we built artificial burrows, Dr. Mealey taught us first to always look for high ground. Burrow flooding was the major concern and in his study it was the "primary reason for known nesting failures" at 23%.[1] When the cam owls' burrow flooded for 3 hours and they lost their first nestlings to Tropical Storm Andrea we learned just how important it was for the nesting chamber to be on high ground (BuOw Blog 4). In Dr. Mealey's study, the second cause of nesting failures were burrow collapses at 18%, primarily due to cow trampling.[1] The school owls don't have to worry about cows, but they do need to worry about heavy lawn mowers. In Millsap and Bear's study of the Cape Coral owls, the leading causes of nest failure were nest destruction during construction, harassment largely by school age children, flooding and mowing was fourth on the list.[2]

For years we had been advising people to mow the lawn and to not stop mowing around the owls. If the grass isn't maintained, the owls lose visibility and will sometimes abandon. We had seen several examples of this. The schools had put up a couple of small chain link fences around owl burrows that prevented lawn maintenance. Once overgrown the owls moved outside of the fence and out of the tall grass. We had also seen small temporary fences that prevented lawn care on the interior and again the owls moved their burrow entrances to be on the outside of the fence in the short grass. Sometimes the owls could make a path through the high grass and stayed and sometimes they abandoned. We had seen correspondence from the Florida Fish and Wildlife Commission that focused on the importance of continuing regular lawn care and stressed that the owls do fine in a mowed environment. We had also visited a lot of the Broward County parks with owls that were living in a heavily manicured landscape.

When we installed artificial burrows, which are 6" PVC pipes that are 3-4 feet long, we would talk about how they would protect the owls from burrow collapse from mowers and be safer for the owls going forward, but the pipe is just a starter burrow and the owls have to dig their own nesting chambers. We installed several artificial burrows at schools and parks. We had been watching the artificial burrows and neighboring natural burrows and the owls seemed to be doing well. Then the Cam Owls had their nestlings and Dr. Mealey advised that the burrow be hand trimmed until the nestlings were fledged. We had been hand trimming the burrow, but had never before stopped the school's regular lawn care and that was not easy to do, but he was adamant. We needed to keep the mowers away and the owlets safe. So we stopped the lawn care for both the Cam Owls and Prolific Pair for about 6 weeks or until the owlets were fledged. Once fledged, the owlets would flee the area with their parents before the mower arrived and so they would be safe if the mower collapsed the burrow.

Starter Burrows No More! Owls Need a Safe Nesting Chamber Too

The owl cam also allowed us to watch lawn care up close. It is not the quick couple of passes that we thought. Typical mows included 3-5 passes of the mower. On one occasion the mower went over the burrow 9 times and on another visit the mower sat right behind the burrow while the lawn guys talked. We were getting a real education about commercial lawn mowing, how to really protect owlets and now with all of these collapsed burrows, we started to rethink the design of our artificial burrows. The owls needed not only a safe tunnel, but more importantly a safe nesting chamber. That summer Ernest Leupin joined our team and he had built artificial burrows in Canada out of 6" perforated pipe and a 5 gallon bucket as the nesting chamber and he agreed a safe nesting chamber was paramount. So we changed our design to include an irrigation control valve box on the end, a really safe nesting chamber.


Artificial Burrow with Industrial Control Valve and Ernest's Perforated Pipe and Bucket Burrow

Repairing the Collapsed Burrows

In August we went back to the first two schools and added new nesting chambers to the end of their artificial burrows, so they would both have a complete burrow in time for the next nesting season. At the first school, the Prolific Pair are still in the other burrow. Although they checked out the repaired burrow and new nesting chamber, they have not moved back there, but father owl still hangs out in it from time to time. At the second school, the owls moved into an older empty burrow along the sidewalk. They visit the drain burrow regularly and checked out the repaired burrow but haven't been back to it. The third school had been planning a burrow project already, so in early December we added 4 new burrows with nesting chambers to their old habitat. Ernest used his design for this project and one of the burrows has an entrance that is very similar to their old burrow. Only time will tell if any of the owls will return to any of the repaired burrows. If owls have a memory and avoid those burrows, we may have to wait for younger owls to move in.

The burrow that collapsed on the left and one of the new burrows on the right.

Another Collapsed Burrow

I was in the process of trying to get this BuOw Blog published when the fourth school called in. It was a middle school that wanted to help a pair of owls nesting in the long jump at their neighboring high school. The owl's new burrow kept getting disturbed. The owls used to nest nearby, behind a fence, where they were protected from the student traffic on the athletic fields; but when their old burrow was examined, it was collapsed. The owls were forced to move. Right next door was a recently sanded long jump pit and there is nowhere more attractive to a digging owl than that. We would have to "passively" attract them away from that and so we had our work cut out for us.

Sources:

[1] Mealey, Brian. 1997. Reproductive Ecology of the Burrowing Owls, Speotyto Cunicularia Floridana, in Dade and Broward Counties, Florida. Falcon Batchelor Bird of Prey Bird of Prey Center, Miami Museum of Science, Florida. http://www.instwildlifesciences.org/Mealey.BUOW1997.pdf

[2] Millsap, Brian and Cindy Bear. January, 2000. Density and Reproduction of Burrowing Owls along an Urban Development Gradient. The Journal of Wildlife Management, Vol 64, No 1, pp. 33-41.