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Project Perch's BuOw Blog 7 **Friday, August 2, 2013**

Old Florida's Burrowing Owl Colonies

Burrowing owls are considered colonial nesters. In the 1890s, colonies of 200 to 300 Burrowing owls were described on the Kissimmee Prairie.[1] Here are some of the first descriptions of the Florida burrowing owls published by the Smithsonian in the Bent Life Series:

> "Samuel N. Rhodes (1892) found a large colony in soil that had previously been very wet, "a continuous colony, three miles long, of breeding Owls. The retreating waters of the adjoining slough had left a margin of flat, grass-grown sand, of varying width, between the swamp and the saw palmettos, and extending indefinitely in the direction of the stream. This formed the breeding ground of several hundred pairs of Owls."" [2]

At the turn of the century, they were already documenting the effects of habitat destruction and human interference on the Burrowing owl colonies in Florida:

> "Probably no such large colonies as that referred to above exist today. W.J. Hoxie wrote to me of visiting a large deserted colony on the St John's Prairie in 1893, where the remains of the old town were strikingly apparent for miles in groups of from six to twenty on all sides…"[2]
>
> Mr. Pennock says: "On but one occasion did I find a close community: then there were six or eight pairs nesting on a restricted tract not exceeding four or five acres…"[2]
>
> "Most of the burrows that I have seen have been widely separated, single nests; but once, while hunting with Mr. Pennock in Charlotte County, we found five pairs of owls nesting within the space of a few acres. This was on March 5, 1925…"[2]

The Bent Life Series included a section on enemies and it closed with this:

> "Mr. Hoxie tells me that it has been quite a common practice for the cowboys to shoot these owls as being detrimental to the cattle business…, but sad to relate, any wild creature that interferes in the slightest degree with man's interests has to be sacrificed."[2]

The Burrowing owls have been losing their habitat and their lives to man for a long time now.

Bowen's 1999 Census and Mainland Populations of Burrowing Owls in South Florida

Those large colonies are long gone now. By the time Pam Bowen did her statewide census in 1999, Burrowing owls were spottily distributed in the panhandle, northern and central Florida.[3] The largest number of owls recorded in the census were all in southern Florida, southeast or southwest.[3] She described a "mainland" population as a colony of 30 or more owls and she found only 8 of them, all in southern Florida. The three colonies she found in Broward County were as follows: The Cooper City & Davie & Pembroke Pines Area (189 owls), Ft Lauderdale Executive Airport (77 owls) and the Pompano Beach Airpark (63 owls).[3] The Burrowing owls we are watching are just east of the largest colony found in Broward County.

The Benefits of Colonial Nesting

According to Gill's Ornithology text, about 13% of bird species, including most seabirds, nest in colonies.[4] Colonial nesting evolved in response to a combination of two environmental conditions: (1) a shortage of nesting sites that are safe from predators and (2) abundant or unpredictable food that is distant from safe nest sites.[4] Gill's section on Colonial nesting documents the following advantages and disadvantages:

Advantages:

- Individuals are safer in a colony
- Colonial birds detect predators more quickly than small groups or pairs
- Colonial birds can drive predators from the vicinity of the nesting area
- Safer central nests promote dense centralized packing even with ample space[4]

Disadvantages:

- Colonial nesting leads to increased competition for nesting sites and stealing of nest materials
- There is increased competition for mates and increased physical interference
- Large groups may actually attract predators, especially avian ones[4]

Gill sums it up by saying the advantages of colonial nesting outweigh such disadvantages.[4]

Loose Colonies of Florida Burrowing Owls

Today, most references describe the Florida Burrowing owl as nesting in single pairs, familial groups or "loose colonies". A loose colony is described as usually from 4 to 10 pairs; however larger colonies have been documented.[5] Florida Fish and Wildlife describes a loose colony as two or more families. As semi-colonial raptors, colony size is indicative of habitat quality. Colony size is also positively correlated with annual site reuse by breeding Burrowing owls; larger colonies (those with more than five nesting pairs) are more likely to persist over time, than colonies containing fewer pairs or single nesting pairs.[6]

The Western Burrowing owl relies on the Prairie dog and other burrowing animals for burrows; so there has been considerable work done on the relationship between them. Western Burrowing owls usually breed and do best in healthy Prairie dog towns and so again, a lot of research has been done on both of these colonial nesters and the benefits they each get from living communally. Here in Florida it is different; the Florida Burrowing owl nests in colonies but digs its own burrow and is not reliant on any other animal for the burrow.

Bowen talked about the Florida Burrowing owl reusing burrows; and that successful burrows were more likely to be reused and reused burrows were more successful.[3] Bowen also discussed that Florida Burrowing owls almost always have multiple burrows, a main burrow and satellite burrows. They prefer nesting in areas with a high density of burrows and hypotheses suggest multiple burrows protect owls from avian predators or provide escape burrows for young.[7] Like

the bald eagle, who also constructs alternate nests, multiple burrows may provide an alternate nest site in the event a burrow is destroyed.[8] So there are several potential advantages to having multiple burrows around.

Before 2010 - A Single Breeding Pair of Owls

The Burrowing Owl Cam is just another phase in an already great project. When we first visited the owls in May of 2009, it was just one family of owls. There was an adult pair and 4 owlets or an adult pair, 3 owlets and 1 juvenile from the previous batch of young. They had been a prolific pair of owls and had produced young in the previous breeding season and also had produced young right after Thanksgiving. That is why it was so hard to tell if the largest juvenile was from the current or previous batch of young.

2012 - A Familial Group

In August of 2009, 3 artificial burrows were added to the area. With the additional burrows, the familial group grew. During the 2010 breeding season, there were 2 pairs of owls in 2 of the artificial burrows and the original prolific pair had 3 owlets. Just across the street, a third pair nested and they produced 2 young. By the 2012 breeding season, 2 of the artificial burrows were being used and the owls had added a new natural burrow near one of the artificial burrows. Now there were 3 pairs of breeding owls that year and they produced 9 owlets.

2013 – Installing the Camera

We started to install the camera in the fall of 2012 and wanted the camera pointed at the prolific pair, of course, but the owls disappeared once the camera went live. There were still 4 owls down at the other burrows, so we moved the camera and by the time we went live again, 2 of those owls had disappeared. The two owls that remained were juveniles from the 2012 breeding season and this is the pair we have been watching all this time.

We were discouraged and worried about the owls but it was not long before all of the owls turned up in natural burrows that they had dug across the street, directly across from their old burrows. By April of 2013, the prolific pair had 4 babies and not long after that, the second pair had at least 2 owlets. Across the street, a third pair of owls also bred, but some of the larger owlets had already started dispersing, and so the highest juvenile count we had was 6. Even though the pair on the camera lost their young, there were 4 pairs of owls breeding.

Although we tried to be incredibly cautious when we installed the camera and we were told the installation of the camera should not bother the owls, their nesting behavior showed that we had in fact disturbed them. When the burrow across the street got crowded with all of those owlets, the prolific pair visited their old artificial burrow often. We kept disturbances to a minimum whenever they were back in residence and learned to only do “camera” work during the time when they were normally in the burrow as part of their daily routine, like school dismissal.

While the owls were breeding across the street and the school side was quiet, we took the opportunity to move the last artificial burrow closer to the burrows being used. The owls had never used this one because the location was not suitable to them but in 2013 they had nested directly across the street from the spot. This made it clear they would probably never use that artificial burrow. Our best guess was that the ground was too hard for the owls to dig in and expand the burrow. The ground was all fill and it had been incredibly hard for us to install the artificial burrow to begin with. Dr. Mealey, the owl expert on the project, talked about this when we wondered why it was never used.

We hoped by moving the burrow to a well used location that the owls would have room to grow. We will be very careful not to disturb them and hope they will all set back up this year in the school yard burrows. The prolific pair continues to be successful. Maybe they will produce an extra set of babies this fall, helping the familial group to grow. This loose colony now includes 4 pairs of breeding owls and we wonder how many pairs will try to nest in this next breeding season.

April 2013 – The prolific pair's new digs across the street with two of the owlets – Picture Donated by a Student

Sources:

[1] Howell, A.H. 1932. Florida Bird Life. Coward-McCann, NY.

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[3] Bowen, P.J. 2000. Demographic, distribution, and metapopulation analyses of the burrowing owl (athene cunicularia) in Florida. Thesis, University of Central Florida, Orlando, FL.

[4] Gill, F.B. 1994. Ornithology Second Edition. W.H. Freeman and Company, New York, NY. 384pp.

[5] Zarn, M. 1974. Burrowing Owl (Speotyto cunicularia hypugaea). Habitat management series for unique or endangered species, U.S. Bureau of Land Management Technical Note 242. Denver, CO. 25pp.

[6] DeSante, D.F., E.D. Ruhlen, S.L. Adamany, K.M. Burton and S. Amin. 1997. A Census of Burrowing Owls in central California in 1991. Journal of Raptor Research Report 9:38-48.

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[8] Stalmaster, M.V. 1987. The Bald Eagle. Universe Books, New York, NY.