

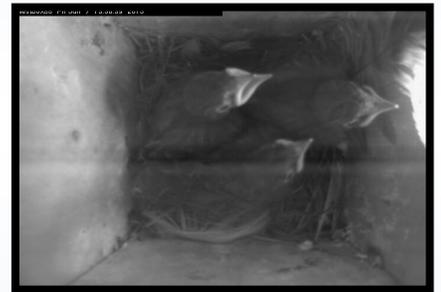
Baseline monitoring at the James: Nest box study (2002-present)

James Reserve Staff

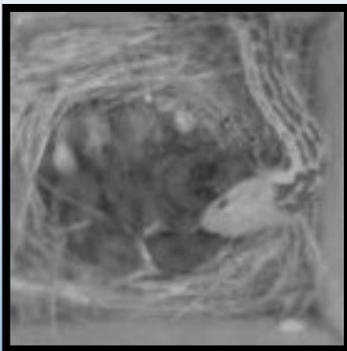


Nature is filled with elaborate structures built by animals, including termite mounds, beaver dams, and bird nests. Bird nests come in all shapes and sizes from the most simple grass-lined scrapes (e.g. turkeys) to elaborate domes decorated with found objects that are colored only blue (Satin bowerbirds; <http://people.eku.edu/ritchisong/birdnests.html>). The study of nesting behavior in birds can provide valuable data on a variety of ecological parameters including reproductive success in relation to ecological conditions, including resource availability and the size of the cavity nesting populations (competition for nest boxes). For many open nesting species, it is possible to observe the nest from hatch until fledging, roughly 18 days. For cavity nesters, what goes on inside the nest cavity is literally shrouded in darkness,

purposely camouflaged, hidden and inaccessible to predators. To better understand the critical developmental days of atricial cavity-nesting chicks at the James under changing ecological conditions, we have pursued long-term monitoring of cavity nesting bird species. In 2002, 13 standard bluebird nest boxes were fitted with small video cameras focused directly down on any nest being built inside them. Video footage from these boxes was archived as digital snapshots for later analysis. Meanwhile, live feeds of the cameras to the James Reserve website (james.ucnrs.org) have provided visitors to our site entertaining views of the lives of young bluebirds and various other species from the egg to their day of fledging from the nest box.



What have the many years of our window into the life of cavity nesters taught us? Though bluebirds (65%) are the main users of the wired nest boxes, other species such as violet-green swallows (32%) and mountain chickadees (3%) will also take advantage of them. Though the data on nesting success are still being analyzed, we do know that some boxes do seem to be favored, used almost every year, while others are used only intermittently or rarely. Overall, in any given year, about 45% of the boxes are used. Temperature and humidity sensors, added to the boxes in 2006 and recording both outside and inside temperatures might help determine factors that might influence box use as well as nesting success. As for fledging success, preliminary data indicate a fairly high success rate but, as the one photo demonstrates, building a nest in a pre-made cavity does not guarantee safety from predators!



With over 13 years of filming and thousands of photos, there is still a lot of information that we can glean from this data set. Continued analyses will surely reveal more secrets of the behavior of cavity nesting birds at the James Reserve. The nest box monitoring project is a prime example of the value of long-term data sets and how the UC Natural Reserves are ideal for such monitoring efforts.