



Research update

For immediate release

QUAIL PARASITES FOUND AT RECORD-HIGH LEVELS IN WEST TEXAS ACCORDING TO NEW RESEARCH PROJECT

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ROBY, Texas—*Poor-bob-white!* Parasitic worms in the eyes and intestines of bobwhite quail have been found at record high levels in Texas bobwhites according to an ongoing research project. And, while researchers caution that their results are preliminary, early findings suggest the worms could be impairing the quail's ability to thrive as it historically has across west Texas.

"The quail we've analyzed thus far suggest record-high levels of parasitism by eyeworms and cecal worms" said Dr. Dale Rollins, director for the Rolling Plains Quail Research Ranch (RPQRR).

The Rolling Plains Quail Research Foundation recently funded a \$2.0 million dollar study to evaluate the impacts of diseases and parasites on this area's struggling quail population. Research scientists from Texas Tech's Institute of Environmental and Human Health, Texas A&M's College of Veterinary Medicine, and the Caesar Kleberg Wildlife Research Institute were recruited to tackle specific research topics ranging from viruses to parasites.

Eight different research projects are being conducted as part of the research effort, dubbed "Operation Idiopathic Decline." Last summer quail were collected from a total of 21 ranches across west Texas and 10 Wildlife Management Areas in western Oklahoma (in conjunction with Oklahoma Department of Wildlife Conservation).

"Our initial research started in 2009 and we noted high infection rates of eyeworms and cecal worms here on the RPQRR, a 4,700-acre site just west of Roby, but we didn't know at the time how extensive the problem was. Now it appears that the problem extends across the Rolling Plains, at least," Rollins continued.

“We took blood and tissue samples from nearly 600 quail in 2011 and then sacrificed a smaller number for complete necropsies. This is the first comprehensive look at disease in quail since the 1920s” Rollins said.

“About half of the quail we’ve examined thus far had eyeworms, and the average is five worms per bird. The most we’ve found in one bird’s eyes was 53 worms. Basically all of the birds have the cecal worms, with some birds harboring more than 400 such worms” Rollins noted.

Rollins credits Dr. Alan Fedynich, a parasitologist with the Ceasar Kleberg Wildlife Research Institute at Kingsville and graduate students Stacie Villarreal and Andrea Bruno for their efforts in the discovery.

Rollins said the eyeworms are about half the diameter of a pencil lead and about a half-inch in length. The cecal worms are about an inch in length and reside in the gut of the quail.

According to Rollins eyeworms have been reported for bobwhites, but not in such high numbers.

“A. S. Jackson, a quail biologist for Texas Parks and Wildlife Department, found eyeworms in bobwhites back in the early 1960s, but our data over the past three years suggest the infections have become more severe. He noted that some of the birds he examined did exhibit bleeding around the eyes when worm numbers approached fifteen worms per bird. He also expressed concern that the birds’ vision may have been impaired” Rollins said.

“When you’ve got as many potential enemies as a quail has, any impairment of your vision is a handicap” Rollins added.

Rick Snipes of Aspermont serves as the President of the board of directors for the Rolling Plains Quail Research Foundation. His ranch has received many awards for its excellent quail habitat, and, as recently as 2008, routinely produced 30 coveys per day. And yet, good habitat has not spared his property from the decline.

"These findings are highly disturbing to me and will be to any quail hunter. Our ranch is managed solely for the benefit of bobwhites, yet we have not shot a bird in two years, except for research,." he said.

As a seasoned quail hunter, Snipes has seen the ups and downs that are inherent in Texas quail populations, and appreciates the ever-important weather conditions that drive quail abundance. Like any quail hunter, he has become a keen weather watcher.

"But 2010 puzzles me, it was the straw that broke the camel's back. We had perfect weather and birds were everywhere in July, yet come September they were gone. A mystery? You bet, and one the long term nature of our research is aimed squarely at solving," he remarked.

Snipes referenced a precedent observed in red grouse in Scotland, in this case with cecal worms.

"Red grouse that harbored high numbers of cecal worms were more likely to be killed by predators" he noted. "The number of cecal worms we're observing in our bobwhites may be having a similar effect. And that's on top of the eyeworm situation!"

Rollins said the research team is already making plans for "Phase 2" which will test various alternatives to reduce parasite numbers. Future studies will also focus on the ecology of the parasites themselves.

"The eyeworms infect quail via an 'intermediate host' which we suspect is either grasshoppers or cockroaches. When a quail eats an infected grasshopper the larval worms move quickly into the quail's eyes, taking up residence around the eye itself."

Rollins stresses that the parasites may not be the proverbial smoking gun, but they are a suspect worthy of greater scrutiny.

"The value of longer-term research efforts like this one is that we can see how worm numbers change over successive years as a result of changing weather. Who knows, maybe last summer's hot, dry weather reduced the parasite's abundance" he offered. "Only time, and additional research, will tell" Rollins said.

Snipes said the funding for the studies came strictly from private donations from concerned quail hunters.

"West Texas is the 'Alamo' of bobwhite conservation, and quail hunters are committed to seeking a solution to quail decline" said Snipes. "But we're going to need more help as we move forward."

West Texas is historically renowned as some of the best quail hunting anywhere, but populations of the iconic game bird have fallen to record low levels since 2008. According to Rollins, no one knows exactly why populations of the once abundant game bird have dropped in recent years.

"Everyone has their favorite theory about what's causing quail populations to decline, everything from varmints to fire ants, but none of them account for declines across the board. In most areas you can explain the decline by citing habitat loss, but that doesn't hold water

across large areas of west Texas and western Oklahoma—the scenery out here just hasn't changed that much. And certainly not that drastically in the past five years" he added. "We realize that the record drought and heat in 2011 created a quail's nightmare last summer, but we're more concerned about why we had a bust in 2010 which was an ideal summer for quail weather-wise."

Rollins says it's not only quail hunters who should be concerned.

"The income generated by quail hunting is substantial, and especially important to struggling rural communities which capitalize on an influx of orange-clad quail hunters and their pointing dogs, and the dollars they bring. Quail hunters in Texas spent an average of \$8,600 dollars in pursuit of quail in 2010, and half of that was spent in the destination county" Rollins said, citing figures from a recent survey.

The research ranch publishes a monthly online newsletter, which Dr. Rollins suggests as a convenient way to keep abreast of updated research findings. See the ranch's website (www.quailresearch.org) for subscription details.

For more information, e-mail Dr. Rollins at d-rollins@tamu.edu.

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Parasitic eyeworms have been found at record-high levels in bobwhites from west Texas and western Oklahoma. The eyeworms are believed to impair the quail's vision and could be impacting survival of the popular game bird. (photo courtesy S. Villarreal, Texas A&M University-Kingsville)