# Quail Studies Off To Positive Beginning At New Research Ranch

**By Colleen Schreiber**

ROBY — The Rolling Plains Quail Research Ranch had its Sunday clothes on when the gates opened a couple of weeks ago for the inaugural field day. The ranch has been blessed with timely rains essentially ever since it came to be 14 months ago.

Researchers here have been charged with coming up with solutions for making a ranch as quail-friendly as possible. The big-picture goal, however, is more clearly defined in their vision statement: "to sustain Texas' wild quail hunting heritage for this and future generations."

Rick Snipes, RPQRR board chairman, welcomed the 100 or so quail enthusiasts who gathered for the event.

"We want this ranch to serve as a living laboratory for other landowners, researchers and hunters," Snipes told listeners.

Laboratory, indeed! In the 14 months researchers have established 25 "mile markers" to use for their biannual call counts and 104 T-post arrays for vegetation monitoring. They leg-banded 422 quail in the 2007-08 season, sprayed 5380 mesquites, flew 110 miles of helicopter transects and logged 4000 "trap nights" of rodent trapping, and they've just barely scratched the surface.

None of this would have been possible had it not been for the Conservation Fund, which donated the 4700-acre property. Fundraising efforts are also off to a stellar start. Earlier this year W.A. "Tex" Moncrief, a Fort Worth businessman, made a $1 million donation. The goal is to establish a $5 million endowment. Interest from the endowment would be used as operating funds.

Extension wildlife specialist and director of the RRQRR Dr. Dale Rollins kicked off the day's program by publicly thanking again the many donors. Several Quail Unlimited chapters have made large monetary contributions and/or donated necessary equipment such as a Kubota tractor. There have been numerous other donors from the private sector and several commercial donors as well.

Rollins took a few minutes to highlight some of the projects and offered a glimpse of some of the preliminary data. In terms of the quail population, the average call count was about 3.4 roosters and 27 calls per stop, which, he noted, was down quite a lot from previous-year levels. In 2007 researchers documented an average of 9.2 whistling males per stop.

"Our goal is to raise all figures higher," Rollins told the group. "I want to average somewhere between seven and 10 roosters per stop. I want it to be mass confusion when we try to determine how many roosters are calling. In some spots we already have that."

Referring to the term “useable space,” a phrase coined by world-renowned quail researcher Dr. Fred Guthrey, Rollins said that maximizing a quail population requires maximizing “usable space in time.” He noted that parts of the west side of the ranch are particularly open and part of their research efforts will focus on techniques to improve useable space so quail counts here will come up to the same levels as the other parts of the ranch.

Prescribed burning and targeted cattle grazing, known collectively as “patch burn grazing,” is but one of the management tools researchers will be investigating.

“Fire is very important to bobwhite quail management, particularly so as you go east,” Rollins commented. “Additionally, livestock grazing in general is good, but with limits.”

Additionally, researchers will be investigating the impact of summer burns versus dormant burns as it relates to the management of prickly pear.

“Prickly pear is good, but when it gets so thick that your dogs do nothing but run the roads, then the pear has exceeded its threshold,” Rollins noted.

The goal, he added, is to develop a “quail-friendly” approach to prickly pear management. Researchers will be looking for a herbicide/fire treatment that might be effective for managing the pear without harming the quail and its ecosystem.

“We will be measuring the arthropod community, because as the weeds go, so go the bugs, and the bugs are critical to quail,” Rollins noted.

“We will also monitor the dynamics of the plants, especially forbs (broad-leafed plants). The historical tandem for cactus control is a half-pound per acre application of picloram, but such treatments fry our hackberries and suppress weeds, what we refer to as ‘forb shock,’ which from a quail manager’s perspective is undesirable.

“We want to find out how long it takes for the forbs to come back after controlling prickly pear. We’ll also look to see if burning fast-forwards forb recovery after herbicide applications.”

Researchers are also interested in learning more about the impact of Texas wintergrass on quail populations.

“I don’t think Texas wintergrass is a quail-friendly plant.” Rollins told listeners. “Those of you with cows just turned over in your grave, but I look at it with a jaundiced eye.”

Researchers will be spraying lyophosphate (Roundup) on Texas wintergrass next spring and then monitoring such effects on quail. Researchers are also in the process of ridding the ranch of Bermuda grass, and the impact of such results on the quail population will also be monitored.

On the flipside, for the time being anyway, Rollins has banned the taking of any predators.

“We think coyotes are the lesser evil when it comes to quail. When coyotes are controlled, smaller predators like raccoons and skunks tend to proliferate,” he pointed out. “There may come a day when we decide to wage war on the coyotes, but it’s not right now.”

Ranch personnel are also restricted from killing rattlesnakes unless they’re within a quarter of a mile of the two residences.

The first stop on the day’s tour of the ranch had to do with a discussion of food plots. Rangeland disking was the tool of choice for establishing these food plots. The rangeland disk, used extensively in South Texas, was chosen because, as ranch advisory board member Paul Melton explained, the rangeland disk is more cost-effective than most other disturbance techniques.

“I wanted a way to make a continuous feeder throughout the ranch,” he explained. “The rangeland disk, a one-pass solution, offered that.”

Most of the plots, particularly those on the more open west side of the ranch, were planted to sorghum alum, a weak sister to Johnsongrass.

“We wanted not only food for the quail, but we also wanted vertical structure,” Rollins noted. “We hope to see call counts in these areas come up as we provide more vertical structure.”

Melton also noted that sorghum alum is a good drouth-resistant plant.

“As far as I’m concerned it will nearly grow on concrete, and you do get the regeneration with just a little soil disturbance,” he pointed out. “The plan is to do some rangeland disking each month of the year to see if we get a different response. From that we can hopefully learn which months are best for disking. The goal is to get the most quail bang for the buck.”

The cost of rangeland disking, most of which was done adjacent to the roads, Melton said, averaged about $40 per mile including the seed cost.

“That’s up about 25 percent from two years ago due to increasing fuel costs, though seed has gone up as well,” he told listeners.

Turner Seed Company, Breckenridge, does a good deal of wildlife-related seed business. Darcy Turner, owner of the company, shared his thoughts on a few other worthwhile quail-friendly plants. One that he discussed is short-season milo. As the name suggests, this plant makes a seedcrop in a shorter period of time.

“Most of the milo that we plant for commercial production is 90 to 110-day milo. That’s a problem if you live in the Roby and Rotan areas, because you typically run out of moisture in August,” Turner pointed out.

The short-season milo, he admitted, is still in the experimental stage.

“We had the moisture this year, so we’ll watch it for three to five years and then try to determine if it’s worth a darn.”

Turner also talked about a couple of cowpea varieties, including Red Ripper cow pea and Rio Verde lablab, both of which, he said, are excellent for quail. Iron and Clay cow pea, he noted, does not make a seed, so it’s better used for deer. However, he pointed to the insect damage to the leaves of a couple of the various legumes he had on display to stress another point.

“If you’re a farmer, that’s bad, but if you’re a quail man, that’s fantastic, because that indicates insects. So even without a seedcrop, these plants can still be good for the birds.”

Other food plot plants that researchers will be looking at include alfalfa, hairy vetch and Austrian winterpea, to name a few.

“The goal is to jump-start the bug population,” Rollins told listeners.

At the second stop of the day, researchers expounded more on their patch burn grazing study. Rollins noted that from a rangeman’s perspective, spot grazing has historically been considered an evil.

“Cattlemen have done lots of things to prevent spot grazing,” Rollins reminded. “They’ve crossfenced, added waterings and feeders in an effort to get more uniform use of the pasture.”

In terms of managing for optimal quail habitat, fire coupled with spot grazing is thought to be beneficial. Cattle equipped with GPS collars will graze a pasture for a four-month period at a rate of two animal units per burned unit. Grazing will initiate 45 days prior to a burn. The GPS collars, Rollins explained, allow researchers to collect and compare pre-burn and post-burn grazing distribution. The ultimate question is whether or not the patch burn grazing technique affects quail population and habitat in a positive manner.

At other stops participants learned more about other various pieces of the ongoing research agenda. Vegetation monitoring is a huge piece of the big picture and a tedious and time-consuming piece as well. Rollins commented that researchers historically had a tendency to categorize vegetation monitoring work in general terms, such as “grass versus weeds.” The goal at the research ranch, he said, is to refine such techniques.

“Reporting the relative abundance of grass versus weeds doesn’t tell me a lot. I want to know if ragweed is increasing or if dotted gayfeather is taking off,” Rollins told listeners.

Learning about the arthropod dynamics on the research ranch is also time-consuming, Rollins said. Researchers are using sweep nets and pitfall traps, 12-ounce cups sunk in at ground level, as their primary baseline inventory collection method. They will also compare the results of the two different methods to determine which one is most efficient.

Researchers are particularly interested in learning the dynamics of the arthropod community on burned versus unburned sites.

“We want to know if arthropod availability is increasing on the burned sites, and if so, for how long,” Rollins noted.

Researchers are also in the process of collecting baseline data for the reptile and amphibian populations. The basics involve determining the relative abundance of individual species in the different habitat types on the ranch, those being native range, CRP and fallow farmland.

Pitfall traps and funnel traps as well as cover boards are the collection apparatuses used in the study. A third census technique involves six man-hours in each habitat type whereby researchers literally search for reptiles.

Because they’re using a capture and release method, snakes captured are implanted with a pit tag, a special chip with unique barcode. That way the snake can be identified if recaptured. Lizards are identified by using a unique toe clipping combination.

There are some who believe snakes are a significant predator of quail. For obvious reasons, researchers at the quail ranch are interested in proving or disproving this theory. It stands to reason that snakes also serve as a buffer prey species in that the more opportunistic hawks might choose a snake over a quail chick. Researchers will be investigating all of these interactions.

Participants also heard a brief overview of the results of five years of data collected from the Texas Quail Index study. TQI is a large-scale, long-term demonstration to evaluate various indices of quail abundance as predictors of quail reproduction and hunting success. Fifty-four properties participated in the quail index.

In analyzing the data, researchers found that while spring call counts correlated to fall covey counts, that method was only about 40 percent effective in predicting fall quail abundance. At least that was the case for four out of the five years. On year five, however, the results were significantly different. That year, 2006, was a drouth year for almost all of Texas, and the data indicated that in a drouth, spring call counts were 80 percent effective in predicting fall abundance.

Researchers will continue to study the data to determine how sampling techniques can be improved to get a better handle on the dynamics of the quail population across the state.

In addition to call counts and walking transects, researchers are also looking at a new census technique for monitoring quail populations. The high-tech technique, which uses helicopters and GPS to count quail, was developed by researchers at the Caesar Kleberg Wildlife Research Institute. The system is still being studied and perfected, and the quail ranch will collaborate with CKWRI to help in those efforts.

To date, 60 miles of transects at a cost of $500 per hour have been flown on the research ranch and on a nearby ranch. The October 2007 census indicated that the research ranch had a quail to two acres while the other ranch had a quail to the acre. The helicopter census work indicated a larger quail population than the walked transects and morning covey-call surveys indicated.

“A lot of people thought they’d lost all their quail, but they were still out there, they just weren’t flushing with all the broomweed,” Rollins commented.

Radio telemetry is being used to better understand issues such as bird mortality and nesting ecology. Quail are trapped twice a year, in October and November and again in February and March. Only hens are collared in the late winter season.

This past year 93 hens were collared. However, because of a lack of manpower, surveillance didn’t begin in earnest until mid-May. By then 61 birds were lost or killed, and as of Sept. 1 only nine birds were still alive. Weekly survival from 15 May through 31 July was calculated to be 33 percent. The goal in the future is to track and document status of radio collared birds two to three times per week.

As for nesting ecology, researchers monitored 26 nests this past spring. Researchers are interested in learning if, when given a choice, quail prefer CRP over native rangeland for nesting. Thus most of their efforts this spring focused on the CRP.

“We only had two hens that nested in CRP,” Rollins told listeners. “The other finding that stuck out was that 42 percent of the nests were in bunchgrasses.”

That was an interesting finding, he noted, because in other research done in the Rolling Plains, quail seemed to prefer prickly pear over bunchgrass for nesting habitat.

“My summation of why it was different here is because we have nesting cover across the landscape. If you want to defeat predators, that’s your best ploy,” he insisted. Make it hard on the predators to find those eggs.”

To back up his point with regard to the good nesting cover availability on the ranch, Rollins also offered dummy nest survival data. He pointed out that across the entire bobwhite range, average nesting success is only about 28 percent. However, on the quail ranch, dummy nest success seemed to indicate quail nesting success here is considerably better. Of the 144 dummy nests put out, 92 percent were still intact at 14 days. At 28 days, nest success was about 82 percent.

“I’d say that’s truly incredible, except that last year we had 91 percent survival at 14 days,” he told listeners. “So either we have no varmints or we’re making it really hard for them to find the quail nests, and I think it’s more of the latter.”

Finally, listeners heard about an ongoing roadrunner study being conducted by researchers at the Texas A&M Research and Extension Center at Vernon. For the last three years Sam Kelly has been documenting everything he can about roadrunners. Most of the published information on roadrunners involves simple observation and anecdotal accounts. Kelly, however, has chosen a more scientific approach which involves the use of radio telemetry.

“It is a pioneering effort because, to our knowledge, no one has used radio telemetry on roadrunners,” Kelly told listeners.

Researchers found that a more powerful radio had to be used on the collared roadrunners because their home range is significantly bigger than that of quail. In fact, one collared roadrunner, Kelly said, dispersed more than six miles from where he was first found. Another preliminary finding is that roadrunners, at least in this particular study site, tend to prefer dense blocks of mesquite.

Kelly also noted that visual appraisal is not sufficient to distinguish a male roadrunner from a female. Thus feather samples are being sent to a lab in College Station for a definitive sex analysis. They’ve learned, too, that the male’s home range is slightly larger than the female’s, and home range tends to decline in the winter and expand in the summer.

“A lot of people think roadrunners are a big quail chick predator,” Kelly commented, “but we have not observed that once.”

Tying into this study, Rollins and his team are interested in monitoring roadrunner nests during the quail nesting season.

“We want to find out what the roadrunners are bringing to their chicks in the way of food,” Rollins said.

Other future projects to be initiated in 2009 include a rattlesnake ecology project whereby 10 snakes will be fitted with radio transmitters to monitor movement and habitat use. Likewise, Cooper’s hawks and Northern harriers will also be radiomarked and monitored.

Seed production of western ragweed will be monitored on various sites throughout the ranch, and various combinations of fire and herbicide will be used to monitor effectiveness of cactus mortality as well as the impact such methods have on forb dynamics and arthropods.

During lunch participants heard from a fellow quail hunter enthusiast, Jerry Hamilton, who extolled the benefits of protecting hunting dogs with a rattlesnake vaccine. The vaccine helped save two of his dogs.

“Anyone who loves their dog is a fool not to use it,” Hamilton insisted. “My vet told me that he’s only lost one dog to snakebite that had the vaccine, and that dog was a little dog bitten in the chest.”

Finally, Hamilton made listeners aware of a relatively unknown arthropod-borne disease known as Chagas. According to an informational brochure published by the Centers for Disease Control and Prevention, Chagas, a disease of the heart or gastrointestinal tract, is caused by a protozoan parasite carried in the feces of these blood-feeding insects. Transmission occurs when the feces is rubbed into a bite wound, open sores or cuts. Transmission may also occur through blood transfusion or organ donations.

The informational brochure also notes that 12 million people suffer from the disease on the American continents, but in the U.S. only seven cases, four in Texas, have been identified.

Hamilton was made aware of the disease after a friend’s five year-old pointer female died suddenly from a heart attack. The autopsy showed that the dog was infected with this beetle-born parasite.

“It can attack all warm-blooded mammals including people,” Hamilton reiterated. “There is no cure.”

More information is available from Sonia Kjos, Centers for Disease Control and Prevention, Chamblee, Georgia, at (770)488-4485 or via e-mail at *skjos@cdc.gov*.