



# 9<sup>th</sup> Annual Field Day

Friday, Sept. 30, 2016



## *Abstracts*

### **Can we insulate this bumper crop of quail?**



*In cooperation with*  
**TEXAS A&M**  
**AGRI LIFE**  
**EXTENSION**

**RPQRR's Vision:** To sustain Texas' wild quail hunting heritage for this, and future, generations.

**Mission statement:** To provide land managers, and other stakeholders, with timely, relevant technology and management schemes for enhancing quail populations in the Rolling Plains of Texas.

**Board of Directors**

Rick Snipes - *President*  
A.V. Jones Jr.  
Joe Crafton  
Dan Crain  
Justin Trail

**Staff**

Dr. Dale Rollins, Exec. Director  
Lloyd LaCoste, Manager  
Becky Ruzicka, Res. Assoc.

**Graduate assistants:**

Bradley Kubecka  
Jason Davis  
Cade Bowlin

**Technicians:**

Drew White  
Skyler Henderson  
Emily Beisch

**Advisory Committee**

Paul Melton (Chair)  
Buddy Baldrige  
Marc Bartoskewitz  
Ty Bartoskewitz  
Keith Boone  
Rory Burroughs  
Amanda Gobeli  
Rob Hailey  
Alan Heirman  
Rod Hench

Barrett Koennecke  
Ricky Linex  
Dr. Jason Johnson  
Steve Mayer  
Kent Mills  
Brad Ribelin  
Chip Ruthven  
Dr. Darrell Ueckert  
Roy Wilson  
Abe Woodard

## Welcome Students of Quail!

We're glad you joined us for our 9<sup>th</sup> annual field day at the Rolling Plains Quail Research Ranch. This year's theme is "*Can we insulate this bumper quail crop?*" The past two summers have been good to us, and we're set to reap another great year this upcoming season. But, can we sustain it through the next (inevitable) La Nina weather pattern? Historically that answer has been "no", we cannot sustain this "unstable utopia." But five years ago you wouldn't have thought about an ice chest or drink tumbler that could insulate things as well as these new ones do. Perhaps with some creative thinking we can sustain our "ice" for a longer period of time.

This year's field day is dedicated to RPQRR's ranch manager **Lloyd M. Lacoste**. Lloyd joined the RPQRR in 2008 and has been an invaluable member of our team ever since. His job expectations range from plumbing to prescribed burning. His experiences run the gamut from insect identification to roller chopping. He brings a keen eye for clientele satisfaction and customer appreciation. His skill as a people person (mentor) is lauded annually by our student interns. And, for no more than he shoots, he is a great shot with a 20 gauge side-by-side. In this picture, Lloyd is starting one of his sons (James) towards being a "pyromanager."



Hopefully you'll glean some ideas for how to improve your rangeland as quail habitat and increase your personal knowledge of quail and quail management.

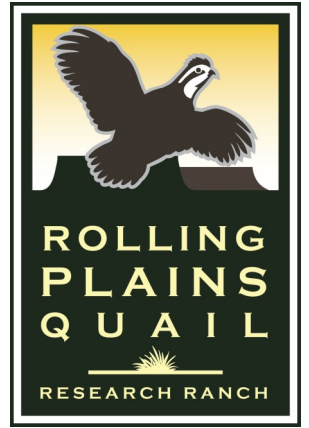
We always value your feedback, formally (via the evaluation for today's tour), or informally, so please share your ideas with me or one of the RPQRR staff. Enjoy your day, make some new friends, enhance your plant ID skills, and make progress towards becoming a better "Student of Quail." If you're not a "friend" on our Facebook page or subscribe to our *e-Quail Newsletter*, I encourage you to sign up for both (see [www.quailresearch.org](http://www.quailresearch.org)) for details.

We thank our sponsors for today's event and indeed for providing operating costs for RPQRR. If you, or your friends, can be of assistance in our fundraising efforts, please contact me for additional details.

*Dale Rollins*

Executive Director

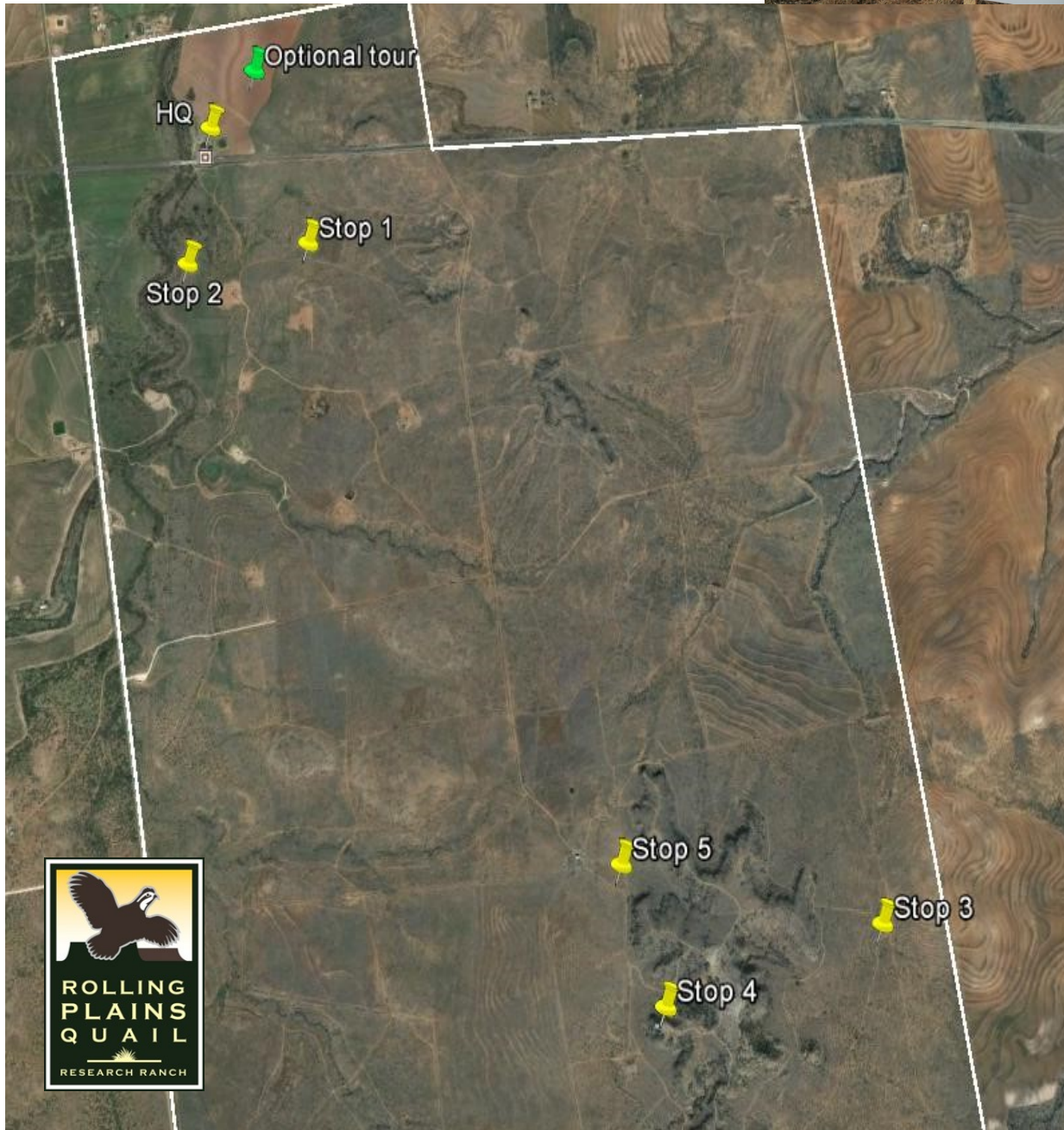
# 2016 Field Day Agenda



- 8:30** Registration & refreshments  
CEU paperwork (Z. Wilcox)  
Test your knowledge of key plants for quail (R. Linex & K. Mills )
- 9:00** Welcome and Introductory Comments—D. Rollins  
2016 Weather Year in Review— L. Lacoste
- 9:20 Stop 1 – Doc Pasture**  
Plant response to recent prescribed burn—D. Rollins  
Population counts
- RPQRR— L. Lacoste
  - Fisher Co. — B. Koennecke
  - Nesting effort— B. Kubecka
  - Small mammals—E. Beisch
  - Arthropods—L. Lacoste
- Brood habitat—A. Gobeli
- 10:15 Stop 2—Doc Pasture**  
Cactus: a prickly paradigm for quail managers—D. Rollins  
Control efforts
- Custom aerator-sprayer—L. Lacoste
  - RanchMaster implement—C. Bowen, C. Ellis
  - Evaluation of a new herbicide for cacti control —R. Porter
  - Photo-plots for monitoring cacti disappearance—E. Beisch
- 11:00 Stop 3 - Oscar pasture—predator ecology**
- Raptor trends at RPQRR—S. Henderson
  - Can hawks target radio-marked quail?—B. Perkins
  - Consumption of quail by coyotes during an El Nino weather pattern—C. Bowlin
  - Do quail feeders predispose quail to predation? — J. Davis
  - Does nest success decrease in proximity to quail feeders?—B. Kubecka
  - Roadrunners & quail: anecdotes from camera surveillance—D. Rollins
- 12:00 Stop 4 - LUNCH at Pavilion — Acknowledge Sponsors**
- The mortality mile: lessons from the Bobwhite Brigade—D. Rollins  
**Panel Discussion: Can we insulate quail during the next La Nina weather pattern?**  
Knox County scaled quail restoration project—D. White
- 2:15 Stop 5: Monarchs & milkweeds**
- Experimental plantings—M. Brym
  - Fall-flowering plants for pollinators—R. Linex
  - Complete evaluation
- 2:45** Results of Plant ID contest — R. Linex  
CEU certificates — Z. Wilcox  
Optional tour of wheat-hairy vetch food plot “system” (L. Lacoste)
- 3:00** Adjourn



# Field Day Route - 2016

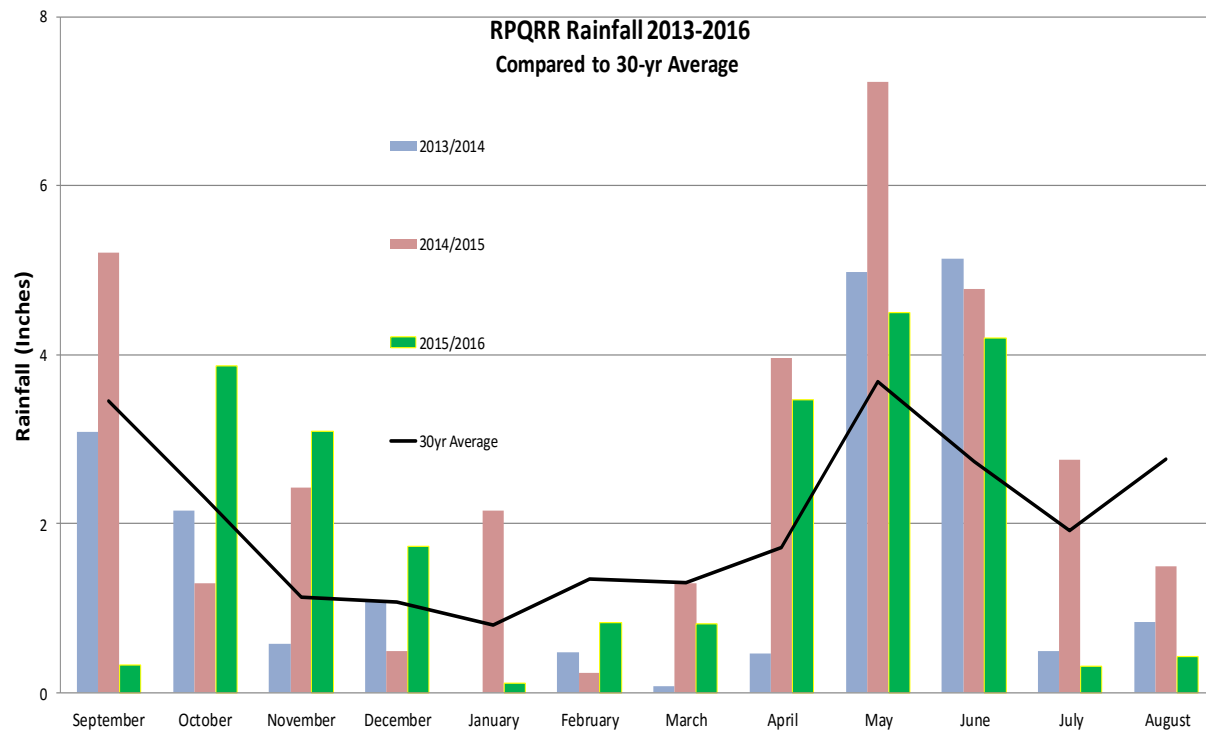
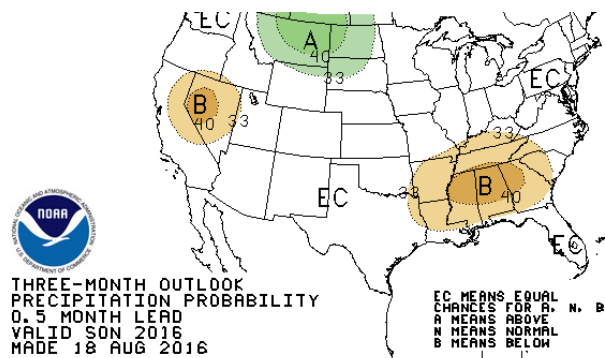


## 2016 Weather- The Year in Review

*Lloyd LaCoste, RPQRR*

Weather plays an important role in quail survival and a crucial role in quail reproduction. April through June 2016 started off great as far as quail reproduction is concerned at RPQRR. All three months were cooler with more rainfall than average for RPQRR. In fact the temperature did not exceed 90 degrees F until April 25, 2016. This is the latest time we have recorded finally breaking the 90 degree barrier as a high temperature for the day. Rainfall for April through June was 12.15 inches and no days exceeded 100 degrees.

Then it turned hot and dry. We recorded 16 days above 100 degrees F and only 0.75 inches of rain for July and August 2016. Total rainfall from September 2015 – August 2016 was 23.68 inches. The average rainfall for this area is 24.22 inches per year. We did not receive any significant hail events since our last field day, but there was an ice storm that hit RPQRR two days after Christmas. The storm was not as bad as predicted. We were without electricity for a few days, but we did not have any quail mortalities associated with the ice and cold weather. The “El Nino” conditions that have brought us Spring and Summer rainfall for the last two years is oscillating back to a “La Nina” condition. We hope that we will still receive normal rainfall while this pattern develops. If not we hope to give you ideas on ways to “insulate” your quail populations and keep them around until the next favorable weather pattern returns.





# STOP 1

Prescribed burning  
Brood habitat  
Population counts  
Nesting effort



## Monitoring Quail Abundance at RPQRR

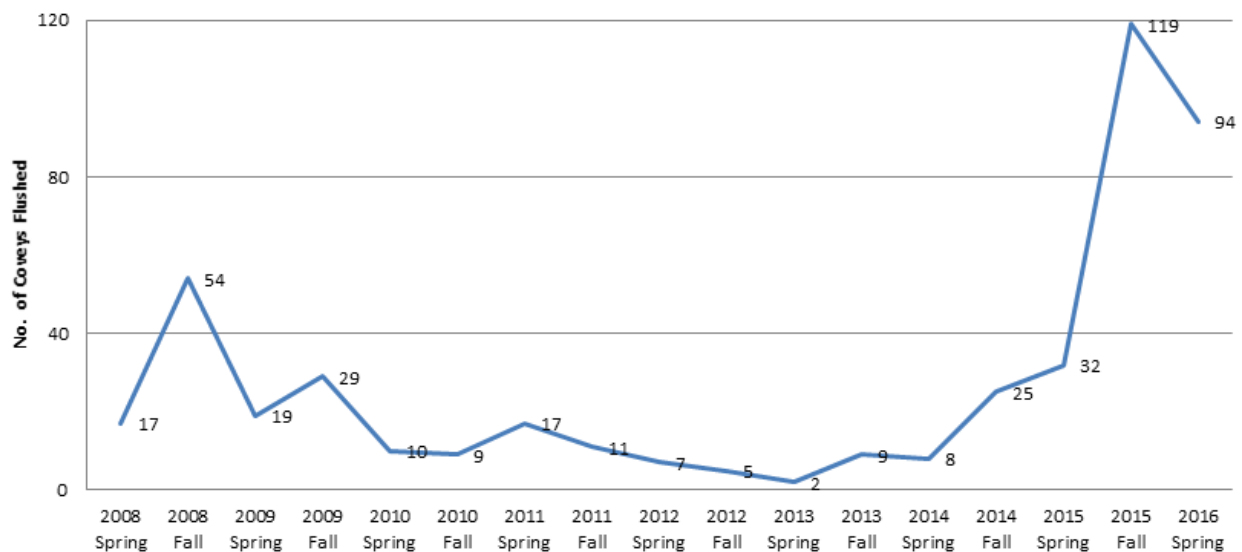
*Lloyd LaCoste, RPQRR*

Since 2008, we have implemented various ways to monitor quail abundance across years. These efforts include helicopter surveys, call counts (spring and fall), trapping / leg-banding quail, and roadside counts. These data are currently being analyzed by Brad Kubecka for his Master's thesis at Texas A&M University- Kingsville. The following is a summary of this year's counts.

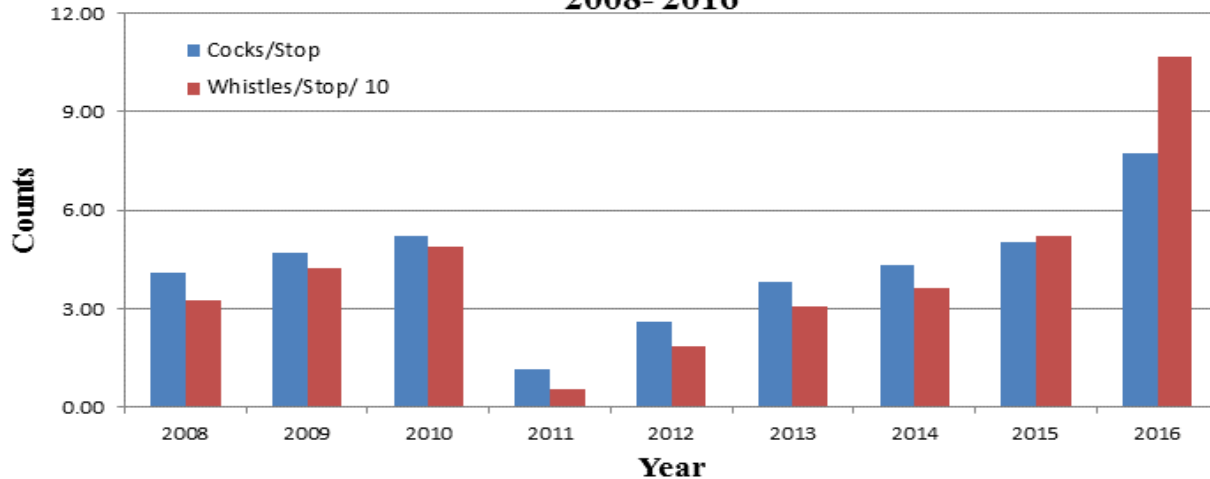
### Helicopter Counts

Every year we conduct 2 helicopter surveys: one in the Fall (November) and one in the Spring (March). We fly the same GPS-transects with a total sampling effort of 52 miles. The Spring count in 2013 revealed the lowest number of coveys to date with only 2 coveys detected during the survey. During the Spring 2015 survey we observed 32 coveys. This nice recovery had us excited and hopeful that our Fall 2015 numbers might top our Fall 2008 record of 54 coveys observed. Well we more than doubled our previous record with 119 coveys observed. This computes to just over 1.06 birds/acre! We're excited to see what the survey this Fall will reveal.

**Helicopter Counts, RPQRR, 2008-2016**



### Spring Whistle Counts RPQRR 2008-2016



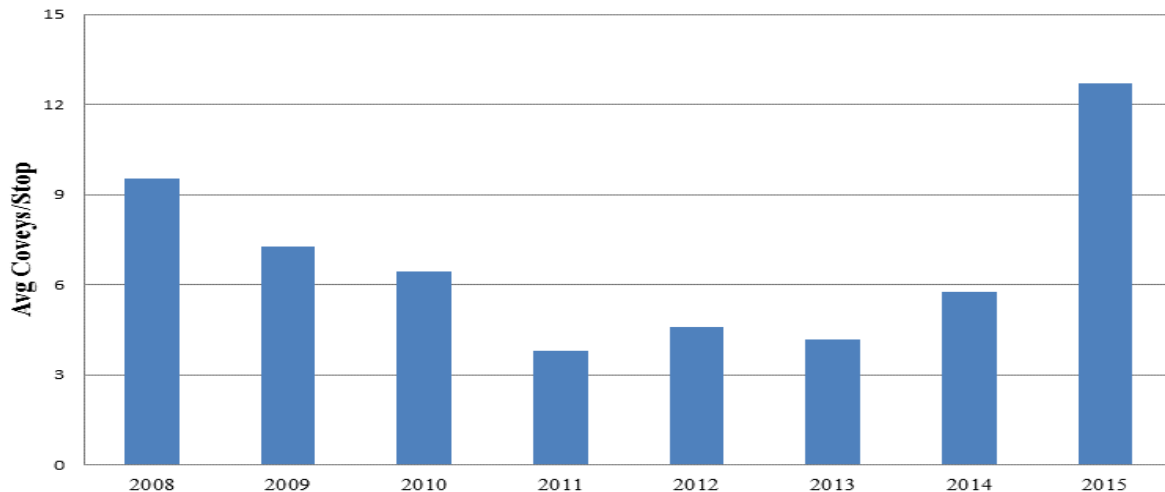
### Spring Cock Call Counts

We conduct spring call counts at 25 “mile markers “(MM) spread across the ranch. We count the number of “bob-white” whistles that we hear as well as the number of individuals calling. The Scaled quail “whock” is recorded also and the numbers of Scaled quail calling is recorded. The ranch is divided into an East (12 MMs) and a West (13MMs) transect. Counts are conducted twice weekly at each mile marker for 5 minutes. Typically we hear about 10 whistles/cock/stop. This year our number of whistles/cock/stop was higher than normal, and we had the highest number of birds that we have recorded calling (an increase of 50% over last year).

### Fall Covey Call Counts

We conduct fall covey call counts in October at RPQRR at all of our odd-numbered “mile markers” (MM). Each odd MM is surveyed twice, and the number of different coveys heard is recorded. Fall 2015 covey call counts were an all time high too with 12.7 coveys per MM being heard. A crude index to bobwhite density can be estimated by dividing the mean number of coveys heard by 10, i.e., the Fall 2015 estimate would be 1.27 birds per acre. This estimate compares favorably with the density estimate derived from helicopter counts for Fall 2015.

### Average Fall Covey Call Count RPQRR, 2008-2015



### Roadside counts

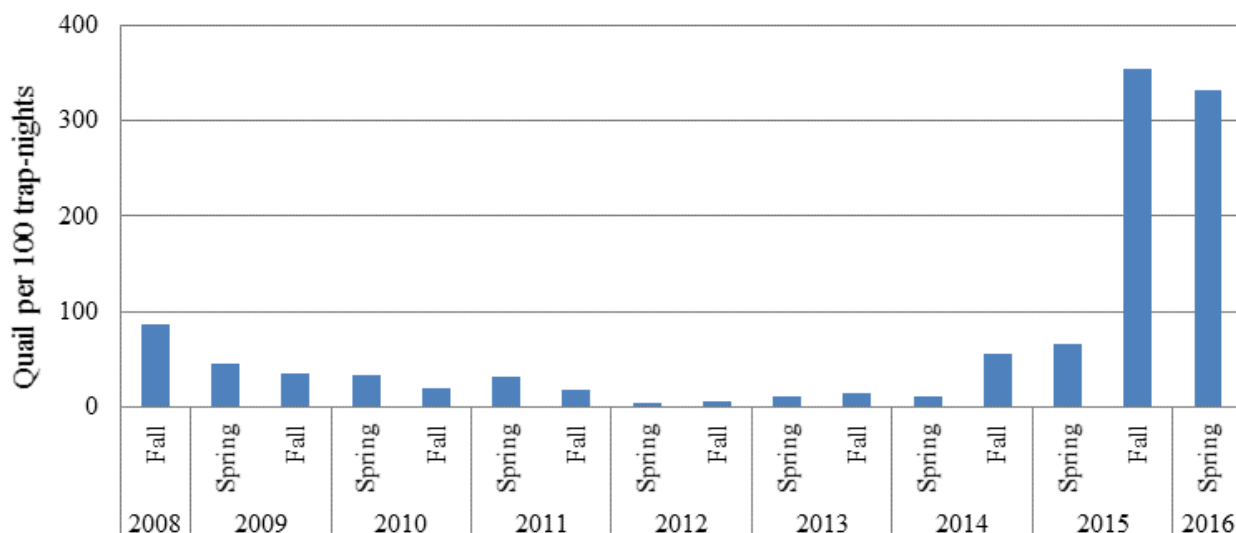
Roadside counts are easy to conduct. You simply drive a prescribed route during the early-morning or late-afternoon hours and count the number of quail observed. We repeat our counts four times during September; 2 in the morning and 2 in the evening on both of our “TQI” lines. The number of birds observed per mile can be used to index quail abundance. Each year during August, Texas Parks and Wildlife Department biologists conduct roadside counts on 20-mile routes across much of Texas. This table compares TPWD’s mean number of quail for the Rolling Plains per 20 mile route to RPQRR’s data. Last year showed a record year for observations of quail during our roadside counts and 2016 has proved even better, (an increase of 62% over 2015). Counts at RPQRR are typically several times higher than the TPWD estimate for the Rolling Plains.

### Trapping –banding

At RPQRR our primary purpose for trapping quail is to affix radio collars to the quail that allow us to follow the birds’ movements and to monitor survival and reproduction. We also use the information collected during trapping as a density estimator and to assess juvenile to adult ratios. Trapping is conducted in the Spring (Feb – Mar) and Fall (Oct – Nov) each year. With these data we can quantify our “Minimum Known Population.” Our number of birds caught per 100 trap nights and our juvenile:adult ratio were all time highs for RPQRR. Fall 2015 number of birds per 100 trap nights was 354.1 and we caught 6.1 juveniles for every adult that we trapped. Any ratio above 3 juveniles:adult is considered good.

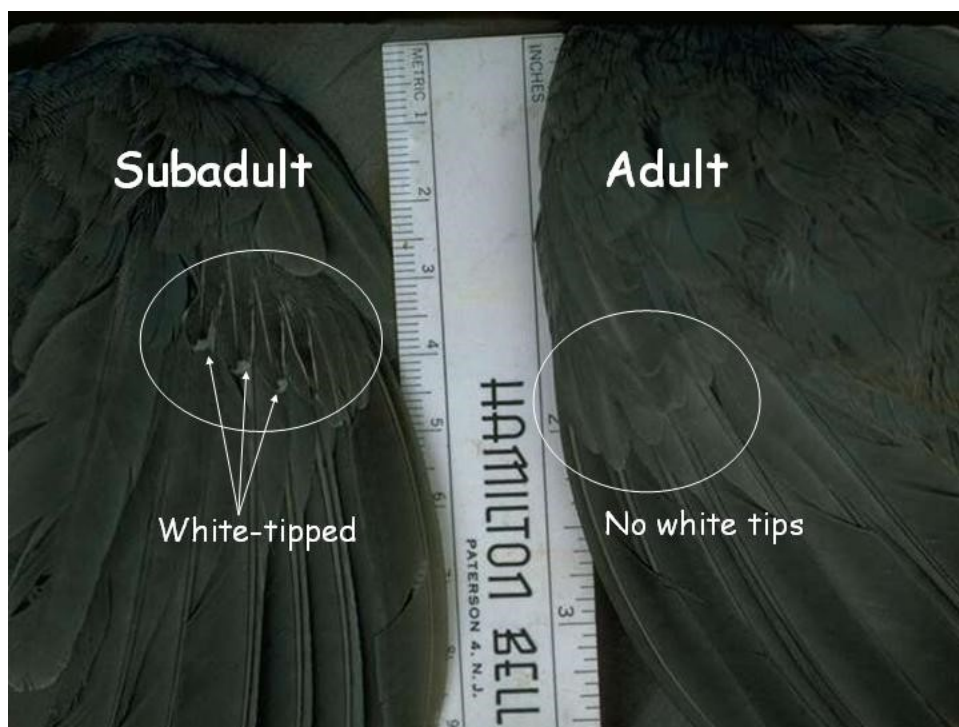
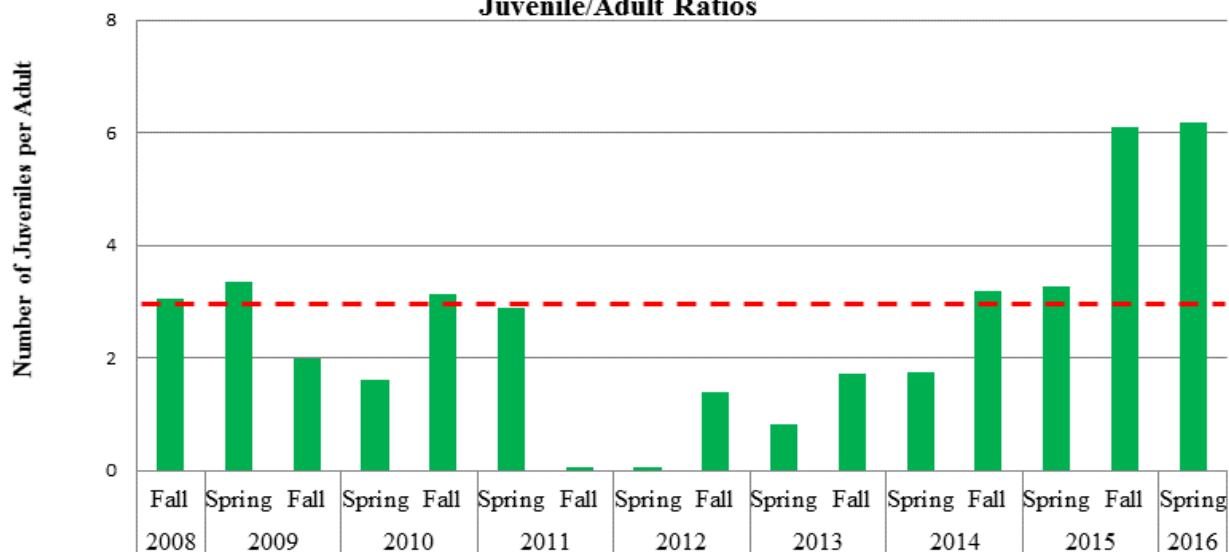
Mean Number of Quail per 20-mile Route 2008-2016		
Year	TPWD	RPQRR
2008	18.7	96.0
2009	6.6	25.2
2010	8.0	29.0
2011	5.3	8.8
2012	3.5	5.5
2013	2.9	1.8
2014	7.5	52
2015	38.3	315
2016	50.2	512

### Quail Trapping Results, RPQRR, 2008-16:





### Quail Trapping Results, RPQRR, 2016 Juvenile/Adult Ratios



The appearance of the primary coverts can be used to distinguish juvenile (subadult) quail from adults. If the primary coverts are white- (or buff) tipped, it's a juvenile bird. Buffy primary coverts are retained through a quail's first post-nuptial molt occurring Aug-Oct of the year following their hatch. For example, a bird hatched in June 2015 would have buffy tips in July 2016.

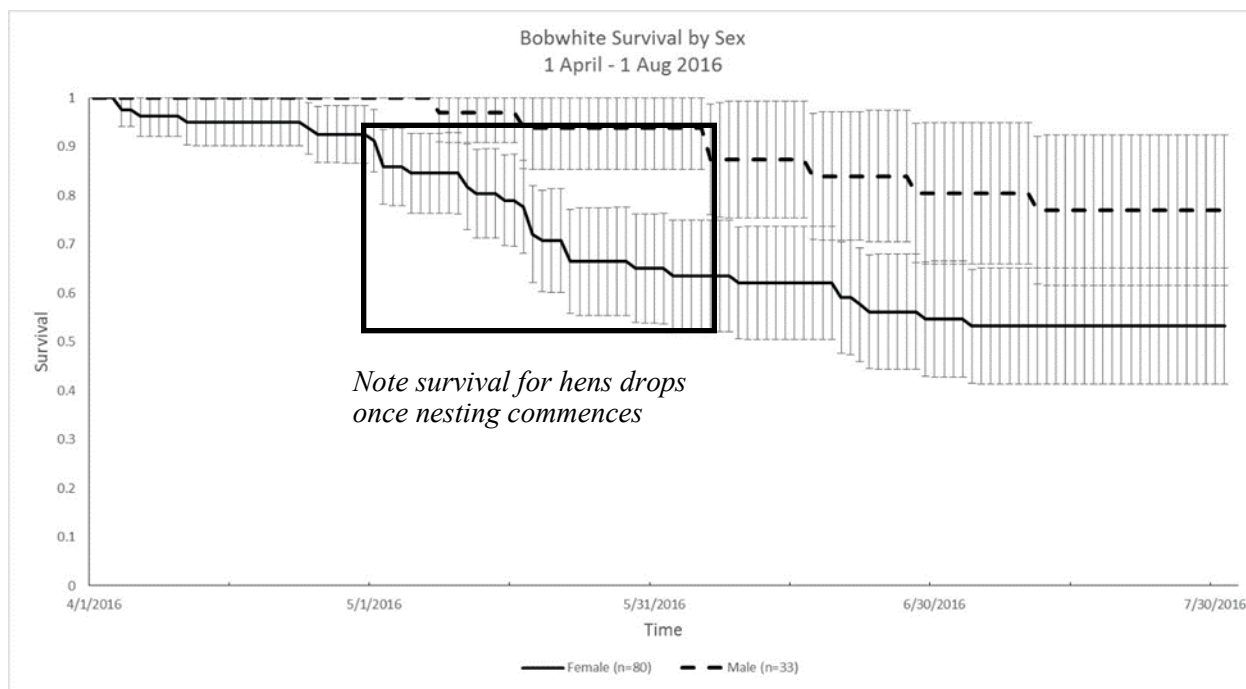
## Evaluation of Population Indices and Density Estimators of Northern Bobwhite

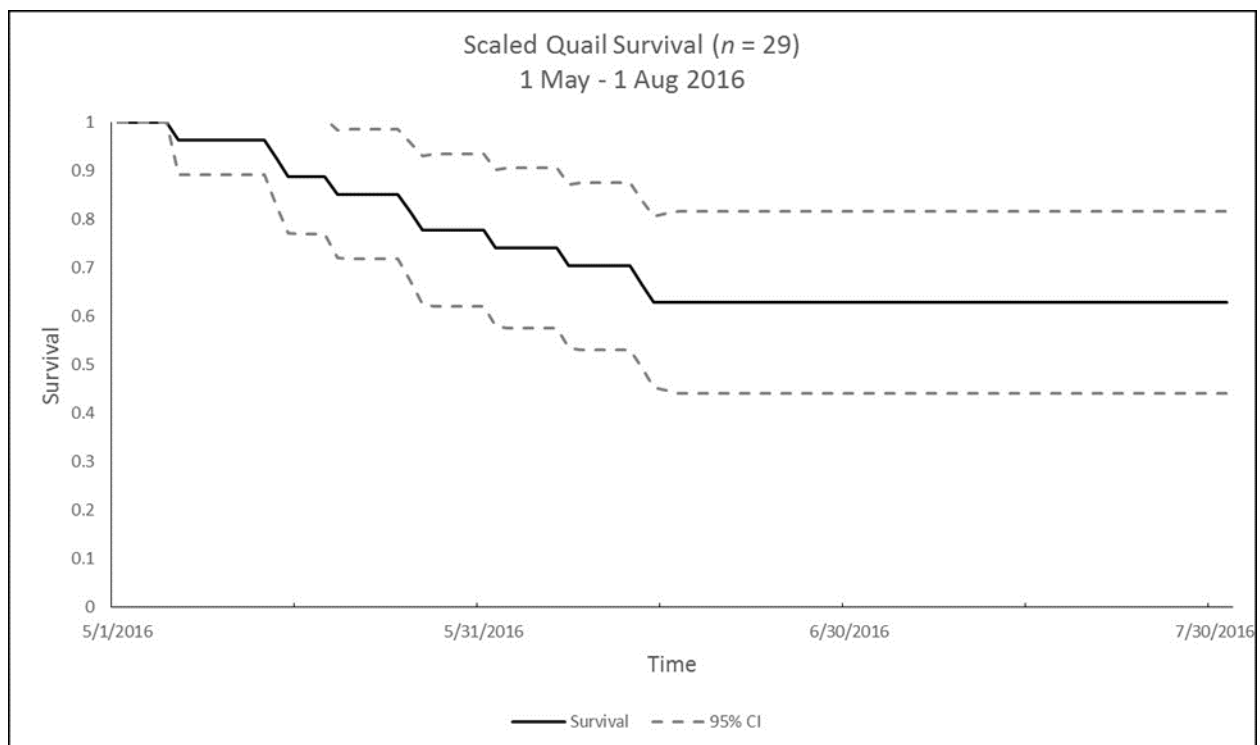
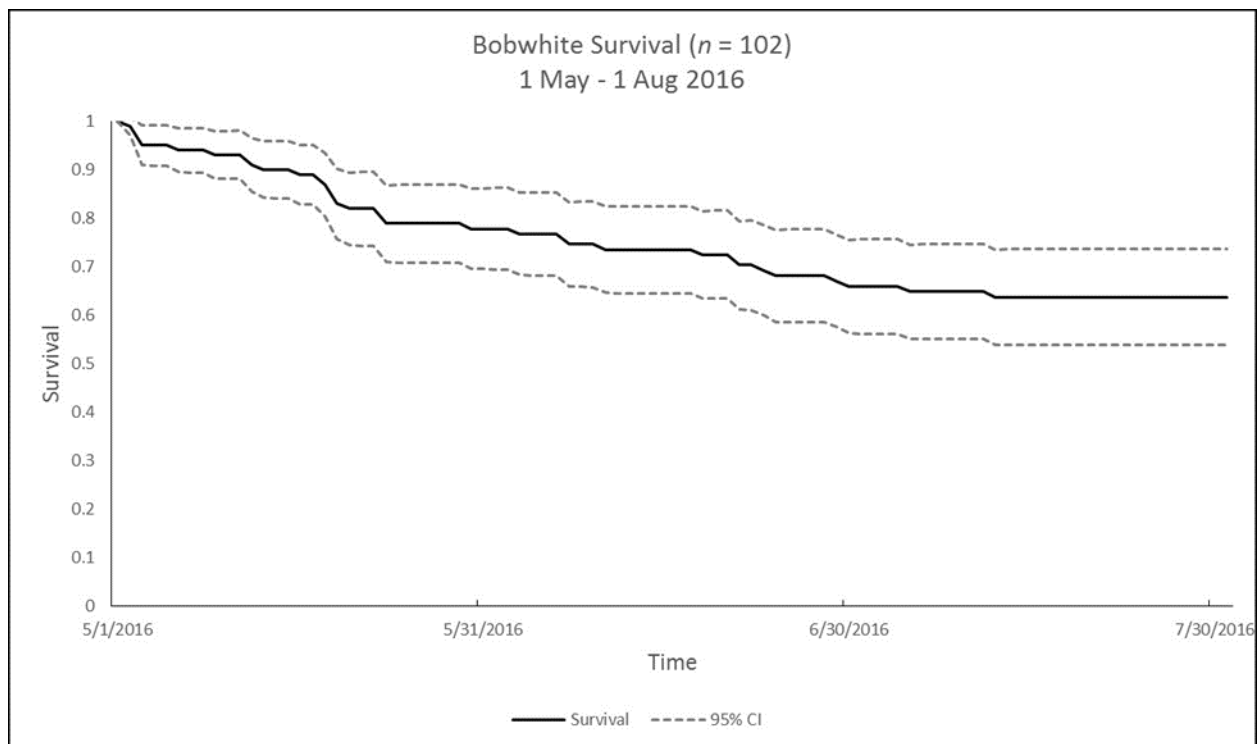
*BRADLEY W. KUBEČKA, Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville, Kingsville, TX 78363, USA*

*FIDEL HERNÁNDEZ, Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville, Kingsville, TX 78363, USA*

*DALE ROLLINS, Rolling Plains Quail Research Ranch, 1262 US HWY 180W Rotan, TX 79546, USA*

Various indices and population estimations such as the spring cock call index, fall covey-call counts, roadside counts, helicopter counts, and trapping are used at RPQRR to monitor bobwhite abundance. However, indices are not true predictors of abundance and are often deemed unreliable, especially for measuring response. Our objectives are 1) to compare the accuracy of indices and estimations to determine a cost-effective, reliable approach to population monitoring 2) determine which index, if any, serves as the best predictor for fall bobwhite abundance. Determining accuracy of population estimates and indices will help quail managers better gauge the success (response) of their management and make decisions for hunting season.





## Bobwhite and Scaled Quail Survival and Reproduction

Brad Kubecka, Graduate Research Asst., RPQRR

During the spring, a sample of bobwhite and scaled quail at RPQRR are fitted with 6 gram radio-transmitters to document nesting ecology and survival. On 1 May 2016, 70 bobwhite hens were alive, on-property and being monitored daily; 28 hens attempted one nest (40%) and 3 attempted a second nest (4%) for a total of 31 nests. One bobwhite nest was abandoned, while another was attributed with an unknown fate. A total of 22 scaled quail hens entered nesting season on 1 May. Eleven nests were found with 7 hatches. No second nest attempts by scaled quail were documented. Over the past 7 years bobwhites have averaged 60.2% hatch rates, while blue quail have done slightly better (71.2%) for the past 4 years. Perhaps the most surprising statistic we've noted is the percent hens attempting a nest, which only averages 49.4%—most studies report nesting rates of 1.2 or greater.

Table 1. Bobwhite nest productivity and survival at RPQRR, Fisher County, TX, USA. 2009–16.

Year	Hens Alive May 1	Hens Alive Aug. 1	Total Nests Attempted	Avg. Nests per hen	Hens that attempted a nest (%)	Hens that attempted 2 <sup>nd</sup> Nest (%)	Hen Survival (%)	Nest Success (%) <sup>a</sup>
2009	79	27	43	0.54	41	13	34	51
2010	50	35	20	0.4	36	4	70	45
2011	73	43	10	0.14	14	0	59	60
2012	11	9	11	1.0	73	27	82	73
2013	27	19	16	0.59	55	4	70	56
2014	37	22	30	0.81	70	13	59	58
2015	41	27	44	1.07	78	27	66	77
2016	70	36	25	0.44	28	3	51	62

<sup>a</sup> Apparent Nest Success (Nest Successes / Nest Attempts)

Table 2. Scaled quail productivity and survival at RPQRR, Fisher County, TX, USA. 2009–16.

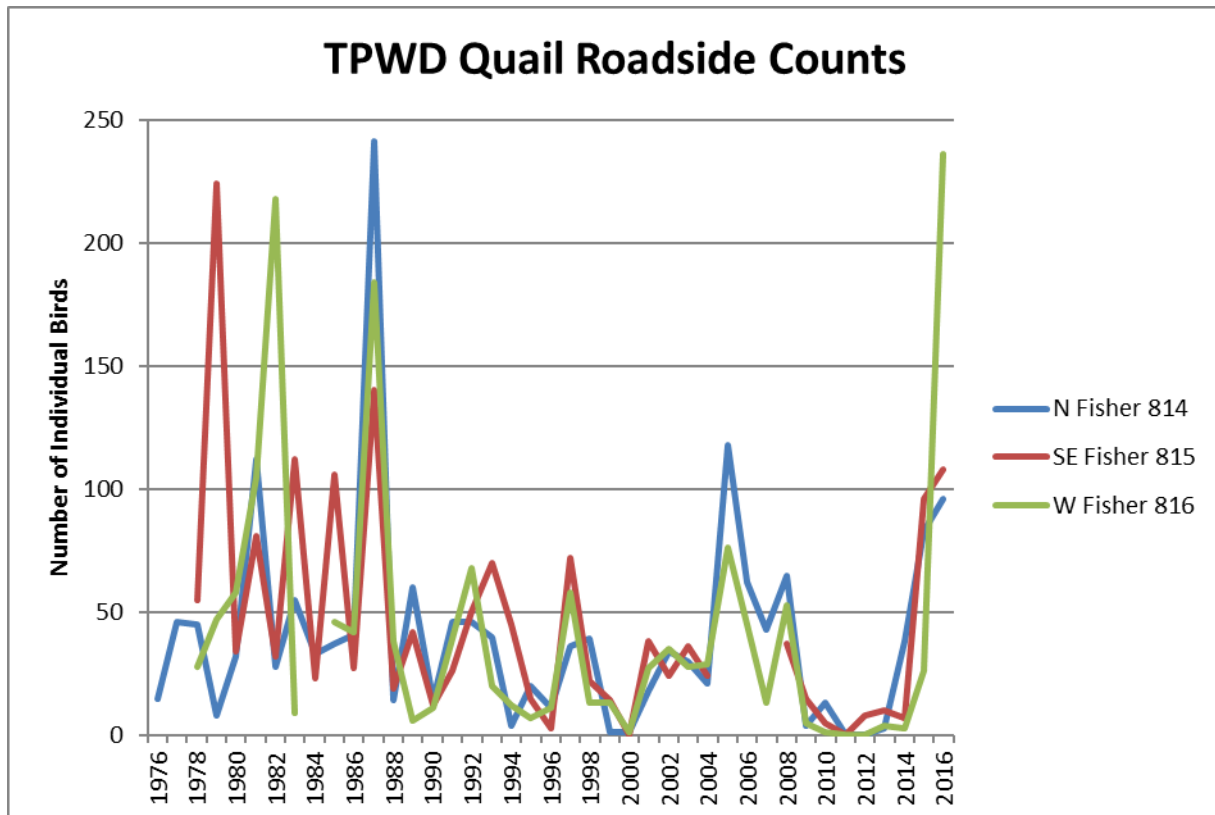
Year	Hens Alive May 1	Hens Alive Aug. 1	Total Nests Attempted	Avg. Nests per hen	Hens that attempted a nest (%)	Hens that attempted 2 <sup>nd</sup> nest (%)	Hen Survival (%)	Nest Success (%) <sup>a</sup>
2013	8	6	4	0.5	50	0	75	75
2014	40	30	34	0.85	66	17	75	61
2015	25	14	13	0.52	40	12	56	85
2016	22	13	11	0.50	50	0	59	64

## Quail Trends in Fisher County

*Barrett Koennecke, Texas Parks & Wildlife Department, Roby*

**TEXAS**  
**PARKS &**  
**WILDLIFE**

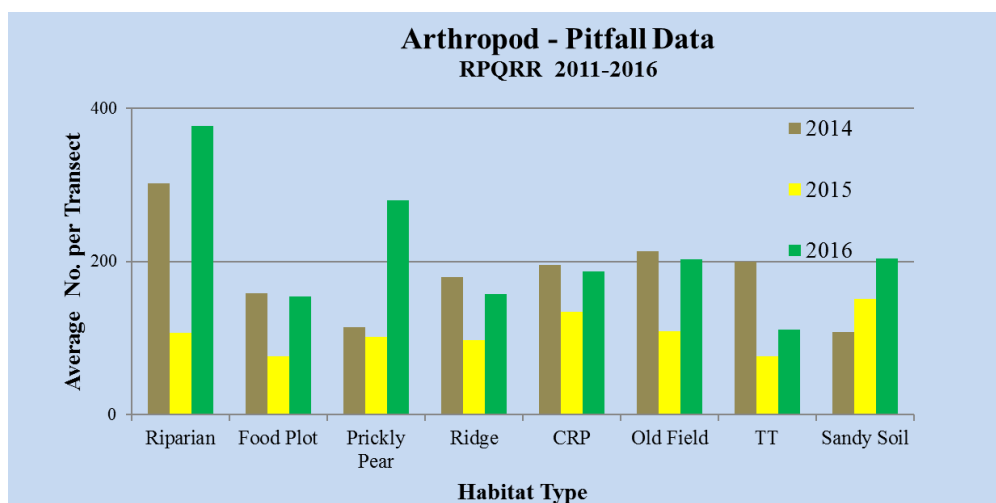
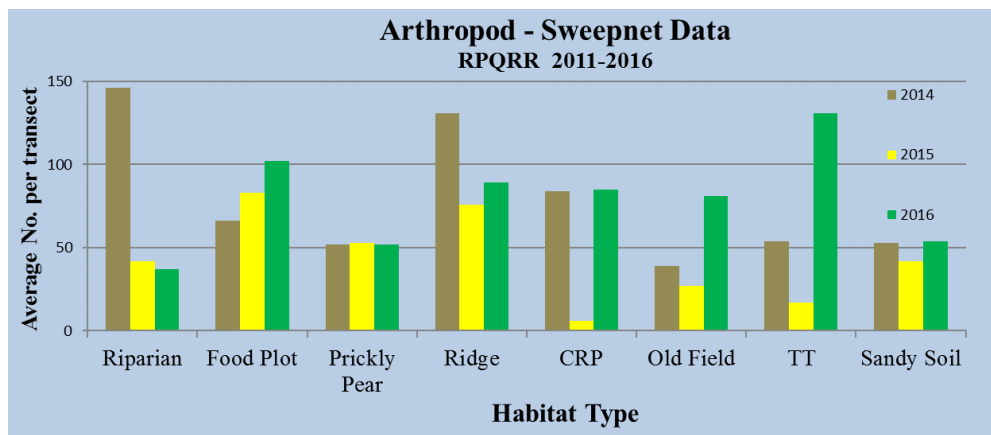
Texas Parks and Wildlife Conducts roadside counts across most ecoregions of the state—some of those routes have been counted annually since 1976. The routes consist of a 20-mile route that is driven once every year in August and number of birds recorded. We currently have 3 routes in Fisher County: (1) the northern line running from just north of Rotan to the east almost to Hamlin (2) the southeastern route starts around Sylvester and ends close to Trent; and (3) the western Route starts a few miles west of Rotan and winds its way south by the southern edge of the Rolling Plains Quail Research Ranch. Everyone knows the bird numbers suffered from the drought in 2011 but as the last few years progressed we started to see improvements in recruitment. In 2015 the state received exceptional rainfall and quail numbers shot up. This past spring and summer received good rainfall and although numbers did not appear increase to the same degree as last year there was a healthy increase in bird numbers. The Western Fisher County line shows numbers to be almost 10 times higher from 2015 to 2016. We attribute that to a bad count in 2015. All other routes including other counties showed higher abundance increases in 2015. In essence, there are lots of quail in the county and numbers appear to be among the historic highs since records have been kept. As far as blue quail numbers go, most birds have been largely absent from roadside counts until this year. On the Western Fisher County Line, there were 2 coveys of blues reported near the quail research ranch. At this time we are unsure if they were resident native birds or some of the trans-located blue quail as part of an ongoing research project. At any rate bird dogs and hunters should be happy this year.



## Arthropod Dynamics on RPQRR

*Lloyd LaCoste, RPQRR*

Arthropods (e.g., insects) are an important food source for quail hens during the nesting season and for young chicks while they experience rapid growth. An arthropod contains almost everything a growing chick needs such as protein and water. They act as “MREs” (Meals Ready to Eat) for quail. We conduct arthropod surveys annually in July to estimate the overall abundance of arthropods. Our survey takes place across 8 different habitat types across the ranch. When conducting the surveys 2 sampling techniques are utilized: pitfalls and sweep nets. Pitfall traps are checked at 3-day intervals with a total of 3 checks per transect. Each pitfall transect will have 6 pitfall traps, and we sample 5 transects per habitat type. Once pitfall traps are completed, sweep nets are used at 4 randomly selected pitfall traps per transect. All arthropods are dried, counted, and recorded.





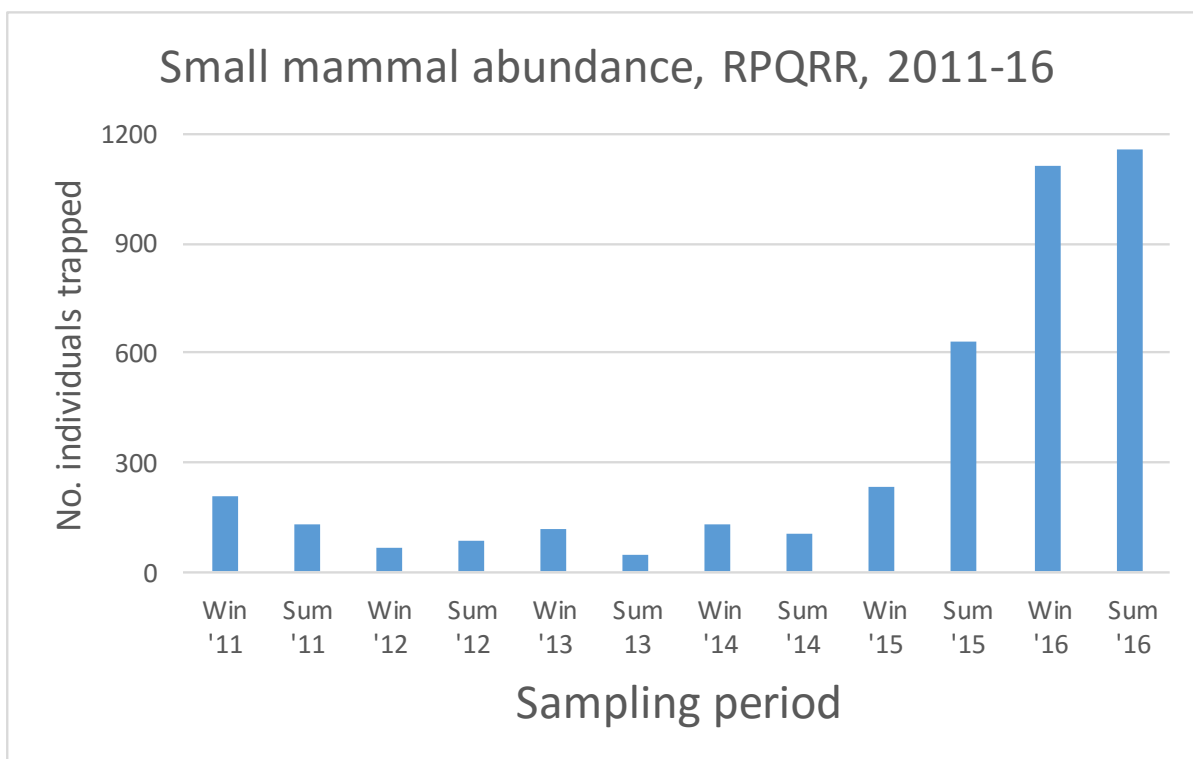
## Small Mammal Trends on RPQRR—2016

Alexandra Bouchard, Summer Intern, RPQRR

Research on small mammals is conducted at RPQRR because they may act as a buffer for quail predation. Predators of quail (and their nests) such as bobcats and coyotes, also prey on various species of small mammals. Trends in small mammal dynamics at Tall Timbers Research Station in Florida have documented strong positive relationships with bobwhite abundance. Each year we set up 25 Sherman traps in 5 X 5 grids, with 5 grids per habitat type (Old Field, Food Plot, Mesquite Woodland, Rocky Outcrops, Prickly Pear, Sandy Soil, Riparian, and CRP fields), for a total of 4 nights. Therefore at the end of each trap season we have collected data for a total of 4,000 trap nights (8 habitat types X 500 trap-nights per type). Last summer (2015), there was an explosion in the



number of small mammals captured as compared to previous years (2008-2014). We observed a boom especially with the Hispid Cotton Rat (*Sigmodon hispidus*) which comprised 83.6% of new captures. The irruption of cotton rats continued in 2016 with numbers almost doubled from last summer's record catch. Cotton rats again dominated at the community level, comprising 88% of all individuals. Summer counts were similar to those obtained during Winter.



## The Importance of Brood-rearing Habitat for Quail

*Amanda Gobeli, Extension Associate, Texas A&M AgriLife Extension, Reversing the Quail Decline Initiative*

Brood-rearing cover is an essential but frequently overlooked aspect of quail habitat management. It has a distinctive structure, being relatively sparse near the ground to allow freedom of movement while forming an overhead canopy that conceals hens and chicks. It therefore protects broods from predators as they forage for food—an extremely vulnerable but crucial activity. Brood-rearing vegetation also serves as a source of food by producing seeds and harboring insects. Insects are an essential source of protein for growing chicks during the first two weeks of their lives, and for hens during egg production. It acts as a thermal refuge as well, protecting delicate chicks from overheating by providing shade and moisture to lower temperatures at ground level. In Texas, brood-rearing cover frequently consists of plants like sunflowers, broomweed, croton, ragweed, kochia, and other similarly structured forbs and wildflowers. These conditions can be managed for by soil disturbance via discing, hoof traffic, or controlled burning in cold months, or by diverting water to areas where forbs are desired. It should be noted that brood-rearing cover is just one facet of suitable quail habitat and should therefore be interspersed with other essential cover types, such as nesting and woody (escape) cover.





# STOP 2

Cactus: a Prickly Paradigm  
Control efforts  
Monitoring treatment effects



## Prickly Pear Management Using Aerator and Herbicide

*Lloyd LaCoste, RPQRR*

The Board of Directors for the Rolling Plains Quail Research Foundation would like to host a bird dog field trial at the ranch. In order for us to be able to host a field trial we needed to reduce the amount of prickly pear that we have on the ranch. For the last eight years we have been looking for quail-friendly approaches to reduce the amount of prickly pear including prescribed burning during growing and dormant season as well as patch-burn grazing. These efforts produced varied results. In an effort to be more aggressive in our approach of reducing prickly pear we decided to spray areas of high concentration of prickly pear while excluding areas that we knew had an abundance of desirable woody plants. In April 2014, we sprayed 1,550 acres from a helicopter with either Tordon or Surmount. During the summer of 2016, in a continued effort to be more aggressive in our reduction of prickly pear, we rented a D-6 bulldozer and borrowed an aerator that was designed to spray prickly pear from a member of our Board of Directors (Justin Trail). The aerator has two tanks that are mounted above the aerator blades—each tank hold 325 gallons. We placed 6.25 gallons of Surmount per tank (2%) along with 1 gallon of surfactant per tank as we sprayed the prickly pear. We also used a skid loader mounted with a smaller-scale aerator (“RanchMaster”) to treat areas along riparian areas. Our initial plan was to create a “fairway” that would be 300 yards wide that would be treated to remove prickly pear around a course that would be 12 miles long. After a few days we realized that it would take way too long to accomplish this goal. We then decided to treat areas where high densities of prickly pear along the course. Essentially we were using an “IPM on steroids” approach. This effort still took us almost 3 months. The aerator allowed us to get closer to our desirable woody species and sculpt more finely the prickly pear than we could from the helicopter. In the future we will monitor our efforts to determine if we get the desired results of reducing prickly pear while saving our desirable quail houses.

*In-kind support provided by Dow AgroSciences, Bobcat of Abilene, J. Trail, M. Moon, and C. Ellis.*

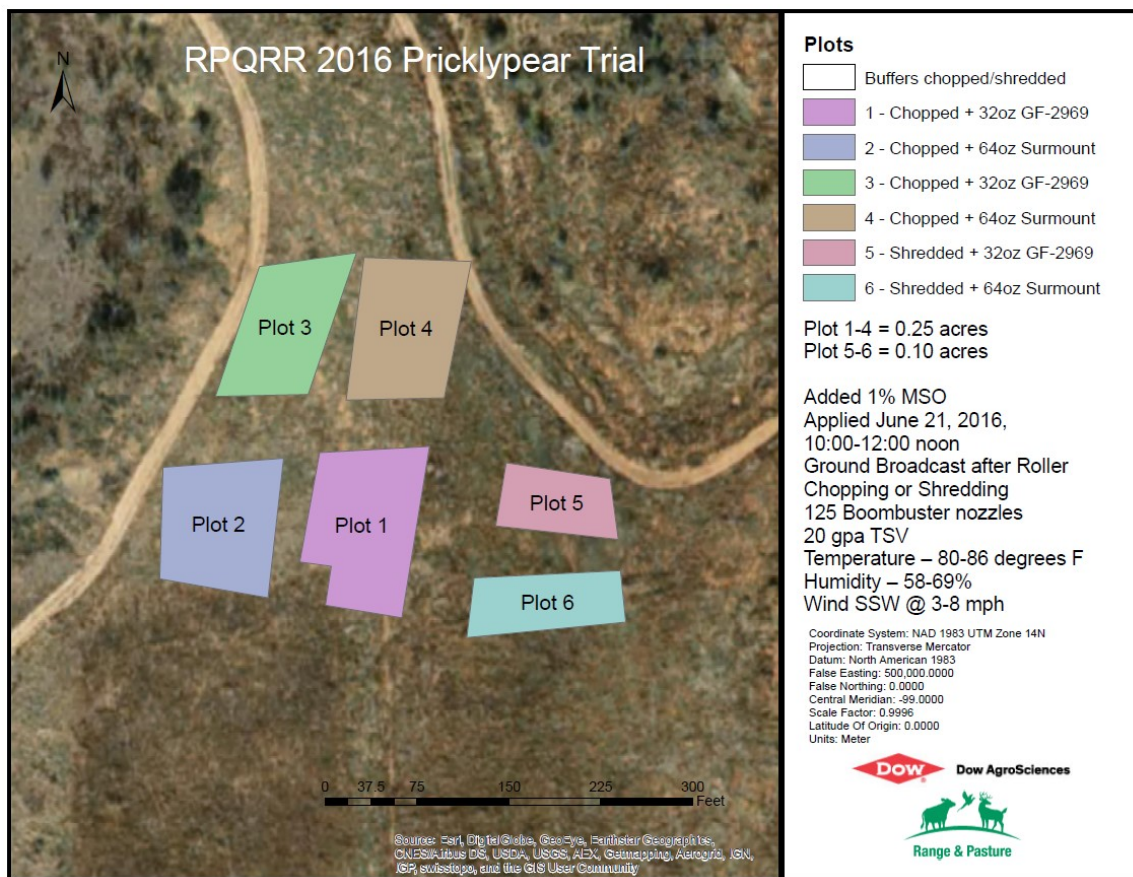




## Control of Pricklypear Cactus

*Ralph Porter, Dow AgroSciences*

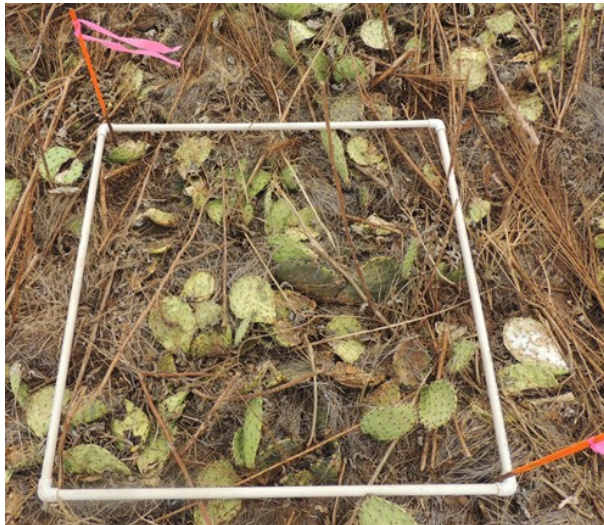
Pricklypear, friend or foe? A question often asked with mixed responses. Obviously the plant has good qualities from a wildlife habitat, but also can increase in abundance to the point that many other plant species are displaced or unavailable for use and can severely limit access to an area. Since the introduction of Tordon 22K herbicide in 1964, Dow AgroSciences has provided a solution to managing pricklypear infestations. The bar was raised in 2004 with the introduction of Surmount herbicide, providing faster more reliable pricklypear control. Dow AgroSciences is committed to continually providing improved solutions for landowners, spending an average of \$1 million dollars a day on research and development. We are currently looking into a product that will continue to raise the bar for control of pricklypear cactus. GF-2969, the research number assigned to the product, is currently being evaluated in Texas and New Mexico. Plots were established with GF-2969 and Surmount herbicides at the Rolling Plains Quail Research Ranch following roller chopping or shredding of pricklypear. These treatments were applied on June 21, 2016. Herbicide applications were made as a ground broadcast application using a commercially available sprayer mounted in a Polaris Ranger. The map below shows location of plots and treatments applied. Initial evaluations were made September 1, 2016 with final evaluations to be made 1 and 2 years after application.



## Photo Points for Monitoring Prickly Pear Disappearance

*Emily Beisch, RPQRR*

Since June, several areas of the ranch with a high density of prickly pear were treated with an aerator/chopper, pulled by either a bulldozer or a skid-steer, then sprayed with herbicide (Surmount). To monitor the treatment effects on the prickly pear, photo point plots were set up throughout the ranch. There are currently a total of 15 photo points: 5 in the bulldozed areas, 5 in the areas where the skid-steer was used, and 5 to serve as control plots in areas where there was no treatment. Each of these plots covers one square meter. They are marked by two pieces of rebar, and a frame is placed on the plots when photographed. A third piece of rebar was used to mark the spot over which the photographer stands to take the photo. The photos will be taken once a month from almost straight above and at a forty-five degree angle to help show a three-dimensional aspect of the plots. The first photos were taken on August 26<sup>th</sup>. Over time, these permanent photo plots can be used to monitor the treatments in an effort to learn more about how fast the cactus dies, decays, or regrows. The photos will serve as a visual tool to illustrate the effectiveness of our prickly pear control methods.



*Photo point Comparison:* The photo on the left is from bulldozed plot No. 1 on August 26<sup>th</sup>, and the photo on the right is the same plot on September 14<sup>th</sup>. Photographs will be taken at 30-day intervals to record pad status.



# STOP 3

## Predator ecology

### Raptor trends

### Predator trends via photo-trapping

Do feeders predispose quail to predation?

Does proximity to feeders affect nest fate?

Can hawks target radio-marked quail?

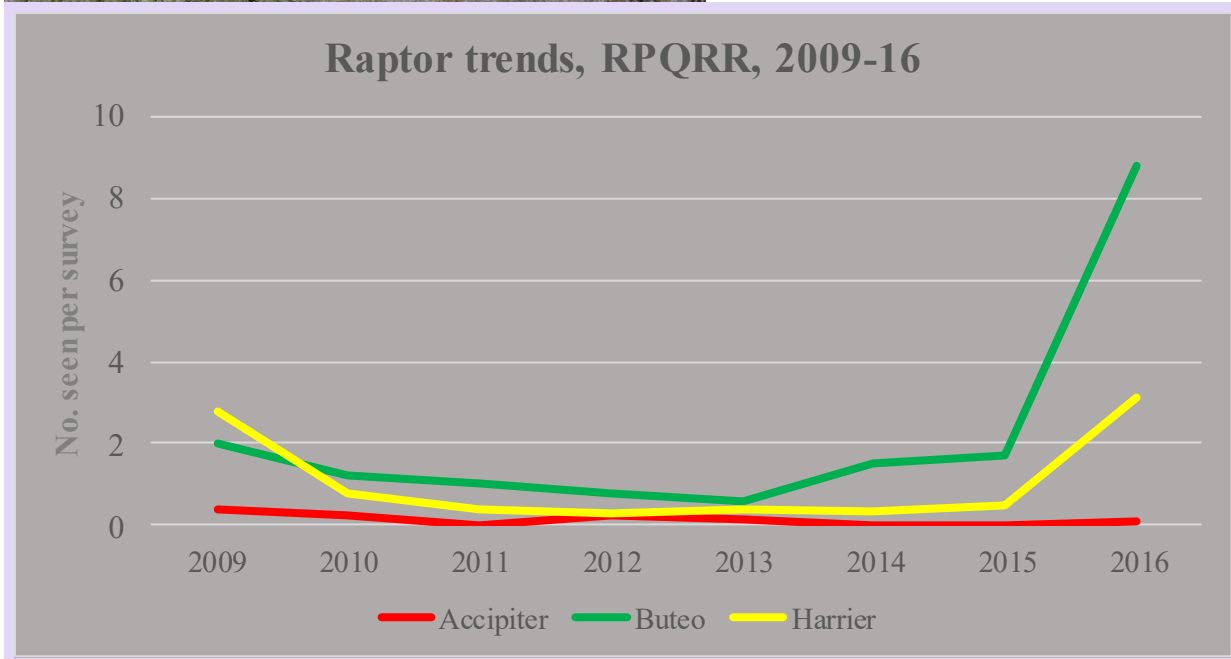
### Roadrunners & quail



## Raptor Trends at RPQRR

*Skyler Henderson, RPQRR*

Raptors are important predators of quail. We conduct weekly surveys along two 10-mile routes at RPQRR to record each raptor's location, species, and activity (perching and soaring). The chart shows the total number of raptors from January 1 through December 31 for each year (YTD for 2016). There has been an increase of raptor observations thus far in 2016 compared to the last few years. This could indicate that increasing prey abundance (quail and small mammals) has attracted more raptors into the area in search of prey. The biggest increase has been in buteo hawks (e.g., red-tailed, Swainson's) which are not considered to be serious threats to quail. Harriers are considered to be a "moderate" threat to quail, while accipiters (e.g., Cooper's hawk) are the greatest threat. Our road surveys are likely not a good index to accipiter abundance.





## Mesocarnivore Abundance at RPQRR via Camera-trapping

*Steven Romo, Summer intern, RPQRR*

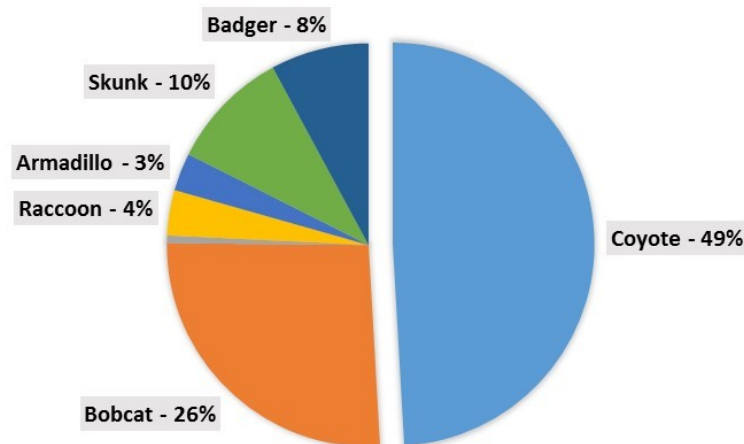
Game cameras were used at RPQRR to assess predator abundance on the ranch. I randomly selected 17 of the 25 mile markers along the Texas Quail Index route which runs throughout the property. Beginning on 25 May 2016 camera traps were set at the mile markers to acclimate predators to their presence and ensure that the cameras were functioning properly. After this week long pre-trial, I began collecting data beginning on 1 June 2016. The data collection period for this project lasted 3 weeks. In the first week I set the traps in order to establish a baseline of predator abundance. In the second week I treated all of our sites by placing a fatty-acid scent tablet in front of the cameras in an effort to attract more predators. A third week of photo-trapping was used as a post-treatment period to determine if predators continued visiting the area. The cameras were programmed to take 3 rapid fire pictures with subsequent bursts taken after a 30-second delay as long as they were being triggered. When I recorded the predator occurrences, I separated each occurrence by a 15-minute interval in order to reduce any bias from individuals that lingered in the area of detection.

The results of this year's camera trapping effort showed that the scent tablet treatment did not lead to an increase in predator trapping events. In fact, the occurrence of mammalian predators gradually decreased over the 3-week study period. I did however capture multiple images of mammalian predators smelling and urinating on the scent tablets during the second week of data collection. I experienced camera malfunctions on one camera where photographs taken at night were not bright enough to determine what had triggered the camera. We also had one camera fail to take any pictures on the third week which may have skewed our data set slightly.

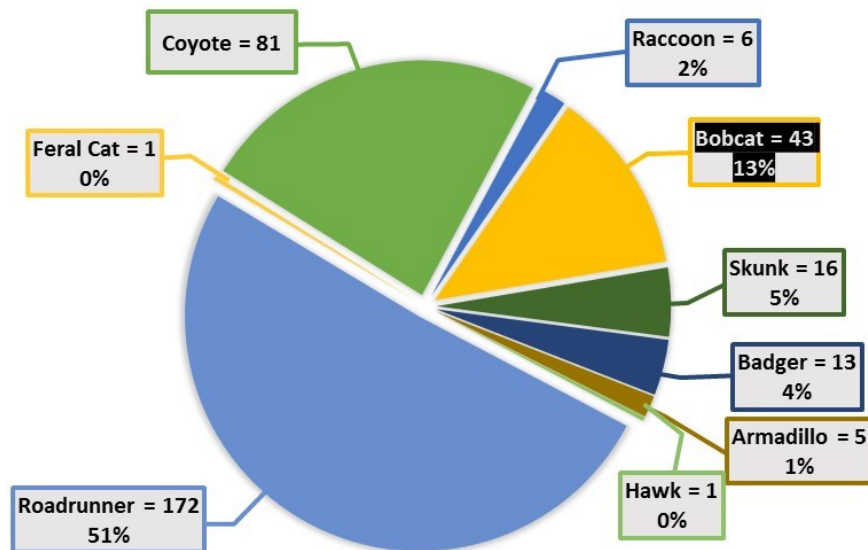
I also captured many images of avian predators, mostly Greater Roadrunners that may prey upon quail chicks. For a secondary investigation unrelated to the scent tablet treatment I added roadrunner and hawk occurrences to the data set in order to determine total predator trapping events and relative abundance of various predators. When added to the data set, roadrunners comprised a substantial percentage of the predator occurrences during the 3-week study.



Mammal species recorded during camera-trapping efforts for 3 weeks in June 2016, RPQRR



Total predators observed over 3 weeks of camera-trapping, RPQRR, June 2016

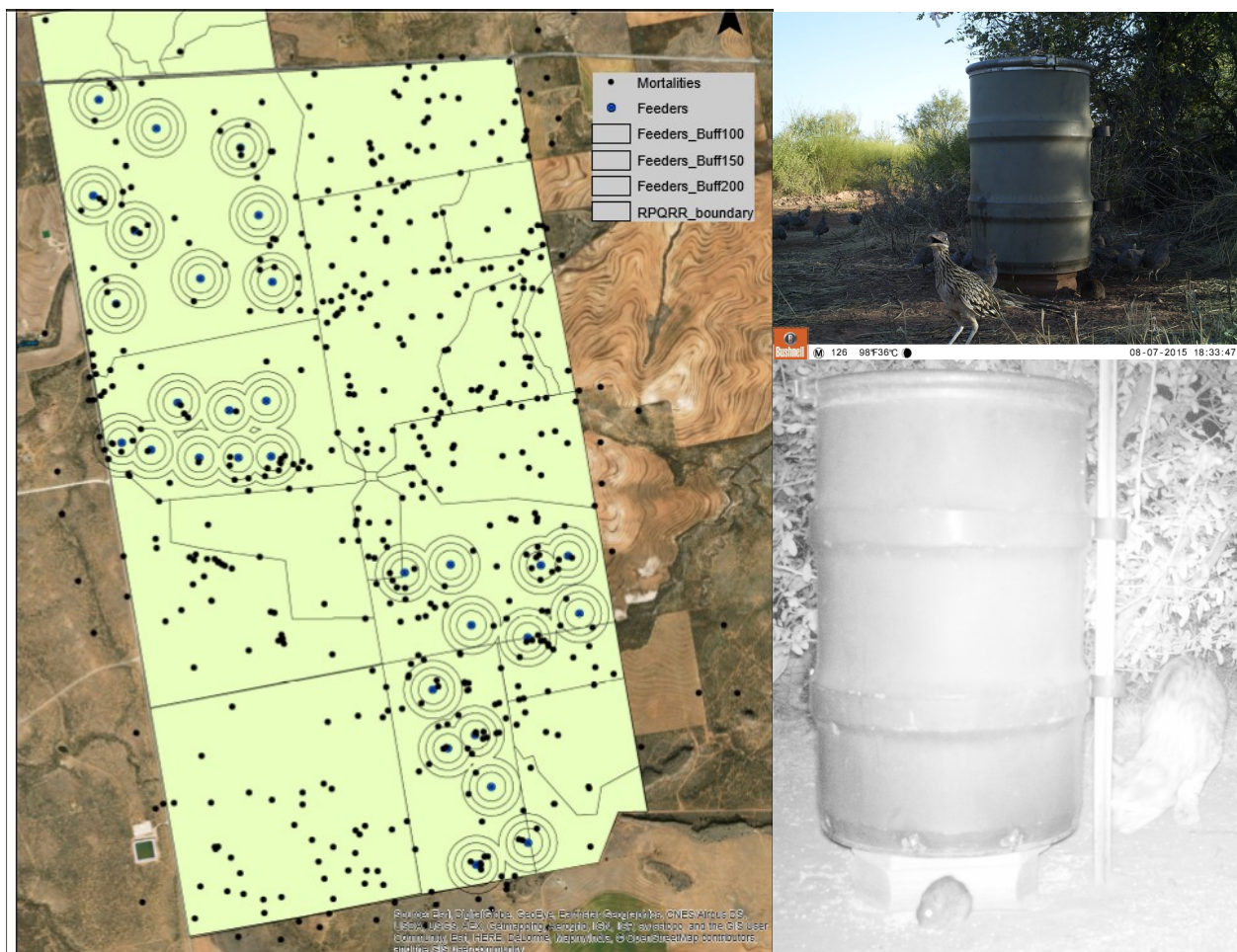


## Does Access to Feeders Predispose Quail to Predation?

*Jason Davis, Graduate Research Assistant, RPQRR*

Localization is an expected outcome of supplemental feeding for Northern Bobwhite and Scaled Quail. While localization and concentration of quail can be desirable for hunters, we may be offering predators an advantage as well. In other words, if quail know where the feeders are then perhaps the predators do as well. To address this, we 1) used ArcGIS to analyze 553 mortality locations collected via radio telemetry and GPS since March 2010, and 2) we will be monitoring feeder activity on 10 of 28 stationary feeders year-round for a 24-month period using Bushnell Trophy Cam HD game cameras. All data was collected at the Rolling Plains Quail Research Ranch.

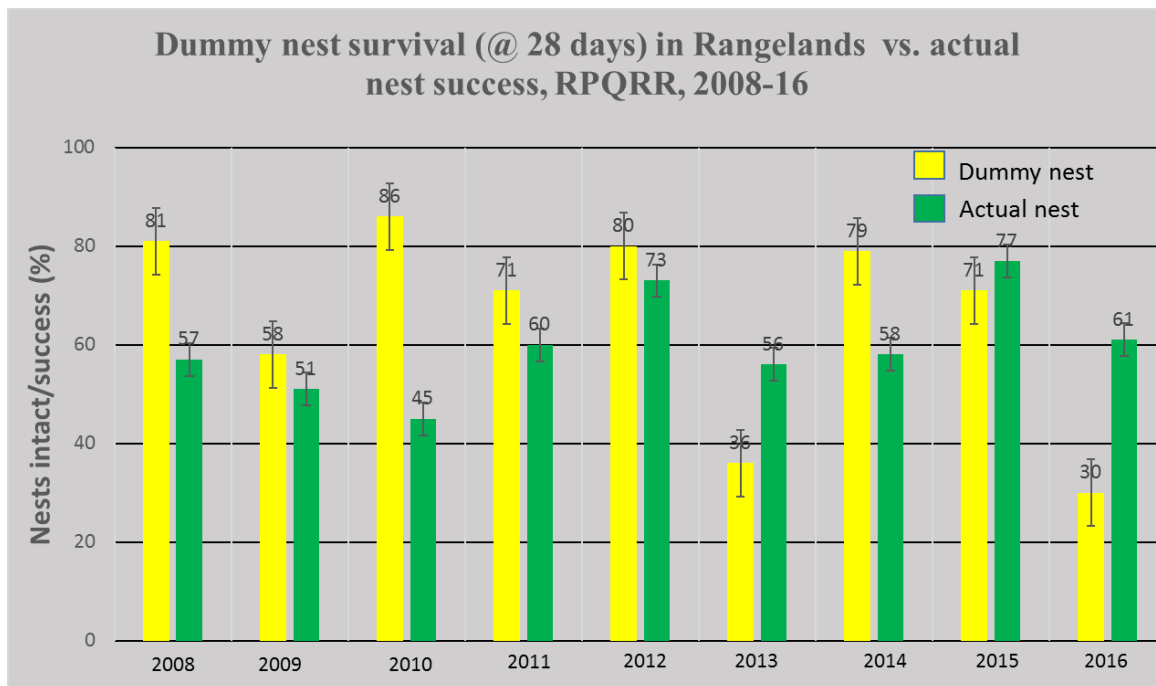
*Funding provided by Abilene Christian University and RPQRR.*



## Dummy Nest Experiments

*Stoney Newberry, Summer Intern, RPQRR*

For 2016, the Dummy Nest project consisted of 132 nests (i.e., 3 chicken eggs to serve as a simulated Quail nest); 72 nests located in CRP and 60 in Rangeland. Originally there were 72 nests in Rangeland but 2 transects were destroyed by roller-chopping before the 14-day check. Points were selected at random for Rangeland using a random number generator for mile markers throughout the ranch to ensure unbiased sites. At each transect, 6 nests were placed along a 300-m line with each nest being placed approximately 50 m apart. After 14 days, all 132 nests were checked for survival or depredation. Nests with eggs intact were replaced with fresh eggs. Survival rates were checked at 14- and 28- days. This year's survival at 28 days was 58.3% for CRP and 30% for Rangeland, with an overall survival of 45.4% . The relationship between survival of dummy nests vs. actual nest success since 2008 has varied considerably, but dummy nests do not appear to be a reliable predictor of actual nest fate. Additional analyses are ongoing.





## Does Proximity to Quail Feeders Impact Quail Nesting Success?

*Anne Provost, Summer Intern, RPQRR*

Earlier research near Uvalde reported that “survival” of “dummy” (simulated) nests varied inversely relative to distance from deer feeders. In other words, dummy nests situated closer to deer feeders experienced lower survival than nests situated further away from feeders. These researchers concluded that point attractants (deer feeders) attracted raccoons and feral hogs thus inflating the impacts of these species on nests located closer to feeders. Might the same relationship occur with the fixed (barrel) quail feeders used in some pastures on the RPQRR? My experiment was to examine this relationship. I selected randomly 10 of the 26 feeders present on RPQRR. I then chose a random heading and situated dummy quail nests at 10, 50, 150, and 350 m away from the feeder along that azimuth. A total of 120 nests were deployed (30 at each distance). All nests were situated in suitable bunchgrasses (e.g., silver bluestem). Nests were checked at 14– and 28-days and eggs intact at 14 days were replaced with fresh eggs. My data suggested no clear relationship between distance from feeder and nest fate. Oddly, a slightly negative trend in nest survival was noted with increasing distances from the feeder (i.e., the converse of our hypothesis). I attempted to classify eggshell evidence found at the scene to estimate the relative impacts of various mesocarnivore species, but the accuracy of identifying predators via eggshell evidence is precarious at best. It is noteworthy that RPQRR had very few raccoons and feral hogs during these trials (unlike the study site mentioned earlier near Uvalde). Thus, the predator community likely impacts the incidence of dummy nests in relation to feeders. Based on camera-trapping (see abstract above), coyotes and bobcats are the most commonly photographed mesocarnivores at RPQRR. As such, they are likely not as attracted to quail feeders as much as raccoons and feral hogs.



Table 1. Fate of dummy nests located at various distances from barrel quail feeders, Aug 2016, RPQRR.

Distance from feeder (m)	10	50	150	350
Nests intact @ 28 days (%)	53.3	50.0	46.7	36.7

## The Influence of Radio Transmitters on Avian Predatory Selection of Northern Bobwhites

*Rebecca Perkins, Department of Natural Resources Management, Texas Tech University  
Clint Boal, U. S. Geological Survey, Texas Cooperative Fish and Wildlife Research Unit, Lubbock, TX, U.S.A*

Radio telemetry is a tool used to locate and track individual animals as they conduct their natural behaviors in their natural environments. Spatially tracking individuals can provide information on portions of the animal's life history such as habitat selection, breeding behavior, phenology, life expectancy, and mortality causes. This potential fount of knowledge has led to a wide use of the tool throughout wildlife research including bobwhites. However, the individuals fitted with radio transmitters may carry increased ecological costs compared to those not fitted with transmitters as a result of the additional weight and physical burden, a phenomenon sometimes referred to as "radiohandicapping." In January 2016 we worked with the staff at RPQRR to investigate the impacts of radio transmitters on avian predatory selection of bobwhites. We coordinated with Dallas falconer Mr. Chris Davis to fly his trained Harris' Hawk in a series of selection trials. In each trial two bobwhites, captured from RPQRR 24-48 hours pre-trial, were released from paired remote-controlled quail launchers. Each trial pair contained one bird fitted with a 5.5-g radio collar necklace and one handled similarly but unburdened by a transmitter. The launchers were triggered simultaneously and we observed which quail (collared or not) was pursued by the hawk. We conducted 18 successful trials in which the hawk clearly pursued one bird over the other. The Harris's Hawk pursued the bobwhite fitted with the transmitter in 11 (61%) of the trials. Our findings show no statistically significant difference from random selection of what was available ( $p = 0.12$ ). We observed no clear influence of age or gender of the quail on the hawk's selection. Though these results indicate little to no influence of transmitter on an avian predator's selection of bobwhites our limited sample size and single predator trials do not compose a thorough investigation. Further research and replications would increase our confidence in our results.



Fig. Two bobwhites released from quail-launchers for trial.



## Comparison of coyote diets on the Rolling Plains Quail Research Ranch during La Niña vs. El Niño weather patterns

*Cade Bowlin, Texas Tech University, Lubbock, Tx, 79410, USA*

The coyote (*Canis latrans*) is common on the Rolling Plains Quail Research Ranch (RPQRR). Coyotes have been credited with preying on quail and also depredating quail nests in the Rolling Plains of Texas. Previous research concerning coyote diet and prey selection on the Rolling Plains has warranted further investigation. Mark Tyson studied coyote diets on the RPQRR in 2009-11. Tysons' research was conducted during La Niña weather patterns with 2011 being one of the hottest, driest years in Texas recorded history. The study by Mr. Tyson on the RPQRR showed only one quail consumed by coyotes ( $n=1,080$  scats). However, quail numbers were also well below historic average on the ranch during the study period. Spring trapping data showed 45.3, 34.1, and 32.2 quail per 100 trap nights during 2009, 2010, and 2011 respectively. Efforts from spring 2016 trapping on the ranch indicated 331.2 birds/100 trap nights. The Wildlife Behavioral and Analytical Laboratory at Texas Tech University is conducting research at the RPQRR during an El Niño weather pattern enhancing the study design originated by Mr. Tyson. The purpose of the study is to ascertain whether coyotes are important predators of quail and quail nests during a period when quail and additional coyote food sources are abundant. Additionally, the study will investigate dietary differences of coyotes during La Niña and El Niño weather cycles.

Coyote scats are being collected in order to analyze the diets of coyotes on the RPQRR focusing on consumption of quail, mast, and small mammals. Data attained from scat samples will allow analysis of coyote diet composition. The scat collection route is a 20-mile, continuous loop on the Texas Quail Index (TQI) route on the RPQRR. Coyote scats are collected once per month with a total of 30 scats collected per month. Scats will be analyzed in the laboratory using a biomass calculation model and frequency of occurrence techniques. Data derived from scat analysis will be used to determine coyote dietary composition on the RPQRR. Using small mammal trapping data and monthly vegetation surveys, a determination of food item selection versus availability will be made.



## Roadrunners & Quail: Observations from Photo-trapping at RPQRR

*Dale Rollins, RPQRR*

Few topics in west Texas quail management foster more discussion than roadrunners and quail. Are roadrunners the *Pterodactyls* on quail chicks they're purported to be, or are such claims exaggerated? Anecdotal observations of quail X roadrunner interactions abound, and in the court of public opinion among ranchers and hunters, the roadrunners would likely be lynched. But what does scientific studies have to say? The evidence at hand is not very damning to the roadrunner—one study in south Texas detected only 2 of 140 roadrunners examined that contained quail. We used video cameras in 2009 to monitor prey delivery two roadrunner nests but never recorded any evidence of birds of any kind. During a study of dummy nests near San Angelo, roadrunners were photographed at a nest (chicken eggs), had their picture taken, but never broke into the eggs.



Suffice to say a roadrunner is a “feathered coyote”—it’s likely to eat whatever is most available, be it a grasshopper, a Texas horned lizard, a mouse, or perhaps a small quail chick. I’ve monitored two water sources here at RPQRR over the past summer and recorded many pictures of roadrunners (they were the most commonly photographed animal) and also of quail, and had the opportunity via video surveillance to observe some behaviors of interest. Quail (bobwhites and blues) accompanied by chicks younger than about 4 weeks of age will exhibit aggressive behavior to the roadrunner(s). I interpret such behavior that indeed quail consider roadrunners as a threat for a window of time (perhaps a month after hatching of chicks). Beyond that age of chicks (i.e., older than about 6 weeks) and the quail pay little attention to the roadrunner(s). I have observed personally, or via game camera video surveillance, quail “running off” a nearby roadrunner. I’ve seen blue quail press the attack for 25 yards or more with gusto.

Obtaining evidence of the impact of roadrunners on quail eggs is more difficult, and would require consumptive sampling (i.e., shooting roadrunners collected during May-June and examining their crop contents). We hope to conduct such a study next spring.





# Lunch

At the Pavilion

**THANKS TO OUR MEAL SPONSORS!!**



*Park Cities Quail*

25 Highland Park Village • Suite 100-417 • Dallas, Texas 75205



**Dow AgroSciences**





## Reversing the Decline of Quail in Texas Initiative

*Amanda Gobeli, Texas A&M Agrilife Extension Service*

Funding of \$2 million directed by the 83<sup>rd</sup> Texas Legislature and authorized by Texas Parks and Wildlife Department launched the **Reversing the Decline of Quail in Texas Initiative** (RDQI) in 2013. The objective is to address and reverse the decline through Extension education and research on factors that reduce quail populations.

**Research Component** Thirteen research projects were funded to address quail decline and field and lab work for projects began in December 2013 and are still ongoing. Emphasis was placed on the following priority areas:

- ♦ investigations into the impact of parasites,
- ♦ examination related to the impact of toxins,
- ♦ field studies on health factors influenced by environmental conditions,
- ♦ impact of predation,
- ♦ effectiveness of translocation to repopulation depleted areas,
- ♦ genomic sequencing and bioinformatics related to quail population.

These investigations are being conducted by different research institutions across the state including Texas A&M University, Texas A&M University – Kingsville, Texas Tech University, University of North Texas, Texas A&M AgriLife Research, and the RPQRR.

**Extension Component** Extension is the vehicle to translate and relay research findings to agricultural producers, wildlife managers, and the general public. We use an integrated approach to accomplish these goals, combining traditional face-to-face programs (high-touch) with novel methods using the internet (high-tech).

- ♦ **Texas Quail Index (TQI):** A series of hands-on demonstrations, run by our County Extension Agents designed to educate land managers, hunters, and other about quail population dynamics. For more information, see TQI abstract in this program.
- ♦ **Quail Appreciation Days:** Six-hour hands-on workshops, held across the state. In total, 17 Quail Appreciation Days were held from 2014 to 2015.
- ♦ **QuailMasters:** A series on intensive class in quail management and conservation for ‘serious students of quail.’
- ♦ **Bobwhite Brigades:** A youth-focused camp in its 25<sup>th</sup> year created by Dr. Rollins. The brigades camps give youth experience in critical thinking, communication, leadership, and team building, while learning about quail biology, habitat management, population dynamics, and ecology.
- ♦ **Social media:** New quail related Extension educational videos posted to WFSC AgriLife YouTube. The new Reversing the Quail Decline Initiative Facebook page grew to more than 3,400 “likes” in a short period, since January 2014.
- ♦ **Mobile phone apps:** Two free quail-related iPhone apps, a habitat evaluator and management calendar, were developed and released to add more diversification to the delivery media.
- ♦ **Webinars:** Five webinars were available for live listening and questions. The webinars covered a wide breadth of topics concerning quail management and conservation in Texas.
- ♦ **Quail Curriculum:** A curriculum aimed at high school students that uses quail biology examples to teach core concepts in math and science.
- ♦ **News releases** Essential to keeping research and extension education activities in the news. Available on today.agrilife.org.
- ♦ **Statewide Quail Symposium:** Slated for Aug 16-18, 2017 in Abilene.

## Restoring Scaled Quail to Historic Ranges in the Rolling Plains

**Rebekah Ruzicka**, *Rolling Plains Quail Research Ranch, Roby, TX 79543, USA; Department of Fish, Wildlife and Conservation Biology, Colorado State University, Fort Collins, CO 80523*

**Dale Rollins**, *Rolling Plains Quail Research Ranch, Roby, TX 79543, USA*

Scaled quail (or ‘blue’ quail) in the Rolling Plains of Texas declined sharply prior to 1990 and populations have remained depressed since then. As a result, scaled quail have become locally extinct across much of their former range. Translocation could be a powerful tool to reestablish those populations, particularly in isolated habitats. Previous translocation efforts of bobwhites and scaled quail have met with varying levels of success, but the factors that determine success in a translocation effort are yet unknown. Identifying factors and understanding what makes a translocation successful is key to being able to include translocation as another ‘tool in the toolbox’ for wild quail conservation.



Our objectives are to evaluate the effect of different soft-release strategies in the form of time spent in holding (i.e. 4-8 week treatments) and the source population (i.e. Rolling Plains or Edwards Plateau Ecoregions) on survival and dispersal of scaled quail translocated to two release sites in the Wichita River drainage in Knox County, Texas. We trapped and translocated 388 scaled quail in 2016. All birds were banded and approximately 25% of the hens were radiocollared ( $N = 89$ ). We monitored survival, dispersal, and nesting activity from April-August (i.e. breeding season). Prior to release we conducted an occupancy survey across 100,000 acres to confirm that occupancy of resident scaled quail was low prior to release. Sixty-two percent of our radio-collared hens survived the monitoring period and produced 30 broods. Hens showed a preference for woody cover as a nesting substrate. The farthest recorded dispersers traveled a distance of 5 miles, however most hens (~70%) stayed within 1 mile

Funding provided by Texas A&M Agrilife Extension’s Quail Decline

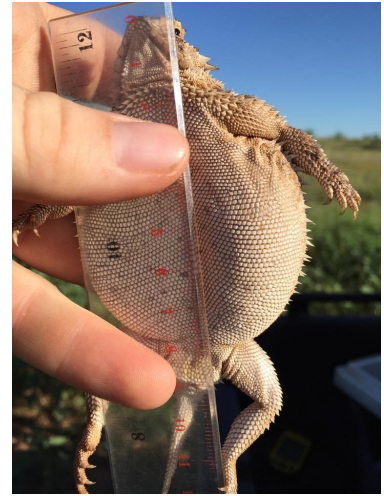
Study site in Knox Co. showing habitat historically occupied by scaled quail.



# Monitoring Texas Horned Lizards in the Rolling Plains of West Texas

*Dallas Zoo Department of Herpetology, Dallas Zoo Management, Inc.*

The Texas Horned Lizard, *Phrynosoma cornutum*, is perhaps the most recognizable species of Horned Lizard. It is the largest native species of Horned Lizard (Family: Phrynosomatidae) and has the widest distribution of any other Horned Lizard in the United States. Once extremely common throughout their range, Horned Lizards in general are now known to be in decline. The Texas Horned lizard perhaps the most threatened member of this group, with estimated population declines of greater than 30% across its range (Texas, Oklahoma, Kansas New Mexico, and northern Mexico) and even higher in its population epicenter, Texas (Linam 2008, Henke 2003). Currently the Texas Horned Lizard is listed by Texas Parks and Wildlife as a “Threatened Species”. This status provides limited protection by prohibiting private ownership and/or collection from the wild without a TPW permit and outright banning any related commercial activity.



We began preliminary data collection on THL abundance at RPQRR in the summer of 2010 and have continued through 2014 active season, which is typically May—Oct. Our goals have been to determine Texas Horned Lizard population density estimates, determine habitat preferences, and gather basic life history traits including movement patterns, environmental preferences, behavior and spatial relationship with Harvester Ants.

Our current method of collecting data consists of road surveys or “road cruising.” Once spotted, the lizard is captured by hand. Lizards are then marked with an electronic tag (PIT Tag), a tool used to determine population density through mark and recapture. In addition we are collaborating with Drs. Dean Williams and Amanda Hale, Biology department of Texas Christian University, in their efforts to determine fine-scale sex-biased spatial distribution patterns. This is accomplished by opportunistically taking DNA samples from captured animals with a cloacal swab.

During the 2011 season we started using a smaller PIT tag allowing us to permanently mark a larger number of subadult lizards, lowering our minimum taggable size from 60mm snout to vent length (SVL) to 50mm. While this has not increased our total capture number as of yet, it allows us to expand the size of our permanently-marked group which provides more potential for positive identification upon recapture. To date we have spent roughly 720 hours sampling roads resulting in close to 1,200 captures. Approximately 750 have been PIT tagged and 105 have been recaptured at least once.

Overall we feel like this has been a good year for horned lizards at RPQRR. As for the expanded presence of oil-related disturbance, the impact is too early to assess. However, the numbers are good this year and we have found lizards close to oil wells already. They will likely return to “normal” when the disturbance is past and as the vegetation grows back. We will eventually have a very good before and after comparison with regard to the presence of oil wells on the ranch.



# STOP 5

## Monarchs & milkweeds

### **Attention Quail Hunters: Save those seeds!**

RPQRR is soliciting crop contents of quail harvested across the Rolling Plains in an attempt to build a comprehensive seed collection of plants eaten by quail. As you clean birds, dissect out the crop and empty the contents into an empty shotgun shell box so they will dry out.. Do not put them in a plastic bag as they will mold. At the completion of your season send the box and contents to RPQRR, P.O. Box 220, Roby, TX.





## Mitigation Strategies for Monarch Butterflies

**Matthew Brym**, Wildlife Toxicology Laboratory, Texas Tech University, Lubbock, TX, 79416, USA

**Cassandra Henry**, Wildlife Toxicology Laboratory, Texas Tech University, Lubbock, TX, 79416, USA

**Ronald J. Kendall, Ph.D.**, Wildlife Toxicology Laboratory, Texas Tech University, Lubbock, TX, 79416, USA

Monarch butterflies (*Danaus plexippus*) are an iconic species that have been experiencing a documented population decline of approximately 90% over the past 20 years according to the US Fish & Wildlife Service. The primary reason cited for this decline is loss of habitat, especially the loss of milkweed plants upon which monarchs are uniquely dependent. Monarchs undertake a yearly migration, part of which is a breeding corridor that runs through Texas. The Wildlife Toxicology Laboratory (WTL) at Texas Tech is conducting research to aid the monarch conservation effort by evaluating risk factors to sustainable monarch butterfly populations. In addition, the WTL is evaluating the creation of monarch sanctuaries in West Texas. In order to determine the best composition for these sanctuaries, we have established test plots in collaboration with the Rolling Plains Quail Research Ranch (RPQRR) that utilize spreader dams. The spreader dams channel rainwater runoff from surrounding areas making them ideal for the propagation of the three species of milkweed chosen: antelope horn milkweed (*Asclepias asperula*), broad leafed milkweed (*Asclepias latifolia*), and green milkweed (*Asclepias viridiflora*). Additionally, Maximillian sunflower (*Helianthus maximiliani*), cowpen daisy (*Verbesina encelioides*), white pricklypoppy (*Argemone albiflora*), and American basket-flower (*Centaurea americana*) were introduced into the seed banks of the plots because they are well suited to the environmental conditions at the ranch. This composition of milkweed and flowering plants provide benefits throughout the year, creates breeding habitat and forage for monarchs, and is beneficial to local wildlife, particularly for Northern bobwhite quail (*Colinus virginianus*). The development and success of the test plots is being regularly monitored and over time we will arrive at an ideal plant composition for use in future restoration efforts of monarchs and that also provides habitat for Northern bobwhite quail..



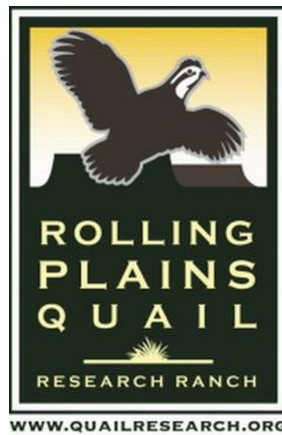
## Nectaring Plants for Fall-migrating Monarch Butterflies

*Ricky Linex, USDA Natural Resources Conservation Service, Weatherford*

While milkweeds are required by Monarchs for laying their eggs upon and being consumed by the different stages of caterpillars, adult butterflies also rely upon flowering forbs and flowering woody plants for nectar. Spring normally has an abundance of flowering plants for the Monarch's migration north—it is on their migration back to Mexico (and hence pass through Texas) that fall-flowering plants become critical for the butterflies to access the nectar that fuels their flight. Fall flowers are also dependent upon timely rainfall in mid to late summer to provide adequate flowers during the September to October migration period. Perennial forbs are the most dependable since they will usually flower using available ground moisture while annual forbs must have moisture for seed germination and growth. Desirable perennial forbs within the Monarch migration path across central Texas include species of gayfeather, Maximilian sunflower, blue salvia, goldenrod, heath aster, and species of ironweed. Desirable annual forbs producing fall flowers includes annual and prairie sunflower, eryngo species, golden crown-beard, frostweed and others that appear if the moisture conditions are favorable. The USDA Natural Resources Conservation Service's Plant Materials Center at Knox City is currently testing lesser known native perennial forbs including willow-leaf sunflower, Narrowleaf globemallow, and blue salvia to potentially provide additional seed choices for fall flowering nectar plants for Monarchs and other pollinators.







# Collaborators



*Park Cities Quail*

25 Highland Park Village • Suite 100-417 • Dallas, Texas 75205



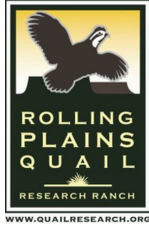
**Dow AgroSciences**



**West Texas Chapter  
Safari Club International**



**Colorado  
State  
University**



## Help Support the RPQRR

**Make a  
Donation**

The Rolling Plains Quail Research Foundation, a nonprofit organization, depends on charitable donations to help fund its work. The Foundation welcomes new, renewing, and continuing support of individual, corporate, and foundation partners. You will help us continue providing information on the understanding and management of bobwhite and scaled quail in West Texas. Gifts to the Ranch of all sizes are welcomed and appreciated.

The RPQRR is funded >95% from private sources, e.g., Quail Coalition, private sportsmen, and landowners. The RPQRR is operated as a nonprofit foundation and gifts are tax-deductible (but always contact your tax professional).

**We need your help to ensure that the RPQRR's legacy lives on.**

You can help by:

- making a cash donation;
- identifying potential foundations/contacts who share our passion for quail;
- reserve a place for RPQRR in your estate planning.

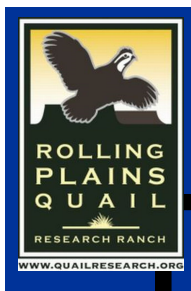
**To Contribute to the Foundation see our website ([quailresearch.org](http://quailresearch.org)).**

Make checks payable to: **Rolling Plains Quail Research Foundation or RPQRF.**  
Mail your check to:

**RPQRF  
PO Box 220  
Roby, TX 79543**

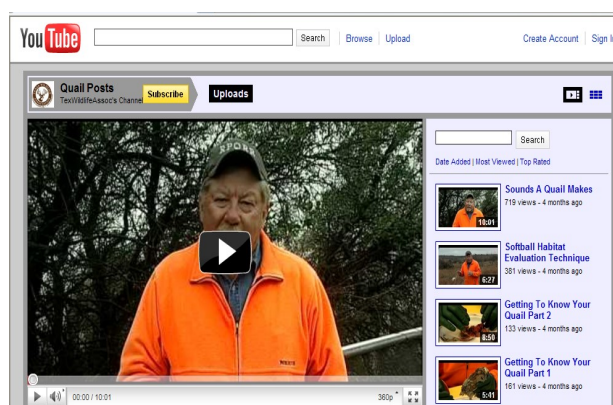
Donors receive the foundation's annual report, unless otherwise specified. Donor names appear in Foundation publications. Please complete your form with this in mind, so we may list your information correctly. Please also inform us if you wish to remain anonymous.



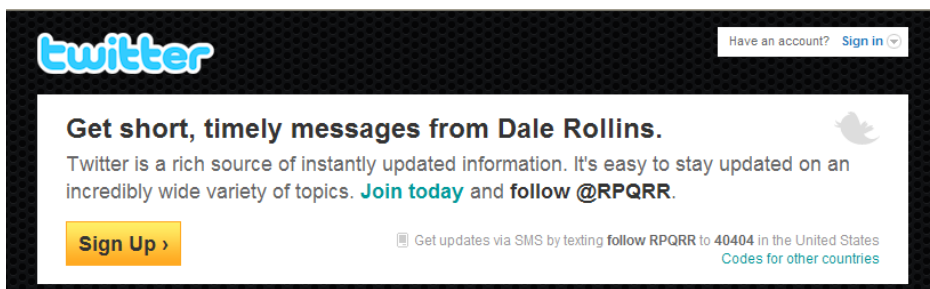
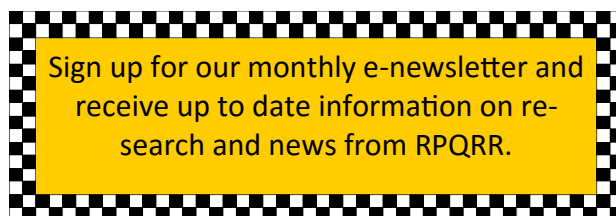


# RPQRR on the Web

Visit our website to get connected!



Quailvideos.com



[www.quailresearch.org](http://www.quailresearch.org)



Become a fan on Facebook