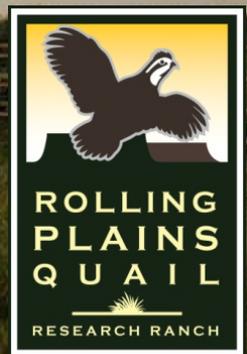


Rolling Plains Quail Research Ranch

2nd Annual Field Day
25 Sept 2009



*"to sustain Texas' wild quail hunting
heritage for this and future
generations"*



WWW.QUAILRESEARCH.ORG

Thanks Dad . . .

Welcome to the RPQRR and our 2nd annual Field Day! This year's field day is dedicated to my dad, E. S. "Wash" Rollins. Today would've been his 86th birthday—he died in 1992. He was an ever-so-often blue-collar quail hunter, and not beyond a skillet shot with his 16-gauge Mossberg. I wish he was on our tour today—I still miss him. He tolerated my infatuation with quail hunting.

We've had a great run in this our second year! We've expanded our collaborations and the Park Cities Quail members had a great year of fundraising, despite the economic downturn. I hope you leave today sharing my passion for this ranch, its mission, and our favorite game bird! -- Dale Rollins



RPQRR's Vision: To sustain Texas' 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.

Purpose: The RPQRR will function as:

- a research facility to develop and evaluate management schemes aimed at enhancing quail habitat;
- a demonstration facility to disseminate technologies and techniques which will permit adoption of quail-friendly best management practices;
- a forum for information exchange among land managers, hunters, and rural economies interested in sustaining quail hunting in Texas.



On the horizon . . . literally.

We have big dreams at RPQRR, and one of them involves a multi-purpose center sitting atop "Telemetry Ridge", a scenic outlook on the Ranch. An architect was engaged to draw up plans in the summer of 2008. The project was estimated at \$1.6 million, but the economy went sour just about the time we had a prospective donor lined up. So the building idea has been tabled for the time being, but the germ is there, awaiting its opportunity to sprout when conditions get right.

RPQRR at a glance

By the numbers:

- 4,720 acres in size
- 25 "mile markers" for call counts
- 6 graduate students in 2009
- 44 nests monitored
- 6 miles moved is the maximum distance a radiomarked quail has been recovered
- 208 quail leg-banded in 2009
- 120 hens radiotagged in Mar 2009
- 2 quail killed by rattlesnakes this year.
- 7.25 inches of rainfall received in July
- 105 miles of helicopter transects flown
- 4,000 "trap-nights" of rodent trapping
- 14 prescribed burns completed in 2009



Collaborations



Park Cities Quail

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



Richard M. Kleberg, Jr.
Center for Quail Research

CAESAR KLEBERG WILDLIFE RESEARCH INSTITUTE



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- Kurt Huffman
- Barrett Koennecke
- Dave Barre
- Rachel Vega
- Cathy LaCoste

Student Interns

- Josh McGinty
- Jeremy Rychlik
- Bryce Jones
- Chad Goen
- Seth Claybaker

Collaborators

- CKWRI-TAMU-Kingsville
 - M. Schnupp
 - J. Sands
 - T. Teinert
 - S. Mahan
 - E. Redeker
 - Dr. F. Hernandez
 - Dr. A. Fedynich
 - Dr. L. Brennan
 - Dr. S. DeMaso
- Texas Tech University
 - Dr. Clint Boal
- Texas Agrilife Research
 - Dr. Susan Cooper
 - Dr. Dean Ransom
- Texas Audubon
 - Sarah Robinson
- Texas Parks & Wildlife Dept.
 - Robert Perez



Fundraising

(Jan - Aug 2009)

- The Conservation Fund
 - \$25,000
- Quail Unlimited
 - Park Cities (\$328,000)
 - Alamo (\$7,500)
 - South Texas (\$7,500)
- Ranches
 - Pitchfork Ranch (\$5,000)
 - Ribelin Ranch (\$2,000)
 - Hailey Ranch (\$1,100)
- Commercial donors (non-cash)
 - Dow AgroSciences
 - Precision Brush Control, Inc.
 - Garmin Int'l.
 - Turner Seed Co.
 - Lyssy & Eckel Feeds



Answer the Call

Help fund the RPQRR!

The RPQRR relies upon the generosity of "students of quail" and their associated allied industries. The RPQRR is a 501(c)(3) non-profit foundation--donations are tax-deductible to the extent allowed by IRS rules.



Gift Giving Opportunities

Please check the appropriate category

- "Unrestricted" (to support general operational costs)
- "Tribute" (to honor that special someone or bird dog)
- Endowment fund
- Bequests
- Fund a Specific Research Project
- Other

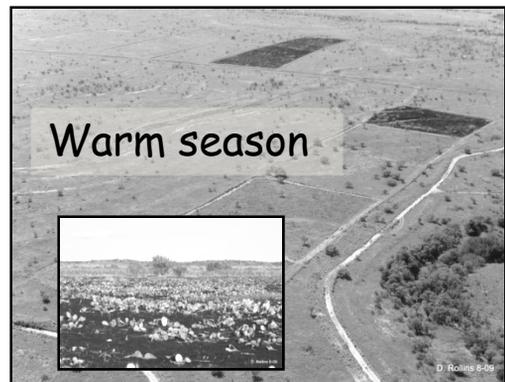
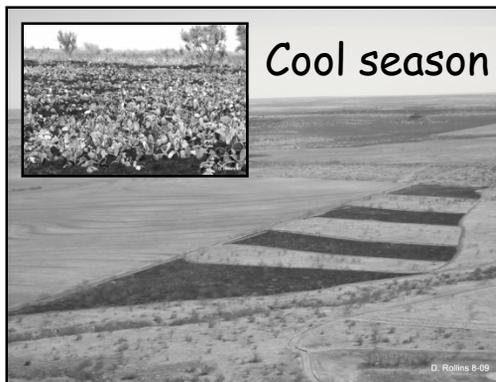
*See website
for more
information*

Opuntia: A Prickly Paradigm for Quail Managers

Dale Rollins, Lloyd LaCoste, and Dave Barre, RPQRR

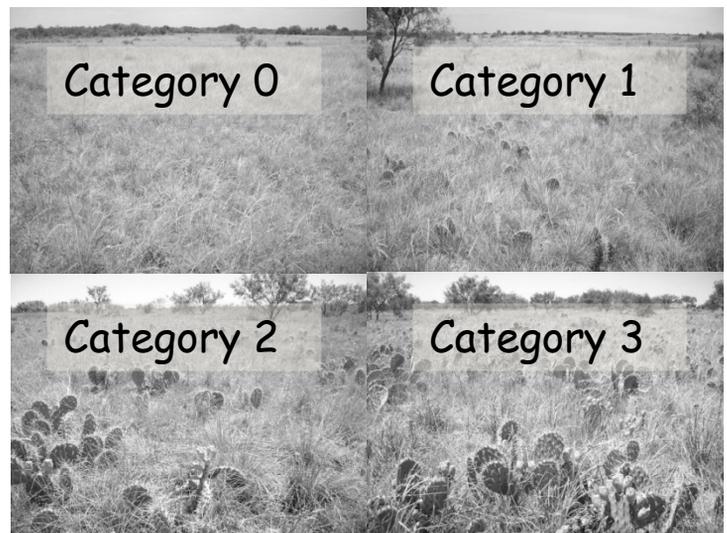
Prickly pear is a 2-edged sword for quail managers. It provides good nesting cover, but when too dense, it precludes bird dogs. Polygons have been established across the ranch, the majority of which are delineated by roads. Within these polygons, density values have been assigned based on prickly pear and desirable brush species, such as hackberry. Subsequent management is proposed, on a polygon-by-polygon basis, by fire and/or chemical treatment depending on the severity of prickly pear densities and lack of desirable brush.

Funding provided by RPQRR.



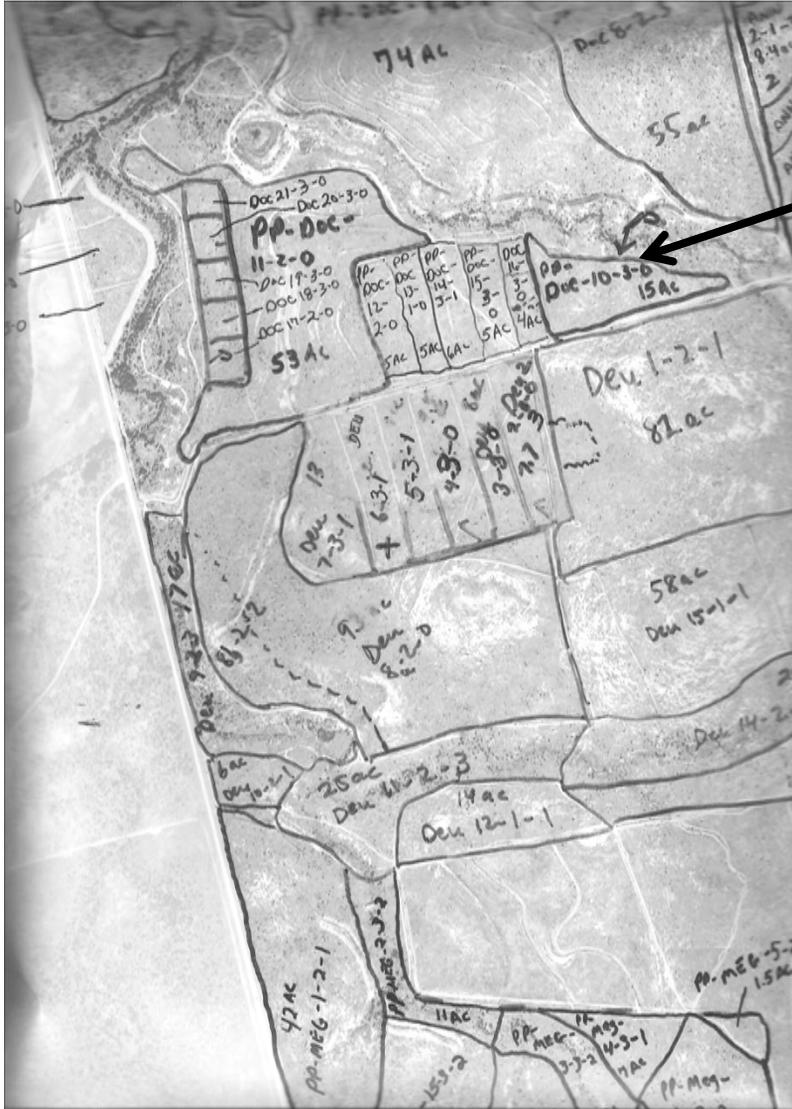
Prickly pear has been categorized into 4 density values, which were based on baseline data measured in 2008.

- 0 - Less than 0.1 pads/m²
- 1 - Between 0.1-1 pads/m²
- 2 - Between 1-5 pads/m²
- 3 - More than 5 pads/m²



Six plots of Category 3 prickly pear were burned in the cool season (March 09) and 6 more in the warm season (July-Aug 09) in order to study the effects of fire timing on prickly pear dynamics. Additional treatments planned for this winter.

Prickly Pear Polygons

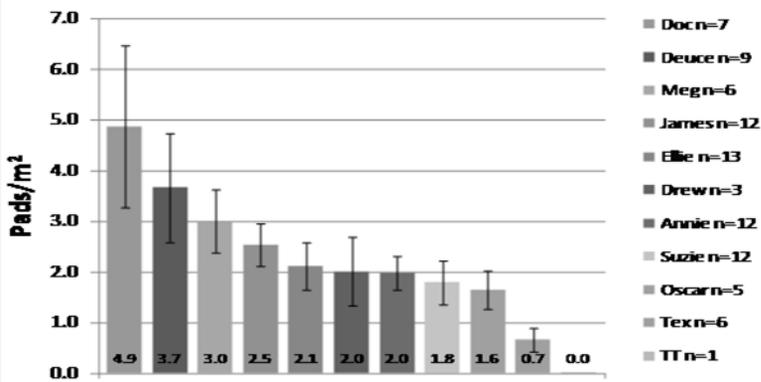


10 - 3 - 0

Doc = pasture name
 10 = polygon no.
 3 = PP score
 0 = Hackberry score



Pasture Pear Densities



Prescribed Burning at RPQRR

Dale Rollins, Lloyd LaCoste, Kurt Huffman, Barrett Koennecke, and Paul Melton

Prescribed burning is the deliberate use of fire under specified and controlled conditions to achieve a resource management goal. Prescribed burning reduces accumulations of senescent grass, invigorates new growth, promotes forbs (weeds), and can help control woody plants and prickly pear. We use prescribed burning in several contexts at RPQRR. Our patch-burn grazing study, now in its second year, focuses on the effects of fire and cattle grazing on quail habitat, with emphasis on its potential to reduce density of prickly pear. We are also looking at the various combinations of prescribed burning and herbicides to control prickly pear. Approximately 300 acres was burned in 2009 in 20 different burns. In line with RPQRR's educational mission, we conducted 4 training burns as part of a Certified Prescribed Burn Manager workshop held in August. Regional interest in the Ranch serving as a nucleus for a Western Rolling Plains Prescribed Burning Association has been expressed. Interested persons should leave their contact information with Dr. Rollins.



Trapping and Radio Telemetry

Lloyd LaCoste, Barrett Koennecke, Kurt Huffman, Josh McGinty, Jeremy Rychlik, Bryce Jones, and Dale Rollins

Our Spring trapping session began March 9, 2009 and continued through April 8, 2009. During that period a total of 664 birds were trapped (including 433 recaptures); 208 birds were leg banded and 120 female bobwhites were fitted with radio collars to allow us to follow the birds through the nesting season. Trapping success averaged 0.72 birds per trap-night. This compares to an average of 1.27 birds per trap night from October to December of 2008. As of September 10, 2009, 19 of the 120 were alive; 21 were missing/

Funding provided by RPQRR.



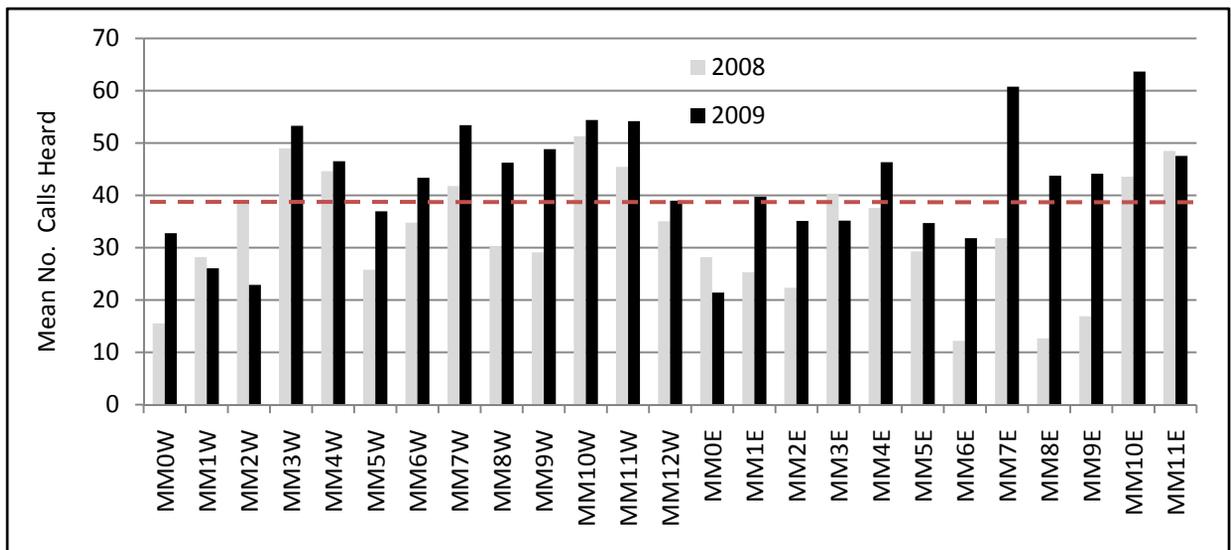
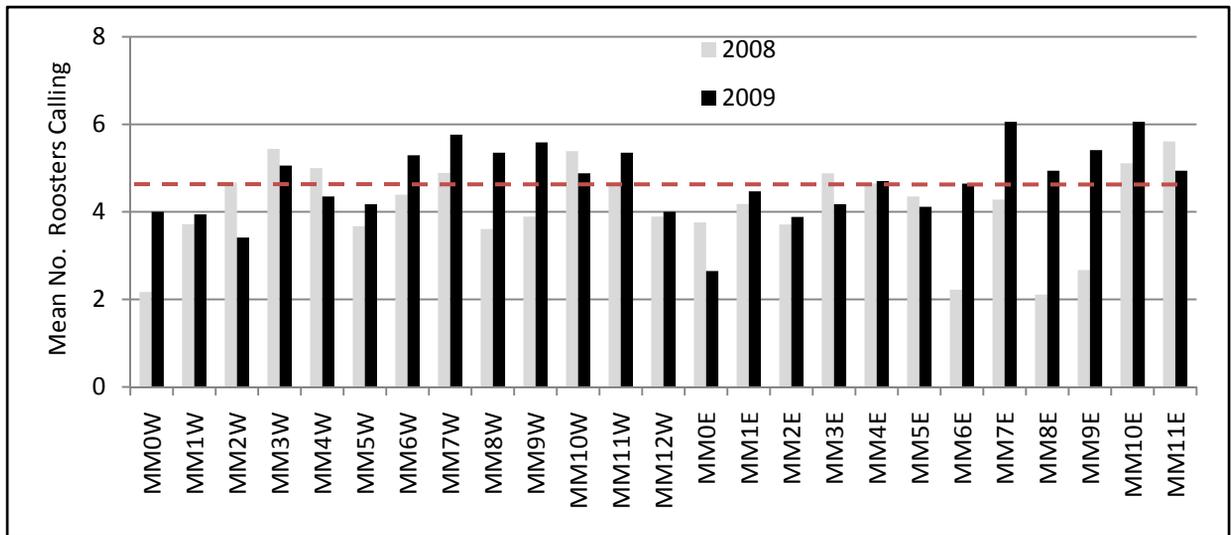
<u>Trapping Effort at RPQRR March 9 to April 8 2009</u>							
Pasture	Trap Nights	# Birds Banded	# Birds Collared	#of Recaptures	Total # of birds Caught	# Traps Used	Catch/ Trap Night
Suzie	263	50	20	138	188	21	0.71
Doc	60	15	14	23	38	8	0.63
Annie	69	18	14	40	58	8	0.84
Deuce	71	13	15	45	61	8	0.86
Oscar	0	0	0	0	0	0	0
Telemetry Ridge	0	0	0	0	0	0	0
Meg	71	7	8	30	37	6	0.52
Babe	0	0	0	0	0	0	0
Ellie	264	56	20	57	113	20	0.43
Lucy	0	0	0	0	0	0	0
James	67	26	10	35	61	6	0.91
TXE	25	12	16	54	66	7	2.64
TX W	7	11	3	11	22	1	3.14
Totals	897	208	120	433	644	85	0.72

Call Counts - 2009

Lloyd LaCoste, Barrett Koennecke, Kurt Huffman, Josh McGinty, Jeremy Rychlik, and Bryce Jones

Call counts can be used to index abundance of quail over time. A total of 25 call count stations or "Mile Markers" have been set up throughout the ranch. The ranch is divided into 2 transects: a West line which has 13 listening stations and an East line which has 12 listening stations. Call counts were conducted twice a week starting on May 22, 2009 and continued until August 11, 2009. Counts averaged 4.4 roosters and 39.9 calls per stop for 2009 compared to 3.4 roosters and 27.0 calls per stop during the spring of 2008. Dashed lines below indicate respective means.

Funded by RPQRR.

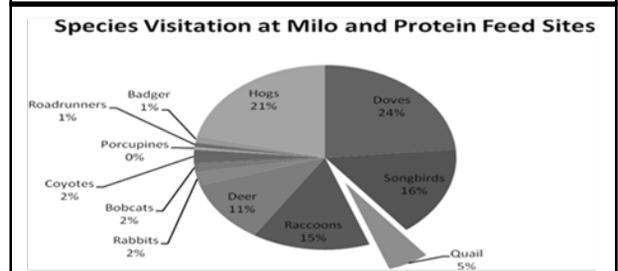
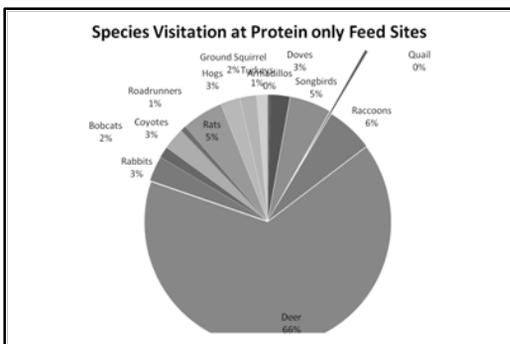
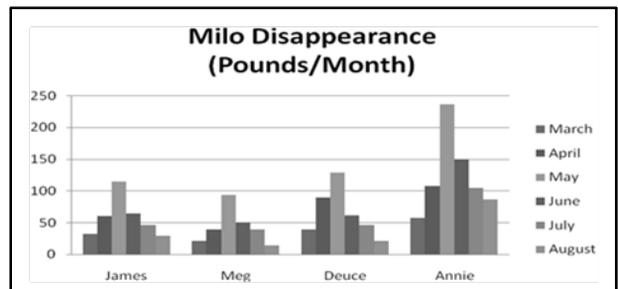
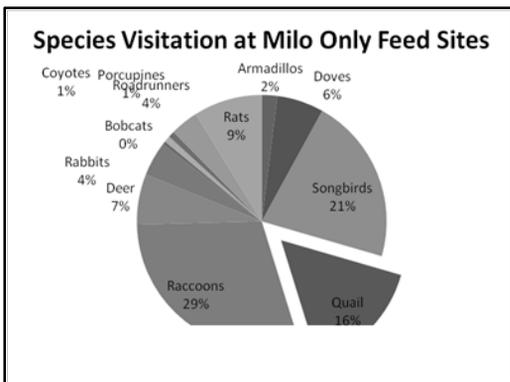


Evaluation of Supplemental Feeding to Boost Nesting Effort following a Dry Winter-Spring

Lloyd LaCoste and Dale Rollins, RPQRR

Many factors influence quail populations—one is the percent of hens attempting to nest. At RPQRR we are trying to increase the number of hens attempting to nest by offering supplemental feed. Since March, we have been feeding free-choice milo in feeders as well as a 24% CP layer ration in a pelleted form (fed on the ground). The Ranch has been divided into 4 treatment areas: 2 pastures are fed protein only (3X per week); 2 pastures are fed milo only (ad libitum), 2 pastures are fed both protein and milo, and the remaining 2 pastures serve as controls (no feeding). Milo disappearance is recorded monthly from the feeders, and trail cameras at each feed site monitor species visitation. Sixteen species have visited the feed sites. Milo disappearance was greatest in May. The 10 most frequently photographed species (in order) are white-tailed deer, raccoons, songbirds, dove, feral hogs, quail, rats, cotton-tailed rabbits, coyotes, and roadrunners. This study will continue for at least 2 years.

Funding provided by RPQRR; protein ration provided by Lyssy and Eckels Feeds; quail feeders donated by J. and K. Coppedge.



The 21st Century Bobwhite: A Modern Survey Technology

Matthew J. Schnupp, Joseph P. Sands, Trent W. Teinert, Stephen J. DeMaso, Fidel Hernández, Leonard A. Brennan, Dale Rollins, and Robert M. Perez

Providing landowners and researchers with a simple and accurate method of estimating and mapping bobwhite density would supply data necessary to 1) prescribe a harvest based on the number of available birds, 2) measure small-scale affects of management practices, 3) determine the value of a hunting area, and 4) better meet hunter expectations. A GPS-based survey system was developed to be used during R-44 helicopter surveys. During fall 2007-2008, the system was employed on the Rolling Plains Quail Research Ranch (RPQRR) and Melton Ranch in north Texas, and the Encino Division of King Ranch in south Texas. These data were used to evaluate the system and determine a correction factor for covey encounter rate; thereby, landowners and researchers could estimate density without the use of the survey system. However, unless the survey system is used, the landowner/researcher is limited by the amount and type of data that can be collected. During fall 2008 the survey system was employed for the first time outside the realm of research on the Santa Gertrudis Heritage Society (SGHS) pastures of King Ranch. Data collected on the SGHS pastures were used to 1) estimate density of hunting quadrants (~1,700 acres/quadrant), 2) prescribe harvest rates based these densities, 3) provide a spatial distribution map of density, 4) distribute hunting pressure based on this distribution 5) meet hunter expectations, and 6) determine areas in need of habitat management. The survey system provided essential information that was used for current and future management strategies for bobwhites.

Funding provided by Texas Parks & Wildlife, Rolling Plains Quail Research Ranch, South Texas Quail Project, and King Ranch, Inc.



Overwinter Survival of Northern Bobwhites on Non-Hunted Areas in Texas

Trent Teinert¹, Leonard A. Brennan¹, Stephen J. Demaso¹, Fidel Hernández¹, Robert M. Perez³, Dale Rollins², Joseph Sands¹, and Matthew J. Schnupp¹,
¹Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville, Kingsville, TX and ²Texas Agrilife Research, San Angelo, TX. ³Texas Parks and Wildlife Department, La Vernia, TX.

Bobwhite harvest strategies are generally implemented at large state-wide spatial scales. However, this may not be appropriate in situations where local or regional populations experience different vital rates and population trajectories. As part of an ongoing investigation of sustainable harvest strategies for northern bobwhite (*Colinus virginianus*) populations, we estimated overwinter survival in 2 Texas ecoregions that sustain bobwhite populations at landscape scales, the Rolling Plains and the South Texas Plains. Estimating overwinter survival in the absence of hunting is an important variable in developing a sustained-yield harvest strategy for bobwhites. We estimated overwinter survival of radio-marked bobwhites using Kaplan-Meier staggered-entry approach for the 2007-2008 and 2008-2009 winters (November-March). Bobwhites on the Rolling Plains exhibited similar survival over both winters 0.321 ± 0.108 [95%CI] ($n = 60$) and 0.358 ± 0.110 ($n = 55$) however bobwhites on the South Texas Plains exhibited a drastic fluctuation in survival between the 2 winter periods 0.177 ± 0.060 ($n = 93$) and 0.831 ± 0.118 ($n = 40$). These data illustrate the variation in bobwhite population dynamics across different ecoregions of Texas and provide a background for making bobwhite harvest management decisions on localized scales.

Funding provided by Texas Parks & Wildlife Department, South Texas Quail Associates Program, South Texas Quail Project, and Rolling Plains Quail Research Ranch.



Visit RPQRR's website at www.quailresearch.org.

Field Tests of Sustained-yield Harvest Management for Northern Bobwhites in Texas

Joseph Sands¹, Leonard A. Brennan¹, Stephen J. Demaso¹, Fidel Hernández¹, Robert M. Perez³, Dale Rollins², Matthew J. Schnupp¹, Trent Teinert¹. ¹Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville, Kingsville, TX and ²Texas Agrilife Research, San Angelo, TX. ³Texas Parks and Wildlife Department, La Vernia, TX.

Northern bobwhite populations have been declining for at least the past 30 years. As populations continue to decline, and available habitat patches continue to decrease in size and increase in isolation, biologically justifiable and sustainable methods of harvest will become a necessary component of bobwhite management. Sustained-yield harvest (SYH) has been recommended as a well-suited approach to regulate bobwhite harvest. Generally, the objective of SYH is to remove a proportion of individuals between fall and spring in order to arrive at a spring density goal that will maximize productivity the following year. Calculating the appropriate level of harvest requires knowledge of spring and fall densities and the overwinter mortality rate in the absence of hunting. We are testing predictions the additive model of harvest as compared to field estimates of spring northern bobwhite populations on study sites in the Rolling Plains and Rio Grande Plains ecoregions of Texas. In 2007-2008 harvest model predictions underestimated spring populations from 19-51%. In 2008-2009 harvest model predictions underestimated spring populations from 29-39%. Discrepancies between field data and model predictions may indicate that overwinter mortality was overestimated, density estimates were inaccurate, or that our study populations were impacted by dispersal of bobwhites into or out of our study areas. The impacts that immigration and emigration may have on harvested bobwhite populations are largely unknown. These results suggest immigration and emigration may be important factors in predicting seasonal abundance and regulating harvest of bobwhites on discrete areas.

Funding provided by Texas Parks and Wildlife Department, South Texas Quail Associates Program, the South Texas Quail Research Project, and RPQRR.

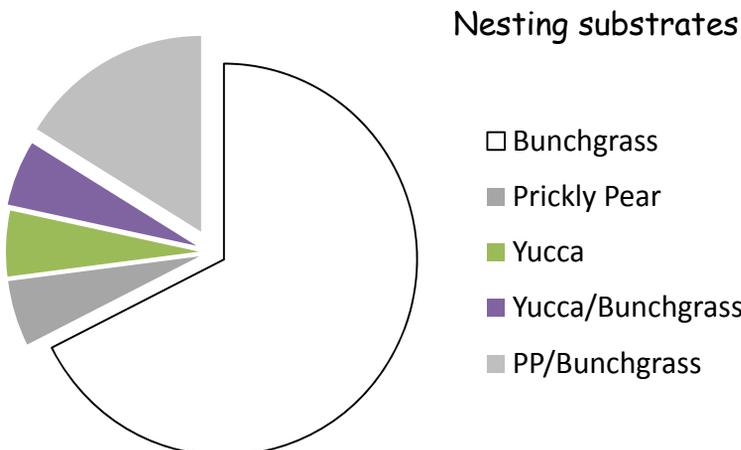
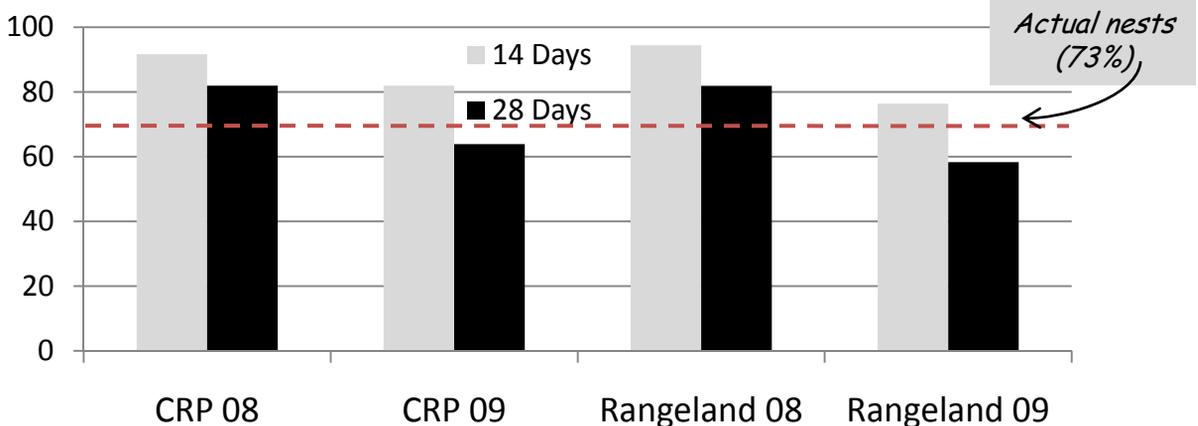


Bobwhite Nesting Ecology at RPQRR

Josh McGinty, Barrett Koennecke, and Bryce Jones, RPQRR

Only thirty-two (27%) of the 120 radiomarked bobwhites alive on May 1 were observed to have nested; a total of 44 nests were monitored. Adult hens ($n = 7$) produced disproportionately more nests (13; 1.9 nests/hen) than juvenile hens (25 hens produced 31 nests; 1.2 nests/hen). Nesting occurred as late as mid-September. Almost 30% of nests were abandoned, which we attribute to observer interference. Discounting abandoned nests, the hatch rate was 72.7%. The most common substrate was bunchgrass, followed by bunchgrass-prickly pear. We use "dummy" (i.e., simulated) quail nests as an index to hatch rate of quail. Dummy nests consist of 3 chicken eggs situated in a suitable substrate as an actual quail nest. Nests are then checked for predation at 2 and 4 weeks. A total of 72 nests in rangeland (36 in grass; 36 in PP) and 72 in CRP (all grass) were established. The overall nest "success" (survival) in rangeland was similar, and "high" in both habitats. The Predation of the nests was primarily destroyed by bobcats with snake/hog having the second highest. We lump snake predation with hog predation because research has shown that sometimes hogs will come in and eat the nest without leaving any sign of a large animal and snakes swallow the eggs, so it is impossible to tell for sure which animal has destroyed the nest.

Funding provided by RPQRR.

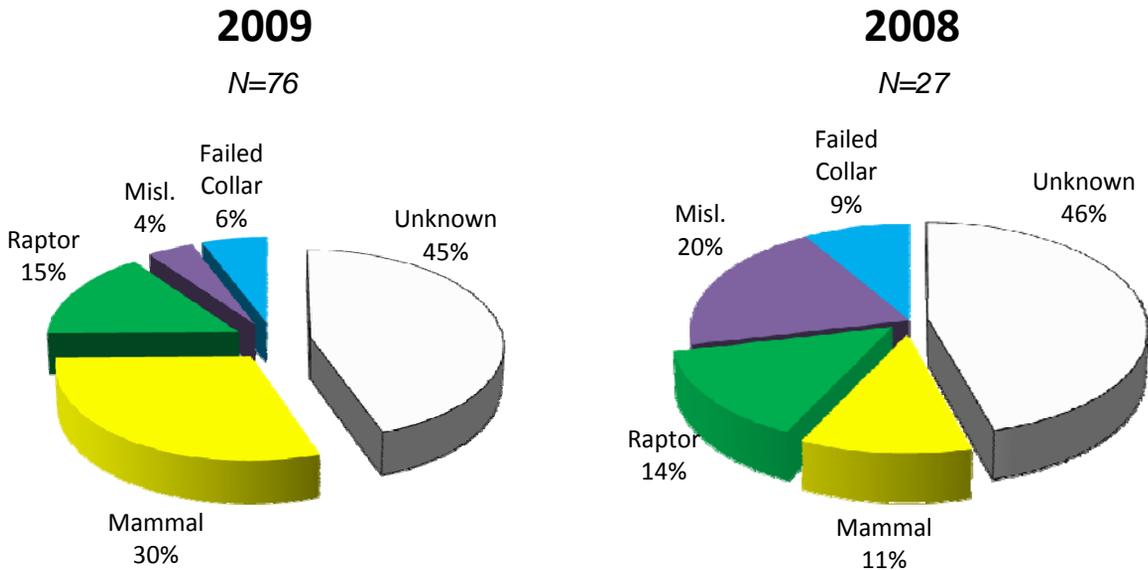


CSI: Quail

Cause Specific Mortality Patterns

Lloyd LaCoste, Barrett Koennecke, Kurt Huffman, Josh McGinty, Jeremy Rychlik, Bryce Jones, and Dale Rollins

Radio transmitters have a mortality sensor that doubles the pulse of the transmitter after lying motionless for 4 hours. When a mortality signal is indicated, technicians home in on the kill and seek to determine cause of death (i.e., raptor, mammal, other, unknown) based on physical evidence at the scene. Typically a raptor kill is characterized by wings clipped off, meat picked from the breastbone, and crimped feathers and/or radio antenna. Mammals usually consist of a pile of feathers with no bones present. As most of the quail we have monitored are during the summer months, predation by raptors has been relatively light (about 15%) while predation by mammals has been greater (11 to 30%). Nearly half of the kills were of unknown origin.



Search Patterns and Habitat Use by Mammalian Predators of Quail

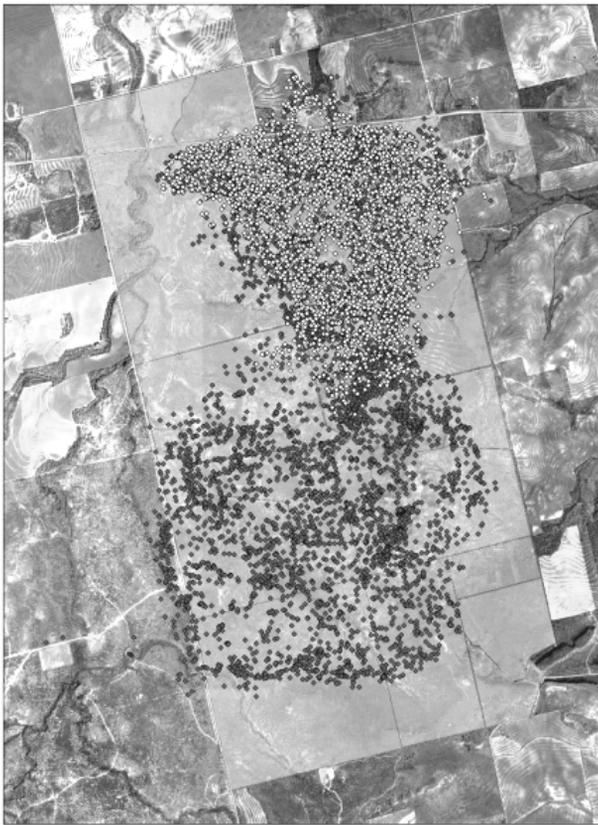
Susan Cooper and Dale Rollins, Texas AgriLife Research, Uvalde & San Angelo, respectively.

Knowing the habitat use and hunting patterns of nocturnal predators of quail will open up new opportunities to manage habitat to limit the ability of predators to locate quail nests or roosting birds. During the 2009 nesting season we placed GPS collars on 8 raccoons and 4 coyotes and tracked their locations every 5 minutes at night. Preliminary analysis shows that raccoons (especially females) tend to be restricted to the creeks and dense woodlands which are not prime quail habitat. However, male raccoons ventured further from cover than females and were attracted to quail feeders. The coyotes, all males, ranged across the landscape for very thorough coverage within their territories. The presence of coyotes may limit incursions by female raccoons into the grasslands favored as nesting areas by northern bobwhites, but provision of supplemental feed for quail attracts male raccoons into these areas.

Funding provided by RPQRR and Texas Agrilife Research.



RPQRR coyotes first 3



These waypoints represent 3 coyotes' movements during May-June, 2009. Note the distinct territorial boundaries, and how these coyotes hardly ever crossed the ranch's boundary fence.

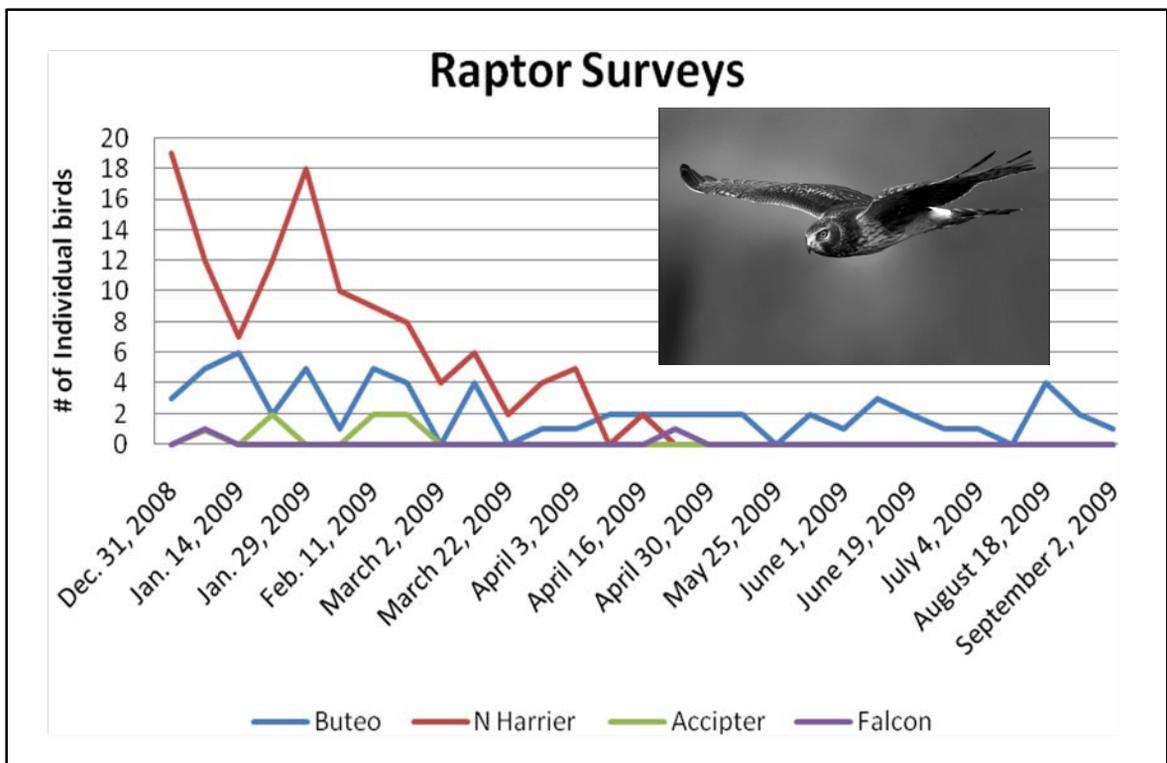
These waypoints represent 3 raccoons' (1 male, 2 female) movements during May-June, 2009. Note the male's more extensive travels, which are centered around the quail feeding stations in the Tex West pasture. Females were restricted to riparian areas and dense brush. Isolated dots are quail feed locations.



Raptor Surveys

Barrett Koennecke and Bryce Jones, Rolling Plains Quail Research Ranch

Raptors can be an important predator of quail, especially during winter months. We conducted weekly surveys of raptors observed along along the TQI routes. We recorded each raptor's location, species, and behavior, i.e., at kill site, sitting in tree, circling high. Raptor abundance was considerably higher in the winter months than during summer. Northern harriers were the most common species observed during winter months, but not a single one was observed after April. We have reason to believe that there are more accipiters on the RPQRR but due to their "sit and watch" style of hunting nature, they are more difficult to detect during our counts.



Ecology of Greater Roadrunners in the Rolling Plains of Texas

Dean Ransom, Jr. Texas Agrilife Research, Vernon, TX

Greater Roadrunners were studied over a 4-year period (2006-2009) to fill in existing knowledge gaps for this familiar, but poorly studied, rangeland icon. Using radio-telemetry, we monitored ~50 roadrunners over the 4-year study to determine home range and daily movements, habitat use, dispersal and survival, and nesting ecology. Home range size did not differ between males and females and appeared quite large, on average about 250 acres. Juvenile dispersal was also quite large with individual birds dispersing up to 7 miles away from their natal home range. Nest success can be high in years without weather extremes, but in excessively wet years (2007) or severe drought (2006) nest success was zero among radio-tagged birds. Renesting was common with most females attempting at least 2 nesting attempts. Survival of young after leaving the nest was low. Roadrunners selected mesquite woodland and mesquite savanna in greater proportion than its availability. Nest cameras were used to quantify food items brought to the nestlings. Horned lizards and grasshoppers dominated the food items fed to the nestlings; other items included snakes and tarantulas. No evidence of birds in general, or quail in particular, were seen being fed to the young.

Funding provided by Texas Agrilife Research and RPQRR.



Analysis of Coyote Diets on RPQRR

Lloyd LaCoste, Rolling Plains Quail Research Ranch

What relationship to quail population dynamics do coyotes play? Do coyotes pose a significant threat to adult quail and their nests, or do they help to reduce other nest predators or seed-eating competitors by consuming them as part of their diet? These are some of the questions we hope to answer by analyzing coyote scat. In cooperation with Texas Tech University we will have a graduate student analyze scat collected from RPQRR. We have been, and will continue to collect 30 coyote scats per month. The scats are frozen to eliminate damage from bugs and then stored for subsequent analyses. Ancillary data on availability of buffer prey (rodents and arthropods) are also being collected.

Funding provided by RPQRR.



Summary of small mammal trapping, June 2009
(500 trap nights/habitat type)

	Ridge	Sand	Old field	PP	CRP	Riparian	TT	TOTAL
Baiomys taylori	5	19	8	2	7	1	1	43
Chaetodipus hispidus		2			1	2	2	7
Mus musculus	1							1
Neotoma micropus		2	2			1	6	11
Perognathus flavescens			1					1
Perognathus merriami	1	1	1	1			1	5
Peromyscus leucopus						3	3	6
Peromyscus maniculatus	1					1		2
Reithrodontomys fulvescens					1			1
Sigmodon hispidus		8		1	8	21	5	43
TOTAL	8	32	12	4	17	29	18	120

Assessing Raptor Hunting Success on Quail

Clint Boal, Department of Natural Resources Management, Texas Tech University, Lubbock, TX.

Barrett Koennecke, Rolling Plains Quail Research Ranch

Dale Rollins, Texas Agrilife Research, San Angelo, TX

Avian predators are suspected to be a primary cause of quail mortality during winter months. However, the predator-prey relationship between raptors and quail, and the influence of habitat conditions on capture rates of quail by raptors are unknown. A confounding factor of studies assessing mortality of quail is that most have been based on studies of radio-tagged birds. Radio-tagging has come under increasing suspicion of predisposing game birds to predation which can lead to bias in mortality estimates. We are using trained raptors to assess capture success rates on quail, the influence of radio-transmitters on quail predation mortality, and identification of important habitat features as escape cover for quail. To date, we have flushed 21 coveys of quail in front of a trained goshawk. The goshawk captured 3 quail for a success rate of only 14%. Forty-six percent of quail chased were radio-tagged, and 2 of 3 captured quail were radio-tagged. Most pursued quail escaped into heavy cover of shrub species or a large motte of prickly pear, and several escaped into tunnels in woodrat (*Neotoma* sp.) middens. We anticipate continuing this study in 2009-2010. We thank falconer Jimmy Walker and "Vinnie" for their assistance.

Funding provided by RPQRR.



Prickly pear motte used as escape cover by a bobwhite during raptor trial.

Patch-burn Grazing as a Tool for Bobwhite Habitat Management

Kurt Huffman, Graduate Student, Texas A&M University, College Station, TX
Dale Rollins, Texas Agrilife Research, San Angelo, TX
Mort Kothmann, Texas A&M University, College Station, TX

Prior to the arrival of Europeans, the grasslands of the Great Plains were maintained by fire and grazing by large herbivores (i.e., bison). We are investigating the effect of fire and grazing by burning several small areas, or patches, in each of 2 pastures, and allowing cattle to choose freely among burned and unburned areas within each pasture. Two cows in each pasture are fitted with GPS data logging collars, recording the location of the animal every 30 minutes and allowing us to document use of the pasture by cattle. We are comparing the overall response of vegetation in burned and unburned areas, as well as the response of key forbs (e.g., western ragweed, common broomweed, annual crotons) that serve as important food sources for quail. We are monitoring prickly pear density to determine if the combination of fire and grazing provides an acceptable level of control. Finally, we are tracking radio-collared bobwhites to document their use of the pastures and choice of nest sites with respect to burned and unburned patches.

Funding provided by RPQRR.



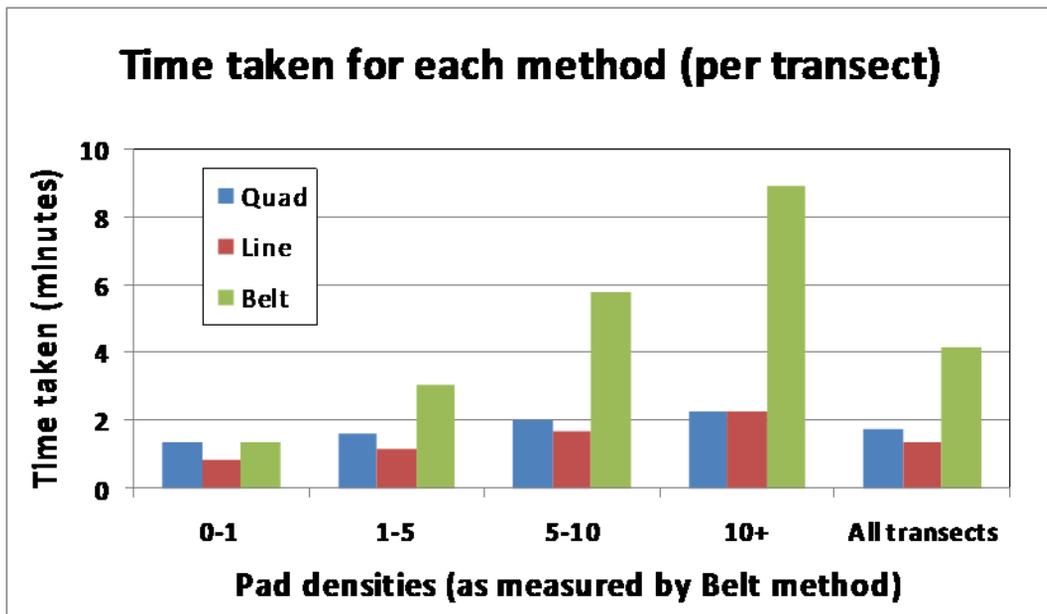
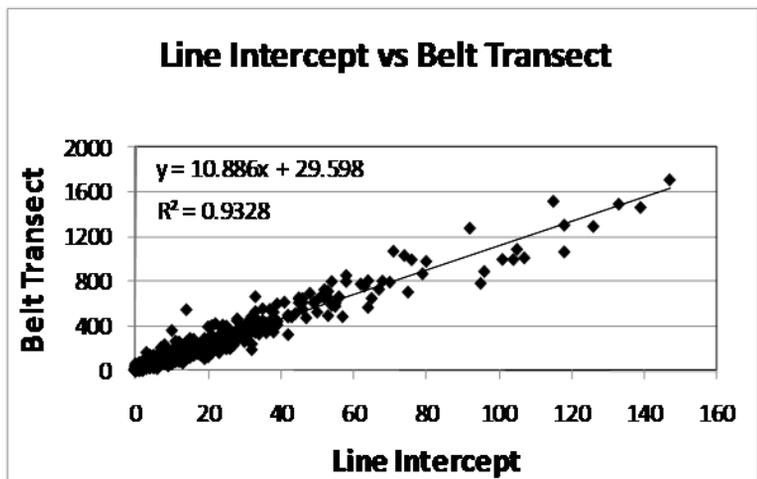
Grazing distribution of cows after patch-burns were conducted in Suzie pasture; summer 2009. Waypoints collected every 30 mins. Darker-colored polygons indicate burns conducted 3-09; lighter polygons burned 3-08.



Vegetation Studies

Dave Barre, Texas Agrilife Research, San Angelo.

A total of 103 randomly selected permanent waypoints (sites) were established as part of a research plan to measure vegetation cover and biomass changes ranch-wide over time. Vegetation biomass was evaluated along these transects using the Robel pole method and expressed as average g/m^2 for each site. Ground cover was also measured and expressed in 6 categories as percent (%) cover. Three different methods were used to determine the density of prickly pear, whereby individual pads were counted so that comparisons could be made between vegetation types. The methods used were: (1) quadrat method, (2) line intercept method, (3) belt transect method. Site averages were calculated from all 4 transects at each site.

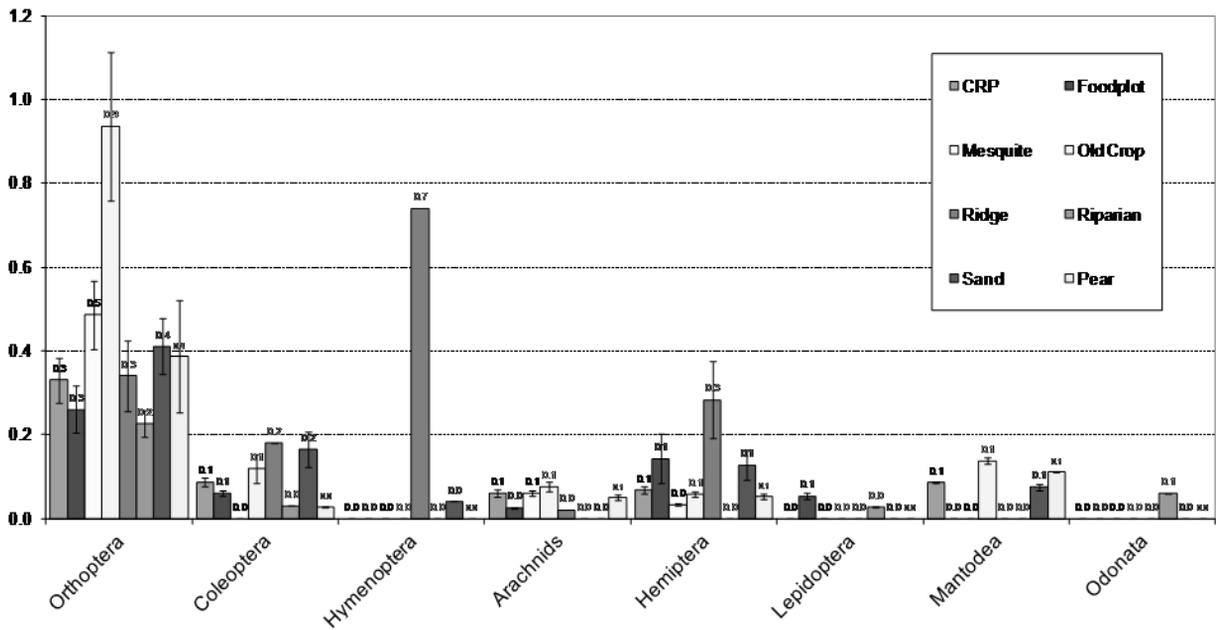


Arthropod Dynamics on RPQRR

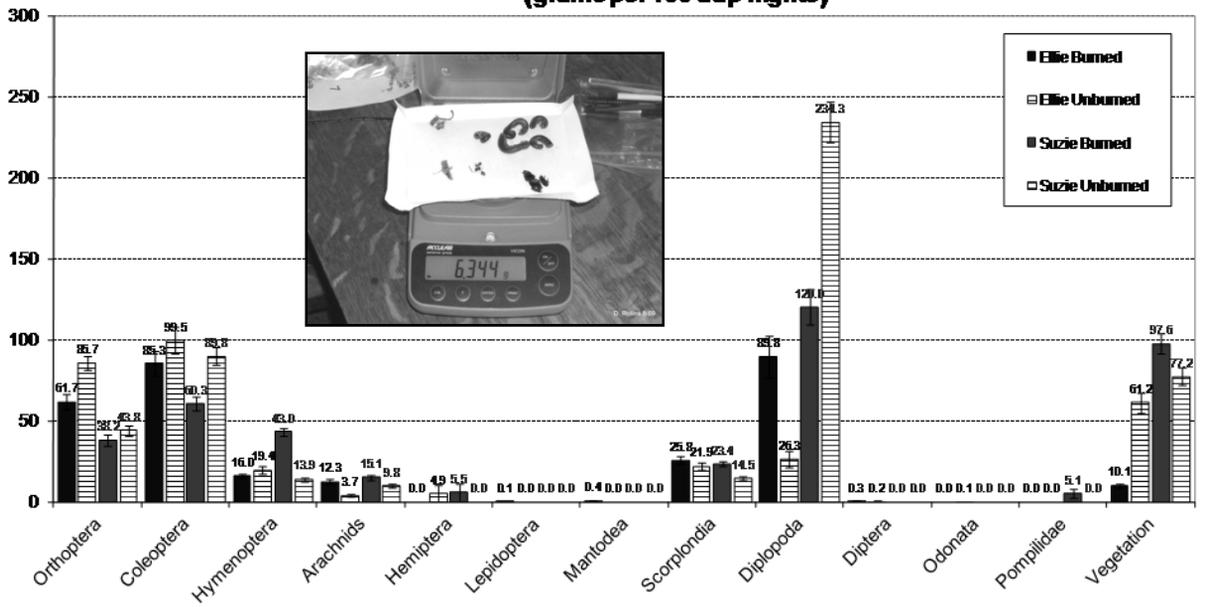
Cathy LaCoste and Bryce Jones, Rolling Plains Quail Research Ranch

Arthropods are a staple of the bobwhite's diet - they are consumed whenever available, and are vital for chick survival. We collected arthropods using both sweep nets and pitfall traps from various habitats across the Ranch. Insects collected were sorted to Order and weighed. Data for 2008 are presented; 2009 data are still being processed.

Sweepnet Averages in Main Vegetation Types (grams)



Arthropod Pitfall Totals in Rangeland (grams per 100 trap nights)

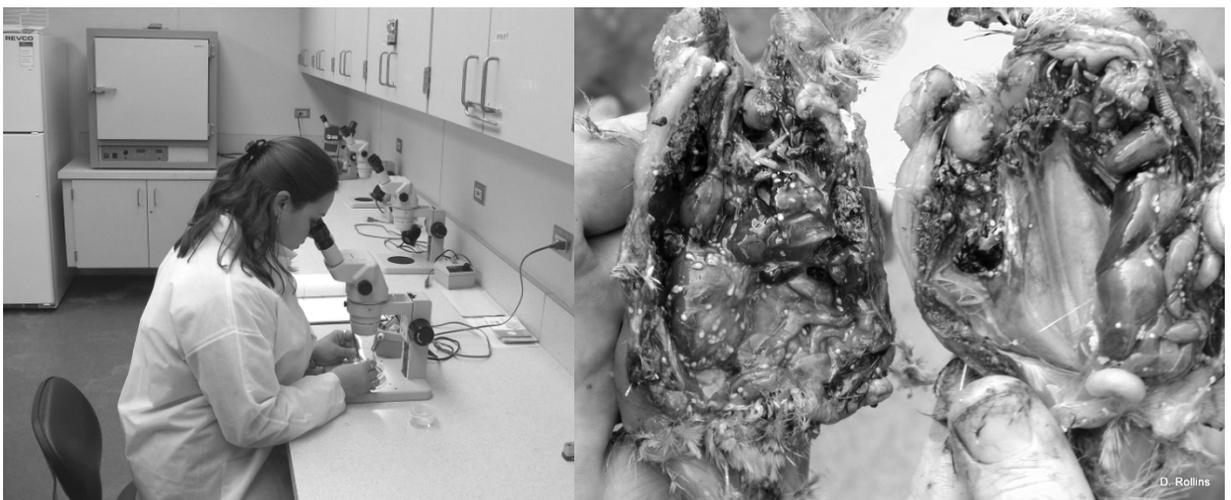


Preliminary Survey for *Oxyspirura petrowi* and *Aulonocephalus pennula* in Northern Bobwhites from the Rolling Plains Region

Stacie M. Mahan¹, Alan M. Fedynich¹, Leonard A. Brennan¹, and Dale Rollins².
¹Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville, Kingsville, TX and ²Texas Agrilife Research, San Angelo, TX.

Studies about the Northern Bobwhites' (*Colinus virginianus*) life history and ecology have been conducted over the years because of their economic importance as a game bird species in Texas. However, little is known about endoparasites and how they may affect the Northern Bobwhite population. The 2 nematodes examined in this preliminary study were *Oxyspirura petrowi*, which is found in the nictitating membrane on the eye surface, and *Aulonocephalus pennula* (= *A. lindquisti*), which is found in the ceca and can migrate throughout the intestinal tract. Thirty-three bobwhites collected from the RPQRR in February 2009 were examined, of which only 30 could be used for examination for eye worms; 20 (66.7%) were infected with 158 *O. petrowi*. Mean intensity of *O. petrowi* was 4.9 ± 8.7 (SE) (range: 0-40; median: 5) and mean abundance of *O. petrowi* was 7.9 ± 9.9 (SE) (median: 8). Only 25 bobwhites could be examined for cecal worms—all 25 (100%) were infected with *A. pennula*. Mean intensity of *A. pennula* was 156.1 ± 119.8 worms per infected bird (range: 4-424; median 156). Findings from this preliminary study provide insight regarding the prevalence and abundance of *O. petrowi* and *A. pennula* in bobwhites from the Rolling Plains of Texas and points to the need for additional data collection. In the next year, quail will be collected at various stages (e.g., fledgling chicks, subadults, adults) will be examined to determine impacts of nematodes on bobwhite survival.

Funding provided by RPQRR and Caesar Kleberg Wildlife Research Institute.



GPS Backpack Transmitters For Bobwhites: How Close Are We?

Matthew Schnupp, King Ranch, Inc., Kingsville
Dale Rollins, Texas Agrilife Research, San Angelo

Very high frequency (VHF) telemetry transmitters limit researchers to the type and quantity of information that can be collected, specifically pertaining to small-scale response behaviors like running, freezing, or flushing. Because of the recent attention given to bobwhite survey techniques, it is vital to know how coveys react to various types of survey methods like helicopters, ATVs, and hunting dogs. Collaboration between King Ranch, Inc., Rolling Plains Quail Research Ranch (RPQRR), Caesar Kleberg Wildlife Research Institute (CKWRI), and Telemetry Solutions has resulted in the design and development of a 0.33 ounce (9.5 g) GPS backpack transmitter. The transmitter is worn on the birds' back and can be attached or removed in 20-30 seconds. It has remote download capabilities (i.e., data can be uploaded without capturing the bird) and the GPS is accurate to 10-15 feet, if points are collected consecutively. The data points can be scheduled to collect at any interval. The life expectancy is dependent on the number of points taken, but ranges from 9 hours (point every 5 seconds) to 7 days (point twice daily). An onboard USB port is used to recharge the batteries and manually upload data. Although the GPS backpacks are 0.12 ounces (3.5 grams) heavier than a traditional VHF transmitter, we anticipate that the short-term (7 days) disturbance imposed on bobwhite small-scale response behavior will be minimal. We are currently performing a time-budget study on pen-raised bobwhites to determine if the backpack negatively affects behavior or body mass. In addition we will use a 100-ft flight pen and wild birds to determine if the backpack negatively affects agility and flight. Preliminary results from the first 14 days of the time budget study show that mass of pen-raised birds has remained constant, there have been no fatalities, and there is no obvious difference in behavior between birds carrying the GPS backpacks and controls (i.e., VHF collars and no device). We hope to perform our first field test this fall at RPQRR.

Funding provided by RPQRR, King Ranch, Inc., and Caesar Kleberg Wildlife Research Institute.

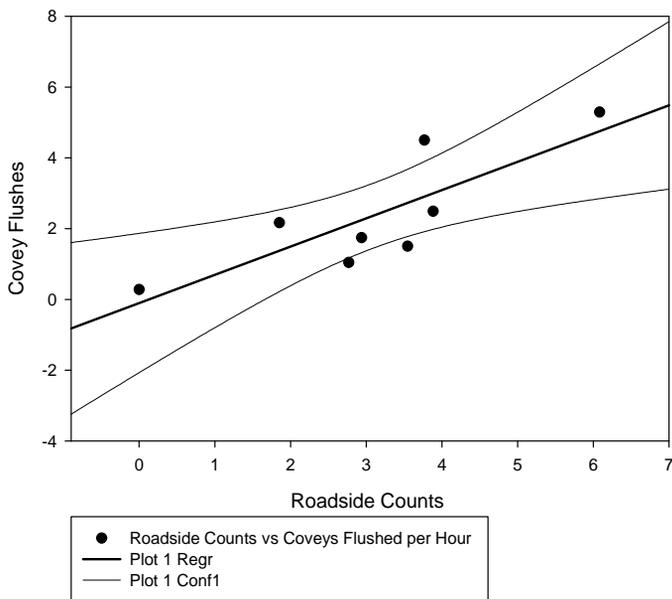


Monitoring Scaled Quail Dynamics in the Permian Basin Region of Texas

Chris Snow, Barrett Koennecke, and Dale Rollins, Texas Agrilife Research, San Angelo
Jeff White, University Lands, Midland

Various counting methods are being evaluated for their ability to predict fall abundance for scaled quail on University Lands in Andrews, Midland, and Regan counties. Methods tested include spring call counts, dummy nests, roadside counts, ATV counts, helicopter counts. Dummy nest "survival", and several September indicies (e.g., roadside counts) suggested predictive relationships (i.e., $R^2 > 60\%$). Additional sites were incorporated in 2009.

Funding provided by University Lands and Texas Agrilife Research.



Count Data	2007	2008	2009
Nesting Success	44%	9.50%	55%
Call Count Quail per mile	2.75	0.79	2
Roadside Count Quail per mile	6	1.8	
ATV Count Quail per mile	7.2	3.75	
Helicopter Quail per mile	9.2	2	
Helicopter Acres per quail	88	1417	

Monitoring Survival of Bobwhites Raised in Surrogators[®]

Dean Ransom, Jr., Tommy Russell, and Dale Rollins. Rolling Plains Quail Research Ranch.

We began a pilot study this year to develop a strategy for monitoring bobwhite chicks raised in, and subsequently released from, commercially available Surrogator units. These self-contained units provide heat, food and water for day old chicks up to the age of 5 weeks at which time they are released into the wild. Results from other evaluations in Georgia and Kentucky suggest that survival of Surrogator bobwhites was poor. We radio-tagged 71 birds from 3 surrogators in Somervell County, TX in early August 2009 with backpack-style transmitters. Approximately 10 days post-released, only 6 birds were still being monitored. Radio-transmitter loss was the major problem, although 20 birds were depredated during that time frame. A second release was conducted in early Sept in Clay County, and a different attachment (i.e. necklace-style) was used. Results were unavailable at this time, but retention seemed better. Surrogators were not designed for researchers to manipulate birds prior to mass release, and this presents important technical difficulties which must be worked out to efficiently tag birds prior to release without a high escape rate. Observations from this first year will provide insight into streamlining an efficient protocol for future work.

Funding provided by RPQRR.



Monitoring Texas Horned Lizards (*Phrynosoma cornutum*) at the Rolling Plains Quail Research Ranch

Bradley Lawrence and Ruston Hartdegen. Dallas Zoo, Dallas, TX.

Once extremely common throughout their range, Texas Horned Lizards are now known to be in decline 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. Populations have disappeared in East and Central Texas, and are decreasing in North Texas as well. Horned Lizard declines appear to be affected by numerous factors including habitat loss and degradation, the invasion of exotic species (ants, dogs, cats, grasses, etc...), pesticide usage and historic over-collection. Our goal is to estimate Texas Horned Lizard density using mark and recapture through the use of pitfall traps, road cruising, and coverboards. Density data will be used to determine habitat preference across the various habitat types present at RPQRR. We will also gather basic life history traits including movement patterns, behavior, and spatial relationship to harvester ants.

Funding provided by Dallas Zoo and RPQRR.



Future projects (to be initiated in 2010)

Rattlesnake ecology: 10 snakes will be fitted with radio transmitters in order to monitor their movements and habitat use.



Roadrunner ecology: Roadrunners will be fitted with radio transmitters in order to monitor their nests, with goal of videotaping prey delivery at the nest.



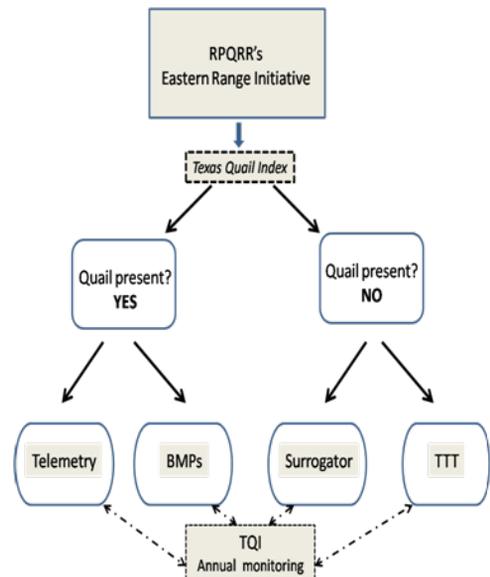
Prickly pear & quail: Various combinations of fire and herbicides will be monitored as to cacti mortality, forb dynamics, and arthropod dynamics.



Raptors & quail: Cooper's hawks and Northern harriers will be radiomarked and their prey selection monitored as it relates to habitat conditions.



Eastern Range Initiative: Selected sites in the eastern Rolling Plains will be enlisted and quail populations monitored for several years after site-specific BMPs are employed.



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Distinguished Lectureship in Quail Management
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Dr. Fred S. Guthery
Oklahoma State University



Friday, Jan. 29, 2010
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Roby, TX

Seating is limited; reserve your seat soon. See
www.quailresearch.org for registration details.

See you next September!



R. Sasser