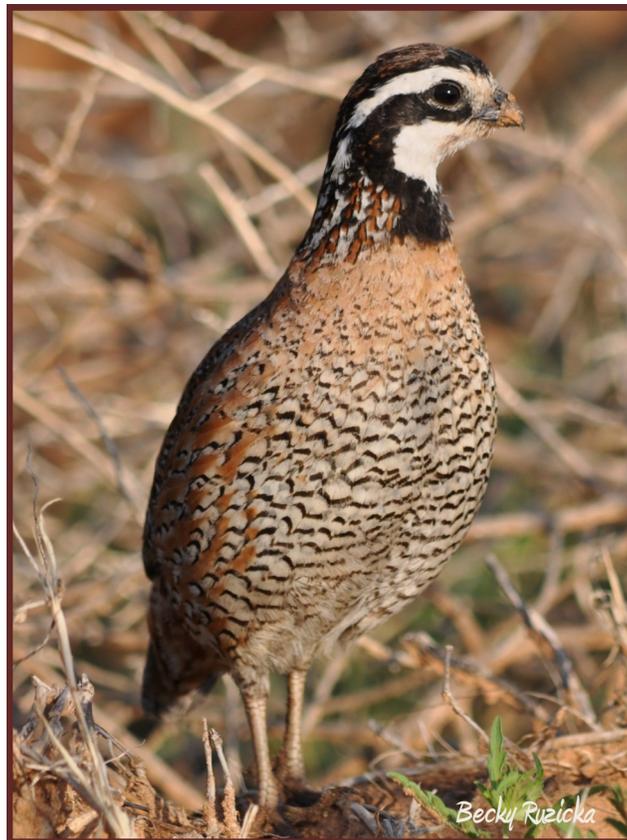


Texas Quail Index:

Team Handbook



Empowering landowners to understand quail dynamics on their land and the influence of land management actions.

Quail Decline Initiative and Texas Quail Index Overview

The Quail Decline Initiative was funded to address a serious and pervasive problem: the ongoing and drastic decrease in populations of Texas quails. Quail decline is not just a Texas problem; the documented decline began in eastern and northern states over 40 years ago. For decades Texas was the last bastion of truly great wild quail hunting and for the most part remained smug about its quail. But beginning in the early 1990's that started to change—the last 10 years are the lowest since counts began in 1978.

To address the “quail decline” the 83rd Texas Legislature provided funding for an “exceptional item” to the Texas A&M AgriLife Extension Service: Reversing the Quail Decline Initiative. Through Texas Parks and Wildlife, this initiative made available \$2 million worth of Upland Game Bird Stamp funds to support an integrated approach by Texas A&M AgriLife Extension working with Texas A&M AgriLife Research.

The goals of the Extension side of this two-pronged attack are to (1) educate landowners and hunters on best management practices for creating and maintaining quail habitat and techniques for monitoring the quail on their land, and (2) to increase the overall knowledge and appreciation of these iconic game birds among landowners, hunters, and the general public. As such, these funds will be used to expand programs like the Texas Quail Index, QuailMasters, and Quail Appreciation Days statewide.

The Texas Quail Index (TQI) is a large-scale demonstration designed to evaluate various indices of quail abundance statewide. Most importantly, the TQI program seeks to promote awareness and understanding in landowners and hunters concerning their quail population and the impact of management activities (both good and bad) on their property. The usefulness of the conclusions we can draw from these monitoring activities depends on the quality of the data collected. Please strive to ensure that all participants collect data accurately, consistently, and in a timely manner. If you have any questions do not hesitate to contact us.

Dale Rollins — (325) 650-0311 — d-rollins@tamu.edu

Becky Ruzicka — (661) 618-3956 — becky.ruzicka@tamu.edu

Annual Activity Schedule for TQI

Month	Activities (Approx. Total Time Commitment)
April	Set-up the transect - First year only (6 hours) Begin spring call counts - South Texas only (2 hours per)
May	Finish spring call counts - South Texas only (2 hours per) Begin spring call counts - North Texas only (2 hours per)
June	Finish spring call counts - North Texas only (2 hours per) Dummy Nests (2-3 hours per visit) Habitat Surveys (2 hours)
July	Predator abundance index using game camera traps (4 hours) Use game cameras to document predators of artificial nests (3 hours)
August	Keep your cameras set up on water sources when they are not in use
September	Roadside Count (1 hour per) Keep your game cameras set up on water sources when they are not in use
October	Fall Covey Counts (1.5 hours per) Keep your game cameras set up on water sources when they are not in use
November - February	Harvest Index (Conditional) Keep your cameras set up on water sources when they are not in use

TQI Protocol:

Setting up the transect

Goals: Establish a permanent transect with permanent markers at approximately 1.0 mile intervals that will serve as the backbone for all the data collected in this program.

Timing: This is the first task that needs to be completed. Transects should be in place by May 1st.

Length: The length of the transect should be at least 7 miles, with 8 mile marker posts (start at 0).

Where: Appreciate that the transect on each property will be slightly different. Transects can be a straight line or a loop, but keep in mind that if you choose to make a loop all listening stations need to be one mile apart (farther is okay, as will be explained below). For example, take care that mile marker posts 0 and 1 are a mile apart as well as 7 and 0 (see figure 1).

Guidelines: The most important factors to consider are the roads, noise, and habitat.

Transects should be on secondary, but accessible, ranch roads as much as possible.

If you have to use main roads adjust the location of your mile marker so that it falls on a secondary ranch road (this will be important for your predator surveys).

Avoid sources of background noise. Stay at least 1 mile away from busy highways and especially oil field equipment. Background noise can essentially negate any call count surveys.

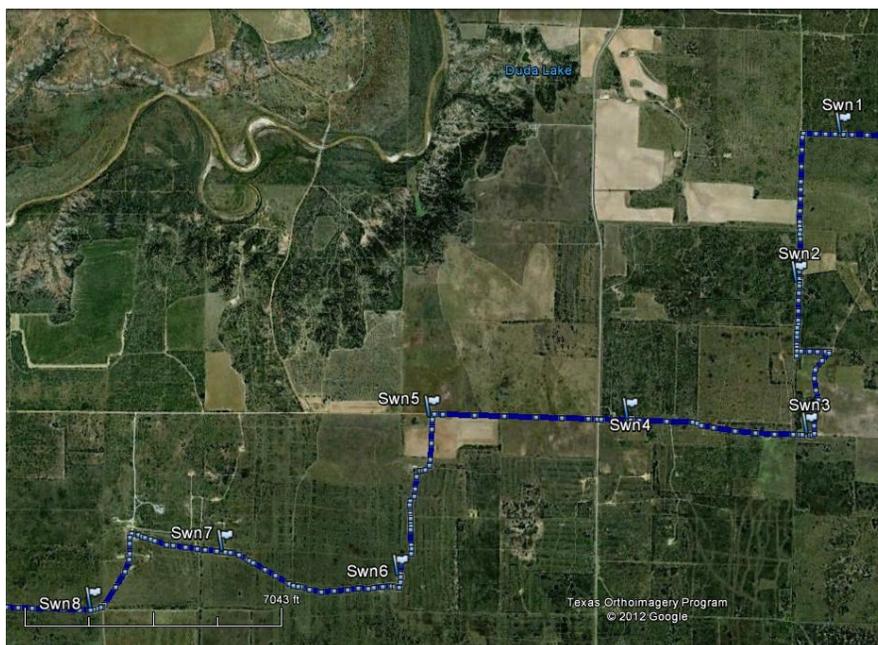
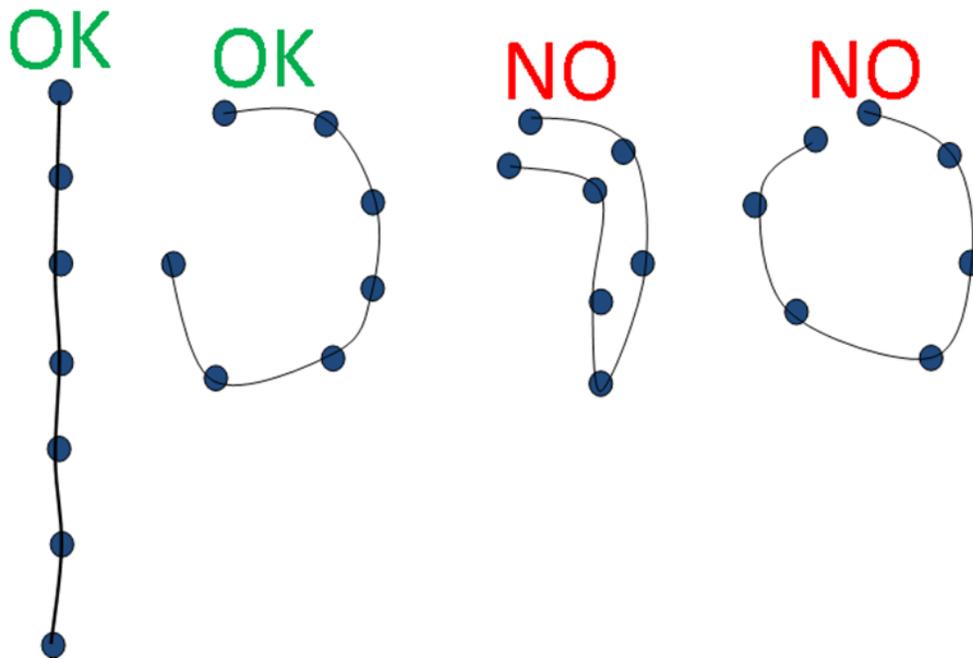
Mile Markers: You will want to mark 8 permanent listening stations. Landscape timbers are ideal although you may be able to use other materials, such as a wood post. Keep in mind that you will have to attach a game camera to the mile marker, so take that into consideration when making your selection. Mile markers should be placed at least a 1 1/2 feet into the ground. We will provide official TQI mile marker signs that you can affix to the top of the poles with screws.

GPS locations: Take a GPS device with you in the field and record the coordinates (preferably in UTM's) of each mile marker on a "transect set-up" data sheet. If you don't have access to one, we may be able to loan you one. Keep in mind that there are free apps for smartphones available that can give GPS coordinates and most vehicle GPS systems can provide you with coordinates as well. If you need help please call or email Becky Ruzicka at 661-618-3956 or becky.ruzicka@tamu.edu. Scan and email data sheets or mail them to Becky Ruzicka, 17360 Coit Road, Dallas, TX 95252.

Please complete the cooperator profile (if you have not done so already) and submit with your GPS locations.

TQI Protocol: Setting up the transect

Figure 1. Proper configuration of the transect.



Google Earth is an easy to use yet powerful mapping tool. We encourage all teams to map out their transects at the beginning of this exercise. You can enter your GPS coordinates directly into Google Earth or you can save a file downloaded from your GPS unit as a .gdb and open it in Google Earth. If you need assistance email: becky.ruzicka@tamu.edu

TQI Protocol:

Spring Call Counts

Goals: To index breeding capital going into the nesting season.

Timing and quantity: Counts should be conducted in May and early June each year. Each listening station should be counted 3 times per year: May and June in North Texas and April and May in South Texas. I-10 is the demarcation between north and south Texas. Try to space your counts out by at least one week. We will send out reminders to each team when the counts are due.

Conducting Counts:

- 1) Arrive at the first listening station 15 min before sunrise. Exit the vehicle (if you are using a truck) and try to minimize background noises; turn off your engine and walk away from your vehicle if you need to avoid engine fan or cooling noises.
- 2) Count and record the location of all individual calling males for a 5-min span. Also, keep a tally of the total number of calls heard. You are only recording the number of “bob-white” calls for bobwhite quail or “whock” calls of blue quail. Use a stopwatch to keep track of time; it is important to be exact! Use your ‘Quail Call Count Diagram’ to help you keep track of the different birds calling. Once you have finished counting a station for that morning, record a summary of your results on the ‘Spring Call Count Data Sheet.’ This is just a summary of the number of birds calling and total number of calls heard per listening station. Plus, make a note if you observed birds at the mile marker, especially if you didn’t record any calls.
- 3) *Do one count at each station per day.* You will want alternate your starting station as well. For example, if you count “0” first on the first count of the season you will want to start at “7” or the last stop for count number 2.

Weather: Do not conduct call counts if it is raining or if the wind is greater than 10 mph. If wind increases above 10 mph during your count, cease counting.

Hearing: It is important to have someone conducting these counts with good hearing. Calls can be high pitched and difficult to hear. When it comes to call counts, younger ears are better!

Data Sheets: After each count scan and email your data sheet to:

becky.ruzicka@tamu.edu or mail them to: Becky Ruzicka, 17360 Coit Road, Dallas, TX 75252.

TQI Protocol: *Spring Call Counts*

Resources:

Quail Sounds: For example of the quail calling sounds you can go to: http://www.allaboutbirds.org/guide/northern_bobwhite/sounds and http://www.allaboutbirds.org/guide/Scaled_Quail/sounds

Spring Call Count Webisode: www.youtube.com/watch?v=-fB3gRRvn8I



TQI Protocol:

Dummy Nests

Goals: Help teams understand the quality of nesting habitat on their property.

What is a dummy nest? A dummy nest consists of 3 chicken eggs situated in a habitat that mimics what a wild quail would select. These sites are typically located in either (a) a bunchgrass about the diameter of a basketball (e.g., little bluestem) or (b) a clump of pricklypear approximately the size of a “hula hoop”. The ideal situation occurs where a mixture of grass and pricklypear occurs; in that case, we put odd-numbered nests in bunchgrass, and even-numbered nests in pricklypear (e.g., Nest No. 2 would be placed in prickly pear). This allows participants to examine cover value of the two nesting substrates.

Timing: Dummy nests can be established anytime during June.

Materials: 6 dozen chicken eggs, rubber gloves, flagging tape, sharpie markers, 24 flat metal washers (1 in diameter). Two people are needed to do this task.

Procedures: Establishing dummy nests is fairly involved and time consuming, but there is no better way to learn about nesting habitat on your property.

- 1) Randomly select 4 separate mile markers on your transect using a random # generator.
- 2) Each transect will consist of 6 nests located at roughly 50-yard intervals. There will be a total of 24 nests established (i.e., 4 lines of 6 nests each).
- 3) Wear latex gloves at all times while handling eggs to minimize human scent.
- 4) Select an object on the horizon to serve as a focal point that is roughly perpendicular to the road. Use that object as your heading. Alternatively, you could use a compass or GPS unit to establish a heading.
- 5) Step off 50 yards to locate Nest #1. Use the marker to write “T1, N1” (Transect 1, Nest 1) on a strip of flagging tape (use about 6-8 inches of flagging tape). Tie this flagging to the nearest shrub so that it will be visible from the mile marker. If the pasture is grazed by cattle, tie the flag at a height that will prevent cattle from eating it or pulling it out of the shrub/tree.
- 6) Once the shrub is marked, take 10 steps to the left and locate what you consider to be the *nearest suitable bunchgrass* for a nesting site (see descriptions under dummy nest section above). This may be at the toe of your boot, or you may have to walk >50 yards. Using the toe of your boot, wallow out an area in the bunchgrass about the size of grapefruit. Now place a metal washer in the bottom of the nest “bowl”, and then carefully place 3 eggs in the bowl. Cover the grass back over the nest as appropriate. The nest should still be barely visible, but mostly camouflaged.

TQI Protocol: *Dummy Nests*

- 7) On a direct line, pace back to the flag for this nest. Relay the information, e.g., “13 steps South-west of flag in little bluestem” and have your partner record the information in the appropriate place for Nest 1. Again, be *specific* and *detailed* with your records. If there are many little bluestem plants, your record might say “13 steps SW in little bluestem just west of yucca plant”.
- 8) Return to the flag, find your heading, and walk another 50 yards to locate Nest 2. Use same methods for identifying this nest (T1, N2).
- 9) Take 10 steps to the right of the line and locate the nearest suitable prickly pear (if the site offers 2 nesting substrates). Place the nest carefully toward the center of the pear, being sure to place a washer under the eggs. You may not need to wallow out a place in the cactus to place the eggs; in case you do, of course wear leather boots to protect yourself. If prickly pear is unavailable, choose what you think might be used by quail, e.g., sacahuista, yucca, etc.
- 10) Repeat these steps until all 6 nests have been situated. Remember to alternate directions from the transect line for each nests (and every other nest located in grass/pricklypear if the site permits this comparison).
- 11) Periodically, have the recorder try and locate a nest (e.g., No. 6) from the clues that you provided. If he/she cannot find the nest(s), your notes were insufficient. Correct them now to avoid confusion two weeks from now.
- 12) When all nests on a transect have been established, it's time to estimate the number of potential nesting sites along the transect. To do this, have someone about six feet tall (i.e., has an arm span of about six feet) walk *directly* from flag to flag on the return to the truck. As he/she walks this line, he/she holds his/her arms outstretched and counts all suitable nesting sites that are rooted within his/her arm's span (see photo on following page). The recorder should follow close by and keep a running tab of “tick marks” for two categories: “grass” and “pear”. When you get back to your starting point, you should have walked about 300 yards. The “belt transect” you've surveyed is about 1/8 of an acre.
- 13) Once you have completed all the transects, make (at least 2) photocopies of your data sheets and place them somewhere where you can find them next week.

TQI Protocol: *Dummy Nests*

- 14) Check transects at day 14 and day 28 (+/- 1 day). If any eggs are missing or destroyed, the nest is recorded as “destroyed.” Collect representative egg shell fragments as desired and either photograph or catalog in an eggshell carton for display.

Submitting Data: At the completion of the 4-week study, please mail all data sheets to: Becky Ruzicka, 17360 Coit Road, Dallas, TX 75252. You may also scan and email data sheets to: becky.ruzicka@tamu.edu. Also, don't forget to email your best photos so that we can share them on the TAMU Quail Decline Initiative Facebook page!

Dummy Nest Webisode: <https://www.youtube.com/watch?v=n8MNaK5sIVw>



Walk with arms out-stretched counting suitable nesting clumps on either side that are *rooted* within your arm span.

TQI Protocol: *Camera Trapping*

Goals: To provide an index of relative abundance and species diversity of potential quail nest predators.

Number of Cameras: Participants will be given up to 2 cameras from AgriLife. Ideally, the participants should be able to produce an additional 2 cameras, for a total of 4, to use in this exercise.

Camera Setup: Cameras should be affixed to every other mile-marker post (landscape timbers ideally) at a 45° angle to the road, so that a majority of the camera's view is of the road. Cameras should be 24 inches above the ground. Take care to remove vegetation in front of the camera so that there is a clear view of the road. Also, keep in mind that if your camera is pointed directly into the rising or setting it will obscure photos during that time, so try to position it away from the sun where possible.



TQI Protocol: *Camera Trapping*

Timing: Cameras should be set up during July. Our goal is to have all cameras up and running at each participating property during the same time interval. We will be sending out reminder emails ahead of the camera trapping in the hopes that every team can start their camera traps during the same window. *Cameras should be left to run for at least 15 days before checking.*

Data Collection: We will standardize all results by the number of photos per species per camera day, therefore it is important for the teams to record how many cameras they have operating (ideally 8) and for what length of time each camera was set-up (i.e. record start date/time and end date/time for each camera). Use the “camera trapping data sheet” to assist you with this.

Viewing Photos: To provide consistent and timely results, we ask that each team view the photos on their SD cards and delete all photos that do not have an animal in them (i.e. photos caused by moving vegetation, insects, etc.). After you have screened your photos please mail all SD cards and data sheets to: Becky Ruzicka, 17360 Coit Road, Dallas, TX 75252. All teams will be provided with pre-addressed envelopes.



TQI Protocol:
Camera Documentation of Nest Predators

Goals: Help land managers understand the identity of major nest predators on their property by documenting predators of artificial nests with game cameras.

Timing: This can be done anytime during the nesting season (approximately May-August) when you are not conducting camera trap surveys for relative predator abundance (you will need the cameras for this exercise as well).

Location: For convenience, you can setup the cameras at mile marker posts, but any location within the sampling area (i.e. along the route) will suffice.

Number of Replicates: Participants should strive to set at least 10 cameras with eggs throughout the nesting season.

Setting Cameras: Place a dummy nest of 2-3 chicken eggs in a location that is semi concealed by vegetation, but most importantly, is still visible to the camera. The camera should be set-up approximately 10 ft away and 24 inches off the ground with a clear view of the nest; remove any vegetation that obscures the view. Check at least every three days and replenish as needed.

Data Collection: Record day and time nest was set. When checking nests after the 7 day period, record the condition of the egg fragment remains. As in the camera trapping protocol, record the SD card label that corresponds to the mile marker post. Data sheets will be provided to assist you with this.

Viewing Photos: Teams should view their photos and record the species of predator that depredated the nests and the day and time of each depredation. You will record this on the data sheets as well. Please mail all data sheets to: Becky Ruzicka, 17360 Coit Road, Dallas, TX 75252. You may also scan and email data sheets to: becky.ruzicka@tamu.edu. Also, don't forget to email your best photos so that we can share them on the TAMU Quail Decline Initiative Facebook page!

TQI Protocol:
Habitat Evaluations

Goals: To assess quail habitat quality on your property.

Number of Surveys: Conduct evaluations once a year at each mile marker, for 8 total.

Timing: For our purposes, habitat evaluations should be done in June. Really they can be done at any time, but for the TQI we would like to standardize the results so that we can compare across sites. Try to do all surveys at the same time.

Data Collection: Use one 2-page habitat evaluation per mile marker. Choose either the scaled or bobwhite quail forms depending on which species you are interested in managing for. If both species are present on your property, you may wish to do both evaluations. Before you begin with the evaluation, visually designate area approximately the size of an acre next to the mile marker post. ***Be sure to read the descriptions at the top of the evaluation forms before you begin!*** It should be fairly self explanatory, but if you have any questions don't hesitate to ask.

Submitting Data: After you have completed your evaluations, submit all data sheets to: Becky Ruzicka, 17360 Coit Road, Dallas, TX 75252 or becky.ruzicka@tamu.edu

TQI Protocol:

Roadside Counts

Goals: To index relative abundance of the bobwhite and scaled quail populations prior to hunting season.

Length and location of transect: Roadside counts should be conducted on your TQI transect. If your property can accommodate a longer route it is highly recommended. Typically roadside count routes are 20 miles in length.

Timing and quantity: Counts should be conducted in September of each year. Count the route three times per year either during the two hour period after sunrise or before sunset, but alternate between morning and afternoon.

Conducting Counts:

Drive the route at speeds less than 20 mph. If you have a trip counter in your vehicle reset it when you start.

Record all quail observed and the distance along the transect where the quail were first observed on the data sheet provided. Record the species and number of quail in the covey (to the best of your ability). Also, if you are able to discern adults and juveniles, record the number of each.

Weather: Do not conduct counts if it is raining.

Data Sheets: After each count scan and email your data sheet to:

becky.ruzicka@tamu.edu or mail them to: Becky Ruzicka, 17360 Coit Road, Dallas, TX 75252.

TQI Protocol:

Fall Covey Call Counts

Goals: To index relative abundance of the bobwhite quail population going into hunting season. This index does not apply to blue quail.

Timing and quantity: Counts should be conducted in October each year. Each listening station should be counted 1 time per year. We will send out reminders to each team when the counts are due.

Conducting Counts:

- 1) Arrive at the first listening station **45 min** before official sunrise and listen until 20 min after you hear the last covey call. Exit the vehicle (if you are using a truck) and try to minimize background noises; turn off your engine and walk away from your vehicle if you need to avoid engine fan or cooling noises.
- 2) Count and record the location of all calling bobwhite coveys. Use the “quail call count diagram” to record the calls at each station, then summarize on the “covey call count datasheet.”
- 3) One observer will only be able to count one station per day. You may have multiple people count multiple stations per day.

Weather: Do not conduct call counts if it is raining or if the wind is greater than 10 mph.

Data Sheets: After each count scan and email your data sheet to: becky.ruzicka@tamu.edu or mail them to: Becky Ruzicka, 17360 Coit Road, Dallas, TX 75252.

Quail Sounds: For example of covey calls go to: http://www.talltimbers.org/gb-fall_densities.html

Sounds a Quail Makes Webisode: <https://www.youtube.com/watch?v=mp6E9s5up6Y>

TQI Protocol:

Harvest Index

Goals: Document the age structure of the quail population as an indicator of reproductive success. Provide an index of relative fall abundance to compare between sites.

Hunt Attributes: Anytime a hunting party goes out on your property (even if it is just one hunter) have them keep track of some information about their hunt. You can provide them with datasheets or simply interview them post hunt. The following is the information you should record:

- 1) Date
- 2) Total number of hours hunted per day.
- 3) Number of hunters in the party.
- 4) Mode of hunting: on-foot, UTV, horseback
- 5) Average number of dogs on the ground hunting at any one time. For example, if you had three total dogs but only let one hunt at a time and kept the others in the box, your average number of dogs would be 1. If all three dogs hunted the whole time, the average number of dogs would be 3. Similarly, if you had one dog hunt for half the hunt, the average number would be 0.5.
- 6) Number of coveys flushed and approximate number of birds in each covey. Only record coveys of 6 or more birds.
- 7) Total number of birds harvested, plus the ratios of male to female and juvenile to adult. *The juvenile to adult ratio is an important piece of data because it gives a measure of reproductive success.* If you need help determine ages of quail please see the sections on aging and sexing quail in the back of this handbook.

Timing: Hunting Season (October – February)

Camera Hunting: Even if you don't feel that your population of birds can support hunting this year, you can still participate in this portion. Head out into the field and do everything just as you would if you were hunting, but instead of your gun bring your camera. You can record everything on the datasheet but the harvest information. Your dogs would rather be out doing that than in the kennel, guaranteed!

Submitting Data: Please mail all data sheets to: Becky Ruzicka, 17360 Coit Road, Dallas, TX 75252. You may also scan and email data sheets to: becky.ruzicka@tamu.edu. Also, don't forget to email your best hunt photos so that we can share them on the TAMU Quail Decline Initiative Facebook page!

Example Data Sheets

The following are partially completed example data sheets. Please use the blank data sheets provided separately to make copies for your use in the field. If you need more blank copies you can open and print from the flash drive.

To submit data sheets, you can either scan and email them or return them in the addressed, stamped envelopes provided.

Cooperator Profile
Texas Quail Index

County: Fisher

CEA's name: Ruzicka

Cooperator

Name: Lloyd Lacoste

Address: 1262 W HWY 180

ROTAN, TX 76901

e-mail llacoste@tamu.edu

In future reports/updates of these data, do you wish your site to be listed by (circle which):

(a) ranch name: Rolling Plains Quail (b) County name only
Research Ranch

General location of property: 10 miles west
of Roby, Fisher County

Current use of property (circle appropriate reply):
(1) farmland (2) rangeland (3) CRP

Management goals of landowner (circle appropriate reply):
(1) Livestock only, no interest in quail
(2) Livestock primary / quail secondary
(3) Quail primary / livestock secondary
 (4) Quail only / no interest in livestock

Are quail hunted annually? NO Family use or commercial?

What are the major brush species on the site? List up to 5 major species.

1. Mesquite
2. Catclaw Mimosa
3. Lotebush
4. Algerita
- 5.

Current management practices (complete as appropriate)

Livestock grazing? NO Approximate stocking rate: Acres/AU Kind:

Brush sculpting? YES

Feeders? YES When? YEAR ROUND Density? 25 PER 4,700 ACRES

Waterers? YES How many? 10

Harvest restrictions? NO HUNTING

Quail Call Count Diagram

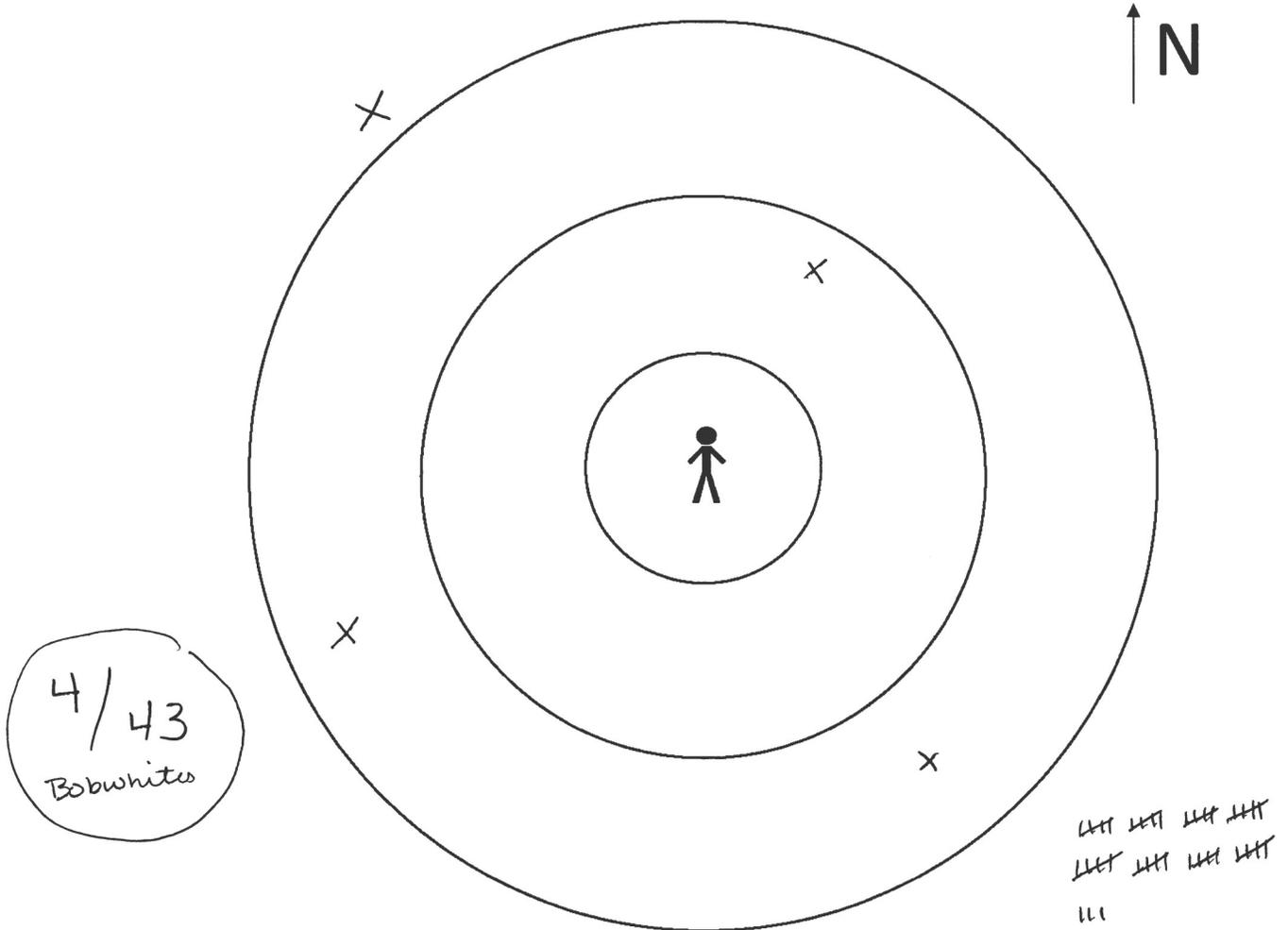
Mark an "X" at the approximate location (an "O" for blue quail) where you hear each individual calling quail from your listening post (i.e., the center of the plot). Each ring represents a distance of about 200 yards. Therefore, I am assuming a maximum of 600 yards is how far you will be hearing a quail calling. Use a separate count plot for each of your stations.

County: Fisher

Ranch: RPQRR

Mile marker: 0

Date: 1 MAY 14



Note: Your listening post should be located at the center of the first circle. This plot should help you keep track of multiple calling birds, and from year to year will give you an idea of locations of calling birds in different parts of your habitat.

Spring Call Count Data Sheet

Texas Quail Index

Site: Fisher Cty Date: 1 MAY 14 Observer(s): Ruzicka

Time start: 0645 stop: 0845 Official sunrise: 0700 Cloud cover: 1 Wind: 1

Mile marker	No. Roosters Heard	Total Calls Heard	Comments
<i>example</i>	4(1)	38(6)	Bobs (Blues); saw 2 pair bobwhites; 1 pair blues
0	4(0)	43(0)	Saw one pair bobwhites
1	2(0)	21(0)	
2	3(4)	32(41)	
3	6(1)	63(7)	saw single blue
4	2(0)	26(0)	
5	4(2)	44(20)	
6	5(1)	51(6)	
7	3(0)	33(0)	
Totals	29(8)		<i>Other notes:</i>
Average/stop	3.6(1)		

Cloud Cover: 0 = clear; 1 = scattered clouds; 2 = mostly cloudy; 3 = total clouds
 Windspeed: 0 = calm; 1 = less than 5 mph; 2 = 5 to 10 mph; 3 = over 10 mph

Texas Quail Index
Dummy Nest Data Sheet

Site name: Fisher County

Transect No. 1

Date established: 1 JUN 14 Date checked: 14 JUNE 14 Observer: Ruzicka

Nest No.	Directions to nest from flag	Nest fate (0 = intact, X = destroyed)				Candidate(s) of destruction
		Weeks				
		1	2	3	4	
demo	13 steps SSW in tobosa just south of small mesquite					Skunk, possum
1	17 STEPS N IN PRICKLY PEAR JUST E OF LOTE BUSH		X			avian
2	11 STEPS S IN LITTLE BLUE STEM 10 YDS E OF LARGE MESQUITE		X			bobcat
3	14 STEPS SE IN TOBOSA JUST N OF LARGE PRICKLY PEAR		0			NA
4	12 STEPS NE OF IN YUCCA 15 YARDS S OF LARGE MESQUITE		0			NA
5	15 STEPS NE IN YUCCA PRICKLY PEAR 4 YARDS E OF YUCCA CLUMP		X			avian
6	10 STEPS NW IN LITTLE BLUE STEM 5 YARDS S OF HACKBERRY		0			NA

Comments:

Roadside Count Data Sheet
Texas Quail Index

Cooperator: RPQRR County: Fisher Observers: Ruzicka

Date: 1 Sept 14 Count No. 1 Quail species (circle): Bobwhites Blues **Both**
Time start: 0730 Time end: 0830 Weather: CLEAR, BREEZY

Distance	Quail observed ¹			Comments
	Singles	Pairs	Coveys	
<i>example</i>		2	(13) ²	1 pr blues; 13 bobs about 1/4 grown
0.5 mi	0	0	(8)	1 corey bobs, 8 birds
2.3 mi	1	0	0	
3.8 mi	0	2	0	1 pair bobs
5.7 mi	0	0	(12)	1 corey blues; 12 birds
7.6 mi	0	0	(6)	1 corey bobs; 6 birds
7.8 mi	0	2	0	1 pair bobs
Totals	1 bob	4 bob	14 BOBS 12 BLUES	

¹If site contains both bobwhites and blues, be sure and denote which species is observed.

²Record number of birds observed in the covey in parentheses.

Covey Call Count Summary
Texas Quail Index

Site: Fisher County

Observers: Ruzicka, Rollins

Date monitored	Mile marker	No. of coveys heard	Distance from marker ¹	Time when calls heard	Official sunrise	Comments
example 10-22	3	3	200 NE 400 SW 500 SSE	6:42	7:05	Weather conditions ideal; 38 degrees, calm
15 OCT 14	0	1	150 YDS N	0652	0708	CALM, CLOUDY 43°F
15 OCT 14	1	0	0	—	—	"
17 OCT 14	2	2	200 YDS S 250 YDS SW	0655	0710	SLIGHT BREEZE (1-3 mph) CLEAR 40°F
17 OCT 14	3	1	300 YDS NE	0653	0710	"
20 OCT 14	4	0	—	—	—	CLEAR, CALM 35°F
20 OCT 14	5	3	100 YDS SE 200 YDS NE 250 YDS S	0657	0712	"
21 OCT 14	6	4	250 YDS NW 300 YDS NE 250 YDS S 100 YDS W	0651	0714	CALM, CLOUDY 36°F
21 OCT 14	7	3	300 YDS W 350 YDS E 200 YDS N	0658	0714	"

Bobwhite Quail Habitat Evaluation

The aspiring quail manager must be able to visually assess the suitability of a given piece of land as quail habitat. The things that must be evaluated include:

Nesting Cover - Quail need nesting cover consisting of large bunch grass clumps about the size of a basketball or prickly pear colonies at least 3 feet wide (the size of a hula hoop). A minimum of 250 large bunch grass clumps is recommended for ideal nesting cover.

Woody Cover - Protective cover of brush and shrubs that are thick enough to conceal quail from raptors and low enough to the ground to give thermal and visual protection, or about 10 feet in diameter and 3 feet high. Brush cover should occur in scattered fashion across the landscape; at the least, you should be able to throw a softball in the air from one suitable brush clump to the next.

Food - Habitat that provides a stable and reliable food supply will have a variety of both desirable forbs and grasses that produce seed for quail, most producing brush (sumacs, lotebush, plums, hackberry, etc.) and insects. Remember that plant diversity translates into insect diversity and that insects are the "perfect" quail food (especially for broods). A quail needs about 0.05 lb. of food/ day.

Water - Quail do not necessarily need to have access to permanent water, but access is a plus in habitat evaluation.

Interspersion - Quail need a "crazy quilt" arrangement of various habitat needs because they don't have the ability to exploit large distances on the landscape. Everything a quail needs on a daily basis should be within about 25 acres.

Rate each category between 0.0 (Poor) to 1.0 (Excellent)

Nesting Cover: What percentage of area supports suitable bunch grass clumps of basketball size, prickly pear in colonies at least three feet across, or other suitable nesting sites? 0.33

Woody Cover: What percentage of area is has brush that can provide effective thermal and visual cover for quail? 0.67
 Area of cover - 20% to 40% 1.00
 Area of cover - 5% to 19% 0.67
 Area of cover - Less than 5% or greater than 40% 0.33

Food: Evaluate the abundance, variety and availability of desirable forbs and browse and large seeded grasses. (See attached list)

Abundance & Variety:
 At least 5 species from list are present and available and well distributed across general area. 1.00
 At least 5 species from list are present, but distribution and availability may be limited. 0.67
 Plants from list are scarce, unavailable or poorly distributed across general area. 0.33
 No species beneficial for quail are available in the general area. 0.00 0.67

Availability:
 Food is available approximately every 1 square yard (1 yd x 1 yd). Insects abundant during summer. 1.00
 Food is available at least every 4 square yards (2 yd X 2 yd). Insects common during summer. 0.67
 Food is available at least every 16 square yards (4 yd x 4 yd); insects sparse during summer. 0.33
 Food is not available every 16 square yards. Insects mostly absent. 0.00 0.67

Water: What percentage of area is within 1/4 mile of permanent water? (minimum score = 0.30) 1

Interspersion -
 a. Can I throw a softball in the air from one brush thicket to another? Always 1.00 - 0.76
Half of the time 0.75 - 0.51
One-quarter of the time 0.50 - 0.26
Rarely 0.25 - 0.00 0.5

b. Is there a diversity of woody plants that provide shade, food and screening cover?
At least 7 species visible from this point 1.00
At least 5 species visible from this point 0.67
At least 3 species visible from this point 0.33
No suitable species visible from this point 0.00 0.67

Add each of the category values together and divide the sum by seven to determine a total habitat evaluation value:

Nesting	<u>Cover</u>	<u>Food</u>	<u>Water</u>	<u>Interspersion</u>	Evaluation
Woody	Abundance	Availability	S/B Throw	Diversity	Value
0.33	+	0.67	+	0.67	+
0.67	+	0.67	+	1	+
0.5	+	0.67	/ 7	=	<u>0.64</u>

If any of the categories score a "0", the Evaluation Value should be "0"

Items to consider when evaluating and troubleshooting quail habitat:

1. Are desirable forbs present only (or primarily) in protected areas from grazing? **Yes**
2. Are desirable perennial forbs heavily grazed? **No**
3. Are there more than five species of potential seed-producing plants? **Yes**
4. Is pasture grazed too short to provide adequate nesting cover? **No**
5. Would additional grass cover *degrade* or *enhance* this site for quail? For quail hunting? **Enhance**
6. Would additional brush management *degrade* or *enhance* this site for quail? For quail hunting? **Enhance**
7. Can brush management be accomplished in a manner to maintain adequate cover? **Yes**
8. Are artificial structures (e.g., old farm equipment, post piles) present to function as loafing coverts? **No**
9. Is additional water development needed and feasible? **No**
10. Can "water harvesting" be used to enhance habitat quality? **Yes**

Based on the evaluation, what appears to be the weak link(s) in quail habitat?

Water Protective Cover Nesting Cover Food

Notes: Main weakness is lack of ~~brush~~ bunch grass or other suitable nesting cover. Area is ~~not~~ grazed lightly.

Based on this evaluation, the overall habitat rating is (circle one):

Excellent (0.75 - 1.00) Good (0.74 - 0.50) Fair (0.49 - 0.25) Poor (0.24 - 0.01)

As a quail hunter, based on your experiences, how would you rate this site on a scale of "0.00" (pitiful) to "1.00" (perfect)? 0.75

What management actions would you recommend to improve this site? (Check all that apply)

- Selective Brush Control
- Prickly Pear Control
- Rest from Livestock Grazing
- Prescribed Burn
- Water Development
- Water Harvesting
- Discing or Other Mechanical Soil Disturbance
- Heavier Livestock Grazing
- Food Plots
- Feeders
- Construct Artificial Loafing Coverts
- Other (explain) _____

For additional thought: The question asks how to improve "habitability" for quail . . . which of these practices might be employed to enhance "huntability"?

Determining Age in Quail

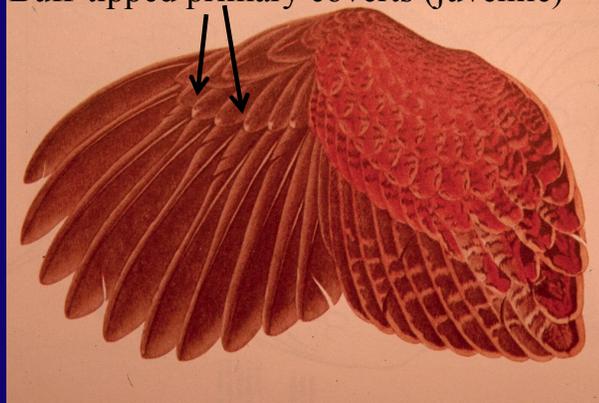
This method works for both bobwhite and scaled quail.

Determination of Age

Juvenile

Buff-colored tips of the primary coverts reveal that this bird is a juvenile

Buff-tipped primary coverts (juvenile)

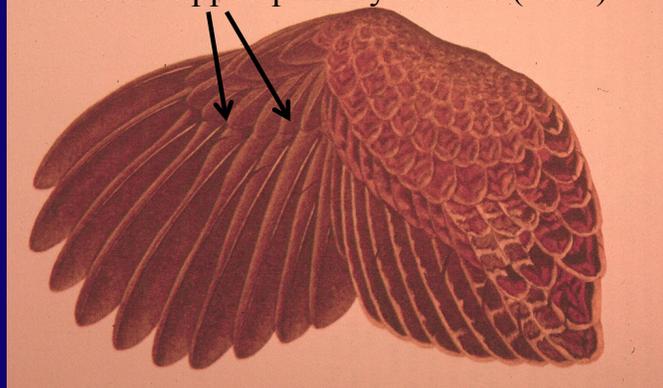


Determination of Age

Adult

The absence of buff-tipped coverts reveal that this bird is an adult

No buff-tipped primary coverts (adult)



Sexing Scaled (Blue) Quail



Males and females are similar in appearance, however they can be identified fairly easily “in hand.” Males have a cream-colored throat, whereas the females have a more dirty brown-colored throat that has several faint brown lines running up and down the throat. The “topknot” (i.e., crest) is only slightly longer (about 1 to 2 mm) in the male.