

Early Research Shows 20 Percent Quail Harvest Quota Is Feasible

by COLLEEN SCHREIBER | Oct 22, 2020

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VIA WEBINAR – At the South Texas Wildlife conference held virtually in late August, Abe Woodard, a doctoral candidate at the Caesar Kleberg Wildlife Research Institute, discussed the work he's doing to evaluate sustainable harvest prescriptions for northern bobwhites in South Texas.

Woodard explained that the research entails the theoretical application of two concepts and publications from CKWRI. The first, completed in 2010, focused on estimating bobwhite abundance and the other in 2014 focused on harvest quotas (both publications are available at www.ckwri.tamuk.edu under the publications tab).

Specifically, the 2010 work focused on laying out a reliable and feasible way of collecting a bobwhite abundance estimate on large properties using the standard helicopter survey method. Essentially, researchers established a set of protocols for helicopter type, flying speed, and altitude, as well as directives for the observers related to the field of view or detection zone for each observer.

The 2014 publication used these prescribed protocols to determine bobwhite abundance, and then used the 20 percent harvest prescription, to come up with a total harvest recommendation on a pasture-by-pasture basis. Woodard further explained that the 20 percent harvest rate came from still more CKWRI work in which a model was developed that took into account fluctuations in reproduction and mortality in different seasonal events and applied different harvest levels to look at long-term population persistence. What the research found was that a 20 percent harvest rate had the least likelihood of extinction over 100 years, and it also resulted in the highest yield over that hundred-year timeframe, while still maintaining a 95 percent population persistence across time.

Jumping then into Woodard's work, he explained that one of the primary goals was to determine if the modeled 20 percent harvest recommendation is sustainable in the field. He also wanted to know if a typical south Texas hunting club, ranch or lease could apply a 20 percent harvest rate in the field using their normal hunting techniques.

Finally, he wanted to analyze the temporal and spatial distributions of the hunts. Because quail hunting in South Texas is typically geared towards the latter half of the hunting season, he wanted to look specifically at whether there was a tendency to hunt the same areas repeatedly and was this practice based on bobwhite densities and/or hunters selecting certain areas specifically based off certain brush canopy cover. Additionally, Woodard wanted to evaluate what the hunting pressure and the associated covey interactions and gunfire do to the spatial distributions of coveys. In other words, was hunting pressure moving the distribution? Was it pushing coveys into more brushy areas or areas that were not hunted or were bobwhites generally avoiding heavily hunted areas?

The research is being conducted in partnership with the East Foundation on two of their ranches in Jim Hogg County. The Buena Vista ranch was designated as the hunting area, and three pastures within the San Antonio Viejo ranch serve as the control (non-hunted) pastures. The non-hunted area is roughly 11,000 acres and the hunted area is 15,000 acres. The two areas are about 10 miles apart but have similar grazing pressure and landscape characteristics.

Prior to the study, these areas had experienced extremely limited hunting for at least the last 60 years.

Densities were detected using the prescribed published protocol incorporating line-transect distance sampling from a helicopter platform and then applying a 20 percent harvest prescription per pasture from their November surveys. Woodard also noted that the hunting cooperators participated in typical South Texas style hunts using quail rigs or buggies following pointing dogs. When a dog came to a point, the hunters approached the covey on foot.

As to the specifics, researchers conducted four surveys per season with transects every 200 meters done pre-harvest in early November and then again mid-December, late January and finally post-harvest in early March.

As for harvest structure, the 20 percent quota was used with cooperators aiming for a 16 percent retrievable bag quota assuming four percent loss due to crippling. The quotas were distributed over three periods between surveys representing early, mid and late season. If a quota was not achieved, then it carried over into the next period.

Baiting was not allowed, no corn or milo, either in feeders or on roadsides. Also, the two per covey limit often typical of most ranches, hunting leases and clubs was removed, Woodard said.

"We limited total harvest by setting the 20 percent quota, so whether they kill two, three or five out of a covey, it really doesn't matter because as soon as they reach the total quota for that pasture for the year, they're done hunting," he explained.

He added that it was difficult for the hunters to follow this practice and in a sense, they fought shooting that many birds or putting that much pressure on an individual covey.

The harvest-hunter data was collected through the use of GPS units on the trucks and on the hunting dogs. For example, researchers collected detailed log data on when braces (two dogs hunting together) were picked up and down, as well as when dogs were pointing birds. Data was also collected on the number of shots fired on each covey rise, and on subsequent rises when hunters bump birds up a second, or possibly third, time. Age and sex ratios were also collected from the harvested birds.

The first year of the study, 2017-18, served as a baseline. There was no harvest during that hunting season. The second year was the first year of actual harvest, and a second year of harvest occurred in 2019-2020. The upcoming season will be the third year of harvest.

He offered some preliminary findings for each of the study years. In the baseline year, distribution of birds was "slightly concentrated" on the control area, though the non-hunted and the hunted sites had roughly the same density of quail, at one quail per four acres.

Trapping was also done during the baseline year. In all, 161 bobwhites were captured of which 54 percent were males and 65 percent juveniles, or 1.8 juveniles per adult.

In the first year of harvest in the 2018-2019 season, the first survey was done in November. Densities were similar on both the non-hunted and hunted sites at about a quail for 6.6 acres. The harvest quota was 422 bobwhites, of which 338 of those were to be retrieved with an assumed 84 crippled birds.

"We hit that quota on the last day of the hunting season," Woodard told participants.

In all, 59 hunts were conducted with more than 167 hours of hunting. The juvenile percentage was 63 percent.

On the non-hunted site, the control, 65 birds were trapped with about the same percentage of juveniles. Because the ranch has not been hunted, birds have not been fed. Thus, it took quite a while for researchers to get bobwhites to come to the traps. They also had issues with hogs.

"Hogs are notoriously brave and pretty brazen and they found ways to get into our trap sites," said Woodard.

During the 2018-19 season, 78 individual dogs were used, with 193 braces recorded. Braces averaged a little over 37 minutes.

Researchers recorded a total of 455 covey encounters averaging about 2.7 coveys per hour. Hunters effectively hunted a little more than 6000 acres covering about 65 acres per hour. Also, 19 percent of the ranch was hunted on multiple occasions.

"We found there was about a 24 percent redundancy of the area covered by an individual dog, and a 41 percent redundancy when looking at both dogs," Woodard told participants.

Also, hunters retrieved one bird for every 5.6 shots and crippled a bobwhite at a rate of about every four retrieved.

As for schedule hunt distribution, researchers determined hunts to be well distributed across the early, mid and late season periods. He noted, however, that hunters were much more efficient in January at the peak of the season.

Woodard acknowledged that some of the hunters were able to move through the brush a bit more easily than others and some of the guests that came in January were a bit more capable, which could account for harvest efficiency being better in January.

As for quail density in the first year of harvest, the study sites received some late season rain. Thus, the November through mid-December surveys showed an increase in density and a decline after.

"In November, about 40 percent of the quail detections from the helicopter survey were singles and pairs," said Woodard. "By spring, densities were about the same in the hunted versus the non-hunted."

In 2019-2020, the second year of harvest, based on the November survey, the quota number was 852 bobs, thus 682 bobs were assumed to be bagged or retrieved and another 170 were assumed to be crippled.

Again, the density this season was one quail for every 3.6 acres. The harvest quota was achieved, but this season in early February because extra hunts were booked during the December and January timeframe due to concerns the quota would not be met.

In the end, hunter harvest was 658 retrieved and 191 crippled, about 21 more crippled than estimated. In all, 74 hunts were conducted, representing 250 hunting hours.

Additionally, 377 bobwhites were trapped on the non-hunted area, with about 55 percent juveniles compared to 72 percent on the hunted area.

He noted that a lot more ground was covered with the 74 hunts as compared to the previous season, and the hunts were a bit longer as well. Additionally, the majority of the hunts were done in the morning, something that was changed based on findings from the previous season.

Also, there were 92 individual dogs recorded during 325 braces, and 722 covey encounters that averaged about 2.8 coveys per hour. Hunters effectively hunted 8,512 acres covering about 63 acres per hour, and about 26 percent of the ranch was hunted on multiple occasions, Woodard said. There was about a 25 percent redundancy of coverage by individual dogs, and about 43 percent redundancy between dogs.

Hunter efficiency was a bit better during this season with 5.3 shots per bobwhite retrieved, and even with the increased cripple rate it still only averaged one cripple per 3.4 birds retrieved, he said.

Hunts for this season were similar to the previous in that hunting was concentrated in the December and January timeframe. Because hunters reached the quota, some February hunts were cancelled. Specifically, 54 percent of the harvest occurred in January, which was similar to the first year of harvest.

As for quail density, the population peaked in November and declined through March, and in fact the decline on the non-hunted site was "pretty drastic," Woodard noted.

He added that a deeper analysis is needed to explain what occurred during this time frame. He indicated there is the possibility that some of the juvenile birds did not survive from the first to the second survey, which may have been what was noticed in the juvenile to adult ratios on the hunted versus non-hunted site where birds were trapped.

In summary, Woodard said that after three years the pre-harvest densities are similar on both the hunted and non-hunted sites, based on the November survey compared to the baseline survey.

Researchers also successfully implemented the prescribed 20 percent harvest ratio during each of the two hunting seasons.

"There were concerns whether or not we could actually get that done, especially when we were about halfway through December and we were pretty short on our harvest quota," Woodard told participants. "In the end, we completed our quotas and did it with relative ease."

Researchers also detected trends within density. Density declined over winter for both the hunted and nonhunted areas as expected. There were similarities in spring densities in both harvest years, which also was expected, he said.

"It kind of gives us some insight into the compensatory nature of this 20 percent harvest quota, though that's just an observation," said Woodard. "It shows kind of that hunting may be a sustainable element of bobwhite management in South Texas."

The results from the first two years also showed that hunters covered 62-66 acres per hour. Additionally, during the typical density year, hunters averaged 2.7 to 2.8 coveys per hour, which is normal for ranches in South Texas that also do baiting, said Woodard.

"We're kind of right on trend with the average covey per hour and covey encounters," he told participants. "The 5.3 to 5.6 shots per bird retrieved is a little higher than what's been historically reported. However, it may actually represent the modern quail hunter who may not be quite as proficient a shot."

Finally, researchers found that hunters seemed to prefer hunting areas that had less than 18 percent brush canopy cover. That said, researchers did not find any relevance to bobwhite density based on distance survey models. In other words, hunters weren't targeting areas that were specifically higher or lower in density than what was randomly available in pastures.

For the third harvest season, researchers have 92 hunt days scheduled. Again, four line distance sampling surveys are planned, from which the 20 percent harvest quota will be determined. Finally, researchers will be collecting and recording similar kinds of data as in the previous two years. Woodard hopes to have the final results published after this hunting season.

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