

RECORD KEEPING-A KEY TO HAVING MORE QUAIL

RONNIE HOWARD, San Tomas Hunting Camp, Box 94, Encino, Texas 78353

WILL E. COHEN, Department of Wildlife and Fisheries Sciences, Texas A&M University, Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville, and Texas Agricultural Extension Service, Rt. 2, Box 589, Corpus Christi, TX 78406

"IF IT RAINS, YOU HAVE QUAIL; IF IT DOESN'T RAIN YOU DON'T HAVE QUAIL, it's as simple as that!" This is the management philosophy I encountered from most cattlemen and wildlife managers when I first moved to South Texas in 1979. I was book learned and eager to go out and apply all the knowledge I had accumulated at Texas A&M during the last few years. I just couldn't believe that quail management was as simple as that.

The truth, as I have learned after managing, studying, and hunting quail for the last 18 years is that "it is NOT as simple as that". Rainfall has an overwhelming influence on quail production from year to year, however, grazing management and hunting pressure can make or break your hunting season by influencing the survival of quail.

Since there is not a lot we can do about rainfall, a manager must understand and control the pastures in which his quail make a living. In order to understand the correlation between quail populations and management it is essential for a manager to keep records of what is influencing his property and how those changes affect a bobwhite's environment.

The essential needs of a bobwhite have already been covered by other speakers, but in general they need: 1) a year round food source, 2) protective cover to live (low growing brush), 3) sufficient cover to nest and the proper vegetative structure to raise young, and 4) safe passage while feeding. The essential needs of a bobwhite hunter are: 1) lots of quail, 2) access to shoot at birds, and 3) enough ground cover for birds to hold.

In order to manage quail populations and hunting success at San Tomas, we have been keeping detailed records for 15 years. The records I keep include 1) rainfall, 2) pasture and grazing records, 3) harvest records, and 4) quail records. I will address each of these and explain how I use this information for bobwhite management.

Rainfall Records

Rainfall records are simple to keep and simply entail checking and recording rainfall in various areas of the ranch. We have 4 rain gauges on 34,000 acres at San Tomas. There is no amount of rainfall too small to record. Knowing when the rains occurred can tell you which plants responded best to spring, summer, and fall rains. This information is also essential to regulating the amount of grazing pressure to put on a pasture to keep conditions right for the birds.

Pasture and Grazing Records

Pasture and grazing records can be kept mentally or in a diary. Many times the pasture conditions and grazing management practiced today will have a profound effect on the pasture several seasons later. In this case, it is often difficult, if not impossible, to recall from memory what the pastures looked like one or two years ago. Grazing records should be kept in written records under any circumstance. Knowing the general condition of each pasture during the different seasons of the year helps you plan future grazing management, burns, disking, and brush control. For instance, in March 1993, we chained strips of brush 100 yards wide through a pasture of heavy mesquite/granjeno. We asked the King Ranch in October 1993 to graze the pasture light enough that winter to assure that we would have enough grass to burn through the chained areas in March of 1994. Our goal was to remove as much of the chained debris as possible. We had a good rainfall year following the chaining and cattle were removed from the pasture long enough to allow sufficient regrowth in the chained areas. At this time the pastures are being grazed lightly, but we should have an excellent fuel load to carry a fire this March.

Grazing a pasture hard during the winter will promote forb growth that winter and spring. However, if the pasture is grazed too hard, you can get into a

situation where forbs such as sunflower and croton germinate ahead of the grass and choke out the grasses. From a management standpoint, this can create several problems. Although sunflower and croton are excellent quail foods, they can grow so dense and tall that bird dogs cannot hunt in them, hunters cannot walk through them, and quail do not have sufficient grass cover to feel secure so they either flush wild or never stop running. If a manager has kept good records of rainfall, pasture conditions, and past grazing management he will know about how hard he can graze a pasture and still reach a balance between forbs and grasses.

Harvest Records

Harvest records have become essential to our management of both hunters and habitat. Since we do not control the grazing management at San Tomas, I have found that the best way to persuade the cattle managers to help our quail through grazing management is to show them the effects of their grazing on our harvest rates.

Although quail reproduction will be low on dry years, our records show a distinct difference in the hunting success in deferred or lightly grazed pastures during drought years. We never shoot coveys down to a point where they would be unhuntable the next year even with very low production (juvenile:adult ratio of 1:1 or less). During the peak of the 1990 drought, we harvested a bird to 10.6 acres in lightly grazed or deferred pastures compared to heavily grazed pastures where we only harvested 1 bird to 97.6 acres. Covey finds were much higher in lightly grazed pastures (7.3 coveys per outing) versus heavily grazed pastures (4.0 coveys per outing) as was hunter success (11.5 birds/outing vs. 4.6). It is very easy to say it didn't rain much this year so we don't have many quail. Harvest records have shown us that there are measures that can be taken during drought years (even extended drought periods) that can allow hunttable quail populations to exist.

In the area we chained in 1993, our harvest records had shown a steady downward trend in harvest since 1979. The obvious reason was brush encroachment that had reached a point where only a small portion of the area was accessible by vehicle. Harvest in this area had gone from 500-1000 birds per year (1980-83) to a three year average (1990-1992) of 175 birds. During 1990-92 we averaged 7.6 coveys/outing and 9.7 birds/outing, and were only

getting 18 outings (1 truck hunting for ½ day) per season on 5000 acres.

We used this harvest information to get the King Ranch to cooperate with us on the brushwork and in convincing our company to help with the costs. This year (following chaining), with 1 month of the season still left, we have made 51 outings and are averaging 23 birds/outing and 12.7 coveys/outing (harvested 1,131 birds). Harvest records clearly justify the expense and will help pave the way for future habitat manipulation.

It is impossible for me to say how many birds/acre a person can harvest off of his property (i.e., how much shooting pressure can be applied) without knowing something about the past harvest history of the area. If you keep accurate harvest records (by shooting area) for several years you will see a trend in the harvest and consequently, will be able to increase or decrease shooting pressure according to present population conditions. At San Tomas we seldom harvest more than a bird to 3-4 acres from even our best pastures on good years. On low population years we may not even hunt in certain pastures

Information such as the number of coveys seen per outing will allow you to monitor shooting pressure as the season progresses. I have found that I cannot rely on hunters to recall covey finds. My dog handler and truck drive keep this count. Invariably, if the hunters did not have a good day shooting, they will underestimate the number of coveys seen. My drivers carry a map of the area they are assigned to hunt and mark the coveys seen as they hunt. We rest each area 2 weeks before we go back to hunt it again. Using this method we normally hunt an area about 6-7 times a year. We allow hunters to harvest only three birds per covey before we move on to the next covey (we average 1.5-1.8 birds per covey). In theory, if we found the same covey 7 times a year we would totally annihilate the covey before the season was over. By keeping accurate hunting maps that show where coveys were found, I estimated that we probably only hit about 1/3 of the coveys in an area on a good day.

I visit with the driver and dog handler after every hunt to get their opinion of the covey sizes and to learn whether a low number of coveys was due to a lack of birds or poor hunting conditions. Generally when one truck has poor hunting conditions and a poor to average hunt, all the trucks will have a similar situation. The next time we go back to that area to

hunt, I will either drive the truck myself or at least pay particular attention to the quality of the hunt. If we have a second poor hunt in an area, I may start to skip that area on the next rotation or not hunt it again. When we consistently flush 6-8 bird coveys we will quit hunting that area altogether.

As long as covey finds hold up in an area, we will continue to hunt the area every two weeks. It is important to emphasize to the driver and dog handler that they are not competing with each other for covey finds, birds harvested, etc. They need to give you an honest and accurate account of the situation on each hunt. Since I am assigning them hunting areas they should not feel the need to compete.

Hunting maps are also very helpful to the dog handlers and drivers. By looking at previous hunts they can determine where concentrations of birds are and which areas have not yet been tested. After I have hunted around the pastures a couple of times, I have a better feel for how to mark the maps to insure a quality hunt. My drivers are instructed to cover their hunting area thoroughly and to try to get their hunt in as small an area as possible. I often mark a large area where we have had poor to average hunts in the past and a smaller area where we have had excellent hunts. After I determine where we have good concentrations of birds, I will sometimes include one of these concentrations with an average area as a sort of safety valve. My driver knows to hunt his area and move to the "honey-hole" only if he is having a poor hunt. Many a poor hunt has been salvaged by hitting 4-5 coveys in a honey-hole at the end of a slow day.

These maps are only as accurate as the driver makes them. I include physical features the driver can see to help him keep located on the maps. Roads, fences, windmills, oil-field locations, oak motts, lake-beds and any other features that stand out should be included on the maps. I try to use distinct boundaries for each hunt where I can. Accurate hunting maps also allow me to dictate the pace of the hunt. Experience has shown me that first and last impressions are the most important. If I need to hunt several heavy brush areas or some other difficult areas, I will send the first truck to a brushy area that I know has a lot of birds. After the hunters discuss their hunt that evening they will not be hesitant to go to the brush again. I will also save the three best areas I have planned for the last morning hunt to insure that they leave with a good attitude.

The number of birds killed per covey generally

indicates the quality of the area you are shooting. Heavy brush areas and heavily grazed pastures tend to have the lowest harvest per covey. Since we only allow 3 birds to be killed from a covey, a poor area will average 1 bird or less per covey and a good area will average 2-2.5 birds per covey. If this number is low, the birds are generally running from the hunters or are flushing too far from the dogs. Quail feel insecure in a pasture that has too little grass and will not hold good for dogs or hunters. Even though a pasture may have an excellent food source and a lot of birds, the quality of the hunt can often be improved considerably by leaving more grass cover so birds will hold better during the hunting season. Again, you need to keep a balance between food and cover to insure a quality hunt.

Quail Records

Quail age ratios (juveniles:adult or j:a) indicate the success of your quail hatch. The best ratio we have seen at San Tomas was about 5:1 in 1981 and 1983, although I have heard of them being as high as 11:1. The lowest j:a I have seen was during 1980 and 1989 when production was 1:1. At San Tomas we consider a j:a of less than 2:1 a poor production year; a j:a of 2.5-3.5:1 an average production year; and a j:a above 3.5:1 to be a good production year. Once you have determined what your j:a is for the whole lease (from 200-300 birds gathered on the whole lease gives a ballpark estimate, depending on the size of the area you are surveying), you can use this information to help establish how much shooting pressure you will want to apply to your area. I have found that age ratios alone cannot dictate shooting pressure in all cases. I have seen situations where we had excellent reproduction (j:a = 5.5:1) from a very low spring population of birds and still had to apply very light shooting pressure to insure a good breeding population of birds for the next season. Dr. Fred Guthery once made the statement that the best predictor they had found for the number of birds in an area in the fall is the number of birds present in the spring. Given that the bird population was hutable (8-10 coveys/outing as a standard) the previous year and grazing management has been proper throughout the spring and summer; a good j:a (3 or more juvenile per adult) can be an indicator that heavy shooting pressure can be applied to an area.

Since 1979 I have kept records on quail body weights. On a normal year our adult quail will weight around 155-160 grams at the beginning of the season,

slowly progress to about 165-168 g. through January, and drop to 160-165 g. during February. A juvenile bird's weight on a normal May-July hatch year will run about 150-155 g. at the beginning of the season and will generally progress to 160-165 g. by January, again dropping 2-4% of their body weight during February. We have seen years (1980 and 1988) when the majority of the juvenile birds weighed in the 135-145 g. range following a very late August-October hatch. During these years body weights never achieved the 160-165 g. range on juvenile birds. They did however progress to 150-155 g. In 1989, we saw a distinct difference in quail body weights following a droughty summer (1989 rainfall was 11.5 inches). Juvenile quail weights started at 135-140 g. and stopped at around 149 g. in January while adult body weights ran 160 g. early in the season and progressed to 163-165 g. and then dropped back to the 160 g. range in February. Quail foods were distinctly different in 1989 with green leaf material showing up in their crop as early as November. We also noted an absence of variety in the seeds they were eating. Croton, cowpen daisy, and sunflower made up the majority of seed they found in November and only made up 17% of the diet by January. Grass seeds were almost non-existent in November and December when they were normally abundant. Insects and croton

made up only 12% and 21% of the November diet where they normally run 18% and 50%. Realizing the birds were not finding food like normal, we started heavy supplemental feeding (milo and corn) in November.

Being able to recognize quail foods in the crop will tell you what plants to manage for and how your management has affected the food supply. Variety is always the key. If birds have 3-5 different seeds in their crops throughout the year the pasture is providing a good variety of food. On a good year in a good pasture you may see as many as 12-15 different seeds contributing significantly to the diet. Over the years we have identified 40-50 different plants that occur in quail diets. Annually, croton (6 species at San Tomas), cowpen daisy, annual sunflower, ragweed, and partridge pea (3 species at San Tomas) are the most important quail foods. Some years seed producing grasses like thinseed paspalum, signalgrass, sarita dichanthium, and bristlegrass will contribute as much as 10% to the early season diet.

I find that it is most important to summarize your information in tables and charts at the end of the year. This allows easy access to the figures when you try to put all your records together for future planning.