

The Struggles of Quail Management

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Think back to your favorite memory of quail. Perhaps it was when you were hunting with your grandfather and his dogs. Maybe it was when you were sitting on the porch with your family listening to the sound of bobwhites calling amongst each other in the distance. If you are older than me, you may remember hearing and seeing these little birds everywhere! They were a common sight. You would hear stories about quail hunters and dogs pushing twenty to thirty coveys a day! Back in the good ol' days, there were quail where we now have buildings and concrete. What happened? Bobwhite quail populations have declined at a rate of 5.6% annually since 1980 (Angelo). Added up, that is a 75% loss in quail population over the years (Angelo). But what is the cause of this? Is the quality of the range land declining? How will this affect other animals that share the same habitat and ecological needs as our little feathered friends? Fingers point in many different directions when asked to pinpoint the cause of the decline. In reality, not just one culprit is to blame. Bobwhite quail decline has been caused by a number of things including improper grazing techniques, focus moved to other wildlife needs, feral animals, the dreaded red imported fire ant (RIFA), and, last of all, drought.

Cattle production is a huge source of income in Texas. It has become more and more popular over the years. In 2013, there was approximately 11,300,000 head of cattle in Texas according to the USDA National Agricultural Statistical Service Data. Irresponsible use of this resource can have devastating effects, however. Overgrazing affects many different species of wildlife. "Heavy grazing by domestic livestock reduces the quality of both food and cover and in doing so reduces the ability of an area to support wildlife" (Gallizioli). Some grazing can benefit

quail. Rainfall is the main component when managing quail habitat with cattle (Hanselka). If rainfall is less than 20 inches, heavy grazing can have a devastating impact on quail habitat. Depending on the area and the land owner's needs, grazing can be anywhere from light to heavy (Hanselka). "Like any powerful tool, she [the cow] can be harmful or helpful, depending on how she's applied," said Fred Guthery, a Texas-Oklahoma quail biologist. When used correctly, cattle use can become a blessing instead of a curse when dealing with quail. One way to achieve this is to graze some places short to stimulate forb and insect production for food. Since quail require clumps of grass to survive, other areas need to be grazed much less to allow for escape and nesting cover (Hanselka). Quail and cattle can coexist in harmony; it just takes a skilled hand to make everything work.

Over the past few years, quail management has become less and less popular. Management for whitetail deer, exotics, cattle, and even turkey has taken over the industry. Each of these animals has different ecological needs than the bobwhite quail causing a loss in habitat for these little birds. Whitetail deer have become a popular target for most hunters and ranchers over the past few decades. More and more ranches have taken their focus off of bobwhite quail to meet the needs of the deer. Whitetail need more brush than quail do. Since most of the whitetail's diet is browse (the fruit from brushy species) they require a larger amount of brush than quail. Deer require 60-75% brush cover where quail only need 15-25% of dispersed brush (Lyons). During different times of the year, quail and whitetail deer require different foods. Quail diet is made up of 51-79% seeds whereas deer diet is 56-63% browse and 24-35% forbs (Lyons). Even though there are many difficulties for managing for both quail and whitetail, "it may be more difficult to manage for both quail and turkeys because their habitat

needs differ” (Lyons). Turkey roost in brush clumps but they also require clearings near these roosts so that they can take flight. They also eat a larger range of food than quail do. Turkey eat anywhere from 20-45% grass, 5-50% insects, 5-20% forbs, and 10-50% browse during different times of the year (Lyons). When managing for these animals, you must be skilled to work with their individual needs; otherwise you can remove an entire species from the area.

Although you may already know the effect of feral animals on native wildlife, what you may not realize is that ground-nesting birds, such as the bobwhite and other quail, have taken an especially hard hit. Yes, wild cats and dogs can make life pretty rough for these little guys, but another threat that isn't commonly viewed as a predator holds a higher kill rate than any of the other feral fiends. “Feral hogs are opportunistic omnivores, meaning they eat whatever plant and animal matter is available” (Timmons). Since they eat whatever is available, ground-nesting quail eggs are top on the menu. In 1993 and 1994, trials were conducted in Texas to test nest depredation for bobwhite quail. Results showed that nearly 30% of the simulated nests were predated by feral hogs (Timmons). These studies were conducted twenty years ago. Seeing that the population of feral hogs has increased rapidly since then, they are a much greater threat now than they ever were.

“Northern bobwhite quail have declined over 30 years, during a period when red imported fire ants have spread throughout Texas” (Drees). As a native of South America, the red imported fire ant (RIFA) was introduced to the U.S. at Mobil, Alabama, in the mid 1930's (Willcox). Because of the lack of natural enemies, the RIFA has been allowed to spread and infest more than 320,000,000 acres in Alabama, Arkansas, California, Florida, Georgia,

Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas. Seventy-five years after being introduced to the U.S., there are five times more mounds per acre than back on their home continent of South America (Willcox). During hatching periods, RIFA have been seen to go after ground nesting birds such as quail (Drees). These insects have been known to sting and eat piping young. "38% of bobwhite chicks' deaths were attributed to red imported fire ant stings" (Willcox). Even if they haven't been eaten, the survival rate drastically lowers for individuals that have been stung. Because these individuals have been stung, growth is usually stunted causing a lower in body mass. As they are so much smaller than normal, there is a higher chance of mortality by predation, starvation, disease, and even as simple as exposure to the elements (Willcox). RIFA makes both direct and indirect impacts (Drees). These ants directly impact the quail by stinging young and increasing the chick mortality rate. Indirectly, they alter chick activity and reduce the amount of other insects in the area that serve as 80% of chick diet (Drees). But what can be done? Many different techniques have been developed and implemented over the years, mound drenches being one. This is the process where individual mounds are soaked and treated with insecticide (Willcox). Another process is baiting. Poisoned bait is planted around the mound and the workers take the poison in. The queen then proceeds to eat the poison and dies. This shuts off the influx of new workers as the previous workers die off (Willcox). The last, and newest, method is the release of biological control organisms. What these are, are natural enemies of the RIFA. First off is the fly of the genus *Pseudacteon*. This fly actually decapitates the workers. Fearing for their lives, they run and hide instead of feeding causing the colony to weaken (Willcox). The second biological control organism is a disease known as *Thelohania solenopsae*. The way this disease is

introduced is by placing infected larvae into the mound and waiting for it to spread. The protozoa that cause the disease weaken the colony. By weakening it, there is a lower chance for the colony to spread (Willcox).

Drought has been one of the major concerns for quail in Texas. Nesting cover takes the hardest hit during these times. The amount of grass clumps to nest and hide in diminishes with the lack of rain. Not only does drought affect nesting cover but also the supply of insects in the area. Insects make up 80% of a quail chick's diet and up to 23% of an adult quail's. These supply a source of calcium that helps feather growth and egg development. Food becomes scarce and this causes the amount of quail to shrink. Some believe that this decline in quail is permanent, that the drought has caused the numbers to drop to a level that can never be recovered from. "I think that you can get there at some point, but in Texas it's just not very likely to happen any time soon," said Robert Perez, the upland game bird program leader with the Texas Parks and Wildlife Department. One way to help manage around the drought is to keep an even tighter rein on cattle grazing. Since quail need those tall clump grasses to survive, grazing should be kept to a minimum and rotated often.

Even though there are many struggles that come with managing for quail, we need more land owners to pay better attention to our feathered friends. They were once a great resource of the rangeland and, with a little effort, they can make a comeback. Don't let these guys disappear, never to be enjoyed by our children and grandchildren! Think back again to your favorite memory with quail, isn't that something you'd like the next generation to experience firsthand?

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