

APPENDIX Q

Specific Management Recommendations for Scaled Quail

Of the four species of quail occurring in the Trans-Pecos (bobwhite, scaled, Mearns's, and Gambel's), the scaled quail is the most common and widely distributed species. In the Trans-Pecos, scaled quail are more commonly known as "blue" quail (referring to their blue-gray feathers) or "cottontop" (referring to their white crest). Scaled quail management is often limited to scattering a handful of grain, with few management efforts directed at enhancing the bird's habitat. For managers interested in improving quail habitat, it is important to be able to recognize the essential needs of the species and to have a basic understanding of how weather and land management practices affect scaled quail habitat. It is also important for managers to realize that factors beyond their control, such as the timing and amount of fall and winter precipitation, have a tremendous influence on quail breeding success and survival through the next year.



HABITAT REQUIREMENTS

The presence and abundance of scaled quail is directly related to the quantity and quality of habitat components – food, cover, and water. Scaled quail must have a year-round supply of food and adequate protection from the elements. This includes protection from predators and weather while nesting, feeding, loafing, and roosting. In quality habitat, food and cover patches occur within close proximity of one another.

Food

Scaled quail eat a wide variety of foods, with seasonal availability and the bird's physiological needs being the major factors affecting diet composition. Food items can be separated into 4 categories: 1) seeds, 2) succulent fruits, 3) green leafy material, and 4) insects. From October through March up to 70% of the diet may be comprised of seeds. Some of the major seed-producing plants include ragweed, croton, sunflower, senna, tasajillo, prickly pear, mesquite, broomweed, pigweed, snakeweed, sandlilly and prickly poppy. Many of these plants are regarded simply as "weeds" to the landowner, but they represent a nutritious buffet for scaled quail. It is critical for quail managers to be able to identify the major plant species and to predict their responses to land

management techniques.

Grasses typically contribute little to the food requirements of scaled quail, although bristleglass, paspalums and panic grasses, which have relatively large, smooth seeds, can be the exception in some areas. Cultivated “grasses” like sorghums and wheat can also be important quail foods. Green leafy materials are mostly consumed during the spring and summer months. Succulent fruits are generally available in late summer and fall.

Insects are the perfect quail food and are especially important during spring and summer. Insects provide protein, water, and important minerals such as calcium. Each of these nutrients is required in substantial amounts by the quail hen in the egg development process. Insects are especially important to quail chicks, as they require a diet consisting of about 28% protein during their first 10 weeks of life. This level of protein is not obtainable on a diet of seeds, fruits, and greens.

Cover

Due to the harsh environment often associated with scaled quail habitat, quality cover is just as critical as abundant food sources. Although relatively unimportant in scaled quail diets, grasses are very important as nesting cover. Nests of scaled quail are commonly located in shallow depressions in the ground, lined with residual grasses or other vegetative matter. These nests are usually associated with some type of brushy cover or nestled within a clump of prickly pear cactus.

The feeding behavior of quail resembles that of a barnyard chicken, as they scratch the ground in search of food (seeds and insects). Bare ground is an important element in scaled quail habitat, although adequate bare ground is seldom a problem over most parts of their range. An exception may be in improved pastures and CRP fields where grass cover may be too dense. Excessive grass cover can impede a quail’s mobility, especially chicks, and interfere with their ability to visually locate food.

Areas of broomweed and ragweed provide excellent feeding and brood-rearing cover. In addition to the seeds they produce, their growth form (single stem, branched canopy) provides good overhead cover. Loafing cover must provide overhead protection and be open at ground level. This cover type can be in the form of old machinery, tangled brush thickets, tall and spreading cacti, or dense patches of coarse weeds. It can also serve as escape cover, providing protection from predators. Some of the major brush species used for loafing cover are lotebush, catclaw, littleleaf sumac, skunkbush sumac, algerita, shinnery oak, sand sage, mesquite, and taller forms of prickly pear and cholla.

Roosting cover is seldom deficient in scaled quail country. Scaled quail prefer open areas with little overhead cover so that they can make explosive flushes when disturbed without interference from overhead branches or other obstacles.

Water

Scaled quail evolved in a region where water was scarce, if not absent, over much of its range. Although watering sites attract quail and may be the focal point of their daily movements, there is no evidence that providing water sources will produce long-term population increases. While surface water may be used when available, scaled quail are able to meet their water needs from dew, succulent leaves and fruits, and insects. Some scaled quail coveys will adjust their daily activity patterns to include visiting watering sites; however, other coveys will exist for long periods without drinking surface water. Available surface water attracts quail and may help in reproduction, but apparently scaled quail can and do survive without it. During extended drought, when succulent greens are absent and summer temperatures are in excess of 100°F, free-standing water may be more critical.

HABITAT MANAGEMENT RECOMMENDATIONS

Numerous publications are available on bobwhite quail management, and most of them list an array of habitat management techniques designed to improve quail habitat. However, these management techniques were designed for implementation in areas that lie east of the Trans-Pecos. Few of these practices are applicable to scaled quail habitat. Most scaled quail ranges receive less than 18 inches of rainfall per year. Low amounts of rainfall in the Trans-Pecos and, perhaps more importantly, unpredictable rainfall decreases the success of habitat management practices common on bobwhite ranges.

Food Plots

Scaled quail foods are seldom limiting in the Trans-Pecos. Even during extended drought, problems with nesting cover, escape cover, water, egg production, and chick survival occur long before food sources decline. With low and often erratic precipitation patterns in the Trans-Pecos, food plot establishment is undependable unless irrigation is available. Scaled quail will generally benefit from irrigated food plots of sorghum or wheat when located adjacent to suitable escape cover (combined benefits of seed, insects, cover, and ground moisture).

Cultivation Practices

In cropland areas, leaving strips or rows of grain crops along field borders, turn-rows, terraces, fence-rows, and odd corners can benefit scaled quail. Not only will these strips provide abundant seed, but they will provide protective travel corridors. Leaving odd corners in standing crops or allowing them to grow into weedy patches will provide additional sources of food and cover.

Soil Disturbance

Most native food plants used by scaled quail are stimulated by soil disturbance. One of the most effective methods of stimulating growth of native foods is late winter disking.

This method tends to be more effective in areas with at least 14 inches of average annual rainfall and should be conducted in late February or early March before the last frost. Disking should be conducted at a depth of 3-6 inches, and the response on sandy soils is considerably greater than on clay soils. The disked strips should be located adjacent to woody cover such as field borders, fence-rows, brushy drainages, wooded gullies, and even along existing ranch and pasture roads. These weedy patches produce abundant seeds and harbor a variety of insects.

Livestock grazing is an alternative method of stimulating forb production. By using an attractant (feed or hay) in key areas, hoof action from high stock densities can disturb the soil, thus allowing low succession plants to germinate. Cattle grazing should be rotated among pastures to let the forbs in these spot-grazed areas to germinate and establish.

Supplemental Feeding

Supplemental feeding is a popular practice in quail management, but several studies have shown that feeding alone does not result in increased numbers of quail. The primary reason is that food is seldom the factor limiting population density. In the rare situation that food was the limiting factor, feed should be available to all birds in a population and located near cover. This could mean locating a feeder every ¼ mile throughout the property.

Water Development

Providing water at windmill sites and constructing ponds and spreader dams may benefit scaled quail. Water should be made available at ground level, on gentle slopes, and close to cover. Overflow from windmills or troughs can be directed to ground level dugouts or cement saucers. Tapping into an existing livestock water pipeline and utilizing drip irrigation emitters is an easy way to provide water for scaled quail.

Brush Management

When planning brush management, the manager should consider the treatment method, clearing size, areas of mid- and tall-grasses, availability of native foods, and the spatial arrangements of these habitat components. Although a critical habitat requirement, scaled quail require relatively low densities of woody cover. Maintaining 10 – 20 % brush cover is suitable to meet their requirements, provided it is the proper kind of cover (low-growing). In areas managed for mule deer and scaled quail, brush canopies should be maintained at about 25 – 30 %. Mosaic patterns of brush provides a lot of “edge” and tend to be more beneficial to quail than strips of brush. Small patches or brush strips are more beneficial than large blocks of brush and openings.

In areas where woody cover is absent, artificial methods of developing cover can be employed. “Teepees”, erected by standing fence posts against one another (stabilized with wire), can be important sources of escape cover and shade. A more durable type

of artificial shelter can be constructed by placing 3 or 4 fence posts in the ground 8 to 12 feet apart and cutting them off 10 to 15 inches above the ground. Strands of wire, or wire netting is used to construct a base across the top of the posts before brush is piled on top. The wire keeps the brush off the ground so that birds can easily enter and leave the shelter. The most long-term technique involves planting woody species (and allowing natural propagation) such as lotebush, plum, skunkbush, and four-winged saltbush. Some areas are devoid of quality, low-growth woody species but have abundant woody shrubs with an upright growth-form, such as mesquite. The quality of these shrubs as escape and loafing cover can be greatly improved through a technique called "half-cutting". Half-cutting involves cutting half way through the top sides of branches (at a height of 3-4 feet) so that they can be bent down toward the ground. This technique is most successful if conducted in late spring and summer, using smooth-bark mesquites with flexible limbs.

Prescribed Burning

Prescribed burns are conducted to meet a land management objective under specific climatic and environmental prescriptions for relative humidity, air temperature, season, soil moisture, wind speed and direction, and fuel load. The desired plant response and ultimately the type of burn to be applied will depend on range, livestock, and wildlife management objectives. Most plants subjected to periodic top removal through fire or grazing are more vigorous and productive than plants that are "protected". Removing old growth and litter from bunchgrasses helps to increase production of new leaves, which are important in replenishing the roots with starches and carbohydrates through photosynthesis. Other benefits of fire include increased palatability of forages, a temporary increase in plant nutrients, and suppression of undesirable species or densities of woody plants.

Rangeland fires can stimulate the germination of annual and perennial forbs, including a group of forbs referred to as "legumes" (pea family). This includes plant species such as partridge pea, bundleflower, western indigo, and sensitivebriar. Legumes are extremely important to quail and other birds in that they are some of the best seed producers. Perhaps even more important, legumes and other forbs attract an abundance of insects. The hen relies upon insects for protein and calcium and as a water source prior to and during nesting. The young chicks are solely dependent upon insects for food during their first 8-10 weeks of life.

The most beneficial burning programs for quail incorporate a multi-year rotation so that 10-15% of the property is burned each year. This schedule allows 7 to 10 years between burns for any given area. For larger ranches, it is more beneficial to burn several smaller blocks each year than one large block. This method will provide a diverse pattern of food and cover at various stages of growth. When burning in smaller blocks is not practical, a single burn conducted under relatively "cool" conditions (lower temperature, higher humidity) will generally produce a mosaic of burned and unburned areas. This technique maintains critical nesting cover while increasing edge and promoting annual weeds and grasses.

Grazing Management

Proper grazing and range management can do more for scaled quail habitat in West Texas than any other management practice discussed. Generally, cattle grazing under light to moderate stocking rates in a deferred-rotation grazing program is beneficial to scaled quail. Also, grazing by sheep and goats at light stocking rates is generally compatible with scaled quail management. However, moderate to heavy numbers of sheep and goats tend to reduce the supply of native quail foods and the amount of low-growing woody brush that is critical for quail cover. Overgrazing by any kind of livestock severely reduces nesting cover and quail food diversity in West Texas.

Summary

Scaled quail can be difficult to manage because of population fluctuations inherent within the species and the limitations imposed by a harsh environment on habitat management techniques. Implementing every available quail management practice will not assure high quail numbers – quail production is too dependent on timely rainfall. However, the successful manager is able to take advantage of the good moisture years by following the basics: 1) maintaining adequate nesting cover, 2) maintaining proper densities of low-growing brush, 3) and maintaining a diversity of food plants. This can be accomplished with light to moderate stocking rates, deferred-rotational grazing, selective brush management, and sometimes prescribed fire. Although quail numbers will be depressed during poor rainfall years, higher survival rates can be realized on ranches that provide scaled quail with their basic habitat requirements. These populations tend to be more resilient with the return of favorable conditions and respond faster than quail on overgrazed ranges with low-quality woody cover.