

Appendix J

Specific Management Recommendations for Bobwhite Quail

Basic Habitat Requirements:

Bobwhite quail must have a year-round adequate supply of food and reasonable protection from hazards. This includes protection from predators while feeding, resting, loafing, roosting, traveling, and nesting, as well as protection from inclement weather conditions. Both food and cover supply must be stable or continuously renewed during the entire year. It is not enough that food and cover be adequate for 11 months, if either is lacking during a single month.



Food and cover must occur in a well-arranged pattern if they are to comprise quail habitat. The distance between a source of ample food and adequate cover must not be greater than bobwhites can negotiate with safety. As a rule of thumb, bobwhites venture no further than 200 yards from patches of cover. Ideally, escape cover should be linked to food supplies with more or less continuous screening cover. The screening cover must not be dense enough to prove an obstacle to the quail's short-legged gait. Overgrazed pastures do not provide adequate screening cover. Conversely, dense stands of thick grass monocultures cannot be easily negotiated. Without a suitable space relationship, a range will not be habitable for quail regardless of the quality or amount of food and cover present.

Food:

Food supplies are usually most abundant during the spring and summer; seeds are ripening and insects and green plant material are available. The food supply begins to diminish at the time of the first killing frost in the fall, and continues to decline throughout the winter due to competition from other animals and from weathering. Seeds from forbs such as croton (doveweed), ragweed, sunflower, partridge pea, and many others are staple winter foods. A number of woody plants provide winter quail food. Fruits and mast such as plums, persimmons, sumac berries, hackberries, and gum elastic berries supplement quail diets. Most grasses, except for paspalums and panic grasses, do not produce seeds large enough to be worthwhile quail food. In general, forbs are the most important and most widely distributed sources of winter quail food. Green material from cool season forbs and grasses that germinate in the late winter if rainfall is adequate are essential to get quail in good body condition for the upcoming breeding season.

Cover:

Bobwhite quail need several types of cover: screening overhead cover for security while feeding and traveling, "tangled" woody cover to retreat into to escape enemies, a "living room" type of cover for dusting or resting, and nesting cover. Roosting cover is also needed, but if other types of cover are present, the roosting cover requirement is usually adequately met.

Cover can take many forms and a patch of cover can meet several of the cover requirements.

A stand of broomweed, or similar tall plants with bushy canopies and an open understory at ground level, can provide screening overhead cover.

Thickets of low brush, trees, and vines can provide escape and loafing cover. In general, a habitat with between 5% and 15% canopy coverage of good woody cover is adequate, if it occurs in small, well distributed patches (no more than 200 yards between patches as discussed above).

Patches of residual grasses (i.e. little bluestem) left over from the previous growing season can provide nesting cover. Individual patches should be at least 8 inches tall and 12 inches in diameter (the size of a cake pan). Ideally, there should be more than 250 well distributed clumps of suitable nesting cover per acre, or 1 clump every 15 to 20 steps. Too little nesting cover makes it easier for predators to find and destroy nests.

Habitat Management Recommendations:

A primary quail management objective is to maintain or create the mosaic of small thickets of low growing woody brush throughout a ranch, as described above in woody cover requirements. Thickets of sumac, briars, plums, lotebush, shinnery oak, bumelia, cactus, narrowleaf yucca, etc. should be retained and encouraged to form. Although not as desirable, small clumps of low growing cedars could have some value as cover where other species do not grow or are in short supply. Where vines have grown up into a tree but it is too open at ground level to serve as quail cover, the tree can be cut half through a few feet above ground and pushed over, bringing the living vines closer to the ground. Young mesquite may be improved as overhead protective cover by selecting smooth-barked, multistemmed specimens, *half-cutting*, and pushing over to where the limbs touch the ground but they still continue to grow, forming small areas protected from cattle grazing/deer browsing. Half-cutting mesquite should be done during the early and middle parts of the growing season, not during the dormant season. The individual "skeletons" of large cut cedars can also form small areas protected from grazing/browsing where patches of herbaceous and woody plants suitable for cover can become established. The number of browsing animals on the range (combination of wildlife and domestic livestock) needs to be maintained at a level where browsing pressure on low growing woody cover is not excessive.

Another objective is to improve the amount and quality of herbaceous cover. A well-planned deferred-rotation livestock grazing system (as described in the Livestock Recommendations section) can be used to create the patchy pattern of lightly grazed areas interspersed among more heavily grazed areas needed for nesting cover.

Most good seed producing forbs are early successional stage annuals that respond to soil disturbance that sets back plant succession. Discing the soil is a good practice that encourages the growth of forbs and other annual plants. Disced strips should be long and meandering and 1 or 2 disc widths wide. The same strips can be disced annually, or side-by-side strips can be disced on an alternating basis every other year to create adjacent strips in various stages of succession. The best plant response will occur in areas of deeper sandy, sandy-loam soils. It is important that disced strips be located near escape cover so they are useable by quail. Discing can be done anytime between the first killing frost in the fall and the last frost in the spring, but the optimum time is near the end of winter (January, February) shortly before spring growth gets underway.

Heavy spot grazing by cattle, such as occurs around salt blocks, feed areas, and water, causes soil disturbance that encourages forb growth. Salt blocks and feeding areas should be moved around the ranch to create small patches of disturbed ground.

Managing the habitat for the production of native food plants and cover should be the primary management goal. Supplemental feeding and/or the planting of food plots are not a substitute for good habitat management. These practices should only be considered as "supplements" to the native habitat, not as "cure-alls" for low quality and/or poorly managed habitats. Food plots and feeders alone will not increase the number of quail a range can support if the supplies of other required habitat elements such as cover are limited.



According to recent research in the Rolling Plains, prescribed burning has been found to be an effective, low-cost habitat management tool that can be used to enhance plant diversity by stimulating production of a variety of woody plants, forbs, and grasses. Burning can be used to remove rank stands of herbaceous vegetation and plant litter that hinder quail movements.

In summary, food and all the different types of cover must be available year around and suitably arranged to have a good quail habitat. The number of quail a range can produce and support will be dependent on the habitat element that is most limited. In other words, if cover is the limiting factor, increasing the amount of food beyond that needed for the number of quail that can be supported by the cover will not increase the

range's quail carrying capacity, and vice versa.

See TPWD brochure 7000-37, Bobwhite Quail in Texas, Habitat Needs & Management Suggestions by A.S. Jackson, C. Holt, and D. W. Lay, and/or TPWD Bulletin #48, *Quail Management Handbook for West Texas Rolling Plains*, by A. S. Jackson.

Notes: The same types of cover and seed producing forbs and supplemental food plants utilized by quail are also utilized by many other species of birds and mammals. For more information on the effects of quail management on nongame species, see the following appendix.

Managing CRP Lands for Quail in the High & Rolling Plains

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- Habitat quality for quail can be increased on lands seeded to permanent vegetation through the Conservation Reserve Program in the High & Rolling Plains of Texas. Monoculture stands, whether consisting of introduced or native grasses, typically lack diversity required for early-successional species like quail and can be improved by creation of a “patchwork” effect.
- Nesting cover (native warm-season grasses), brood habitat (bare ground, weeds, and insects), screening cover (like patches of broomweed), escape and loafing protective cover (like plum thickets), and food sources (like ragweed or carelessweed), are all important habitat components when provided in the right arrangement on the land.
- Optimum “patchwork” or **interspersions** for bobwhites and scaled quail (“blues”) in CRP fields (and native range) would be ~30-40% native grasses, forbs, and legumes in 5-20 acre patches; ~40-60% annual or perennial forbs (weeds) or food strips in 1-5 acre patches; ~5-20% in shrub cover in ¼ to 1 acre patches; and, ~5-40% in woodland in 5-20 acre patches. Scaled quail are generally favored by lower % brush canopy cover and a heavier grazing regime; therefore, they may derive principal habitat benefits from the edges of CRP fields adjoining native range.
- Appropriate use of habitat treatments like **fallow (winter) discing, prescribed (cool season) fire, interseeding of native forbs and legumes, establishment of annual food sources*, management of existing brush cover, establishment of native woody shrub cover, and periodic grazing (when authorized)** will yield the greatest results over time for managers who wish to improve CRP lands for quail. Benefits to other native species will accrue as habitat diversity increases.
- In general, managers will have to expend more effort and expense at modifying older, existing stands where introduced species were established during early CRP sign-up periods. Expired contracts offer tremendous flexibility to the quail enthusiast wishing to create optimum interspersions. Newer contracts (beginning with the 16th sign-up) will generally be more “quail friendly” while possibly lacking a key habitat component, i.e. woody cover. Read more about all techniques mentioned by obtaining a copy of **“Wildlife Habitat Management on Former CRP Lands”** (Management Note No. 14, 1994), available from the Range, Wildlife, & Fisheries Management Department @ Texas Tech University (806/742-1983).
- Free, non-binding, confidential technical assistance is available to land managers through TPWD’s **Private Lands & Habitat Program** @ 806/655-3782.