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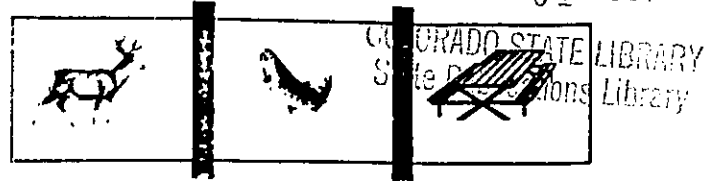


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Game Information Leaflet

Number 78

GUIDELINES FOR IMPROVING SCALED QUAIL HABITAT^a

REQUIREMENTS AND LIMITATIONS

Food, cover and water are the three essential requirements of wildlife, and, indeed, of the animal kingdom. Scaled quail are no exception, and these three life factors are the basis of the environment complex that is quail habitat. Habitat, of course, includes or involves climate, soils, topography, use, vegetation, and other physical and human-induced components.

One or more habitat components limit the abundance, or even the existence, of scaled quail. Before increases in numbers can be brought about, environmental limitations must be determined. Research has provided some guidelines for given scaled quail habitat areas, and information presented here deals primarily with the species in the northern part of its range, as follows:

1. Before habitat manipulation for scaled quail or any other species is attempted, the best possible understanding of the species, its requirements and applicable environmental analyses, must be obtained.

2. In Colorado, habitat improvement should be within the natural range of the species. Many transplants to more northern range have been attempted (Hoffman, 1965), but none have succeeded.

3. Shrubby shelter cover is an essential requirement of the scaled quail range. Schemnitz (1961) stated that the life form of plants could be used to compare habitat for scaled quail in geographic regions more realistically than species differentiation. In some instances, man-made plantings or natural rocky outcrops supplement shrubby cover, or the equivalent, and constitute an essential component of the species' habitat.

4. Habitat manipulation should not be attempted on pure short-grass or mid-grass range where little or no shrubby cover exists. Neither should habitat manipulation be attempted in

farmed regions unless tilled land is closely interspersed with rangeland containing shrubby cover. Hoffman (1965) listed cover types of value to scaled quail in Colorado.

5. Seeds, fruits, flowers and leaves of forbs comprise the main diet of scaled quail adults (Kelso, 1937; Wallmo, 1957). Young birds consume high percentages of insects. Habitat improvement should be undertaken only when such foods are present or can readily be established.

6. Habitat manipulation is most effective on light to moderately grazed range. Overgrazing by livestock eliminates natural food and cover, but range released from overgrazing often develops into good to excellent scaled quail habitat.

7. Normally, scaled quail obtain moisture from dew and succulent vegetation and are able to live without free drinking water (Campbell, 1960; Hungerford, 1960); however, other studies have shown that drinking water is readily used when available. The value of water may increase as scaled quail density increases. Until more is learned about the species, water is listed as a desirable rather than an essential habitat requirement.

8. Scaled quail nest under or among dead Russian thistles (*Salsola kali*), grasses, forbs, shrubs, old machinery, junk piles, yucca (*Yucca glauca*), cacti, rocky ledges, and other locations (Schemnitz, 1961). Despite this adaptability, they show a territorial nature during the breeding season, and this factor, and perhaps others, limit the nesting capacity of even the best range.

9. Weather is highly influential on scaled quail reproduction. In southern and western parts of the range, spring and summer droughts seem to hinder reproduction (Wallmo, 1957; Hungerford, 1964) for green vegetation, needed to induce the physiological condition necessary to breeding, is unavailable during such periods. In northern parts of the range droughts do not appear as influential as in the more southern portions (Schemnitz, 1961; Snyder, 1967). However, knowledge of requirements for successful nesting and reproduction is very limited.

^a Contribution from Federal Aid Project W-37-R.

10. Scaled quail populations fluctuate widely from year to year. Annually the general population level is relative to the carrying capacity of the habitat involved. Habitat improvement is the key to increased carrying capacity.

11. Even with improvement, a given range will sustain only a given number of quail. However, quail consistently produce numbers surplus to range capacity. Hunting is an effective, and highly desirable, means of removing surplus birds.

12. Population increase can be achieved more economically where basic habitat requirements are already fair to good. Quail occurrence is often indicative of the area's capacity for development.

13. In the northern part of the range, shrubs which provide resting and escape cover in spring and summer often appear inadequate in winter (Snyder, 1967). Each fall many coveys move from rangeland to farm yards, old building sites, and similar locations, where they use old machinery, junk piles, tree plantings, and other man-made cover through the winter. Large concentrations often gather in such places, creating inter-species competition for food and protection. Such fall movements indicate the limitations of the environment in question.

SUPPLEMENTING THE EXISTING ENVIRONMENT

Scaled quail are one of the easiest game birds to study and manage. They readily adapt to food, cover and water supplements. With management, the species seems destined to become a more important game bird on habitable range in the future.

Cover

Studies have shown that deficiencies inducing quail movement off rangelands can readily be eliminated by supplementing natural vegetation with artificial resting cover. Scaled quail will use almost any man-made structure for resting purposes, and such cover usually can be quickly and economically provided.

Location of Resting Cover—Proper placement of resting cover is a key factor in successful habitat improvement. Ample natural food and escape vegetation, in close association with shelter, is vital. Where brushy cover or rocky outcrops exist, shelters should be located in or adjacent to cover of the best quality. Forbs, the main diet of quail, are usually found in locations where vegetative succession is in the early stages. Drainages, field borders, windmill sites, occupied or vacant building sites, and other locations where forbs are abundant, are ideal for locating new home ranges for quail coveys.

Type of Resting Cover—Explicit design is not essential when constructing resting shelters.

The main objective is to provide protection from wind, weather and avian predators, and various methods have been employed. Limbs from dead, standing trees may be cut and braced against the erect trunk. In other situations tree branches may be draped over a post or pole framework to form a canopy. Surplus Christmas trees piled loosely or over a low frame are effective. Stacked brush, however, often becomes too compact to permit quail entry and use.

More sophisticated structures may be economically erected. The rainwater collecting apron (Fig. 1) on guzzlers (see **Water Supplements**) may serve shelter purposes. Likewise, a wooden frame positioned one foot above ground and covered by corrugated steel is satisfactory; size may be 8 x 12 feet or other convenient dimension.



Fig. 1. Feeder, guzzler and brush shelter within a fenced enclosure are constantly used by scaled quail. (Photo by Howard A. Stiehm)

Establishing Natural Cover—It is difficult and usually impractical to introduce trees and shrubs for scaled quail because the range of this species is too dry and competition from native vegetation is too great. If plantings are wanted, low-growing, bushy species native to the region should be used. Heavy plastic sheeting or similar material can be used as a ground cover to collect precipitation, hold moisture, and reduce weed competition. Tree cactus (*Opuntia arborescens*) may be transplanted to provide quail cover and ward off livestock, but this degree of effort probably is not practical.

Fencing

Fences are expensive and should be avoided when possible; however, small enclosures are frequently needed to protect habitat plantings from livestock. Dense growth of Russian thistle or other forbs often develops inside fenced areas,

impeding quail use. Chemical soil sterilants can be used to open pathways into such areas.

Food Supplements

Many range areas are tightly sodded but possess good densities of shrub cover (Fig. 2). Food-producing vegetation in sod, however, is usually inadequate—often the situation in canyon-mesa country. Food-producing vegetation can be established by a number of techniques: (1) terraces or plowed strips to enhance food production near resting cover, and (2) food plots containing cultivated sorghums or other grains can be used, but are not practical in most instances due to aridity.

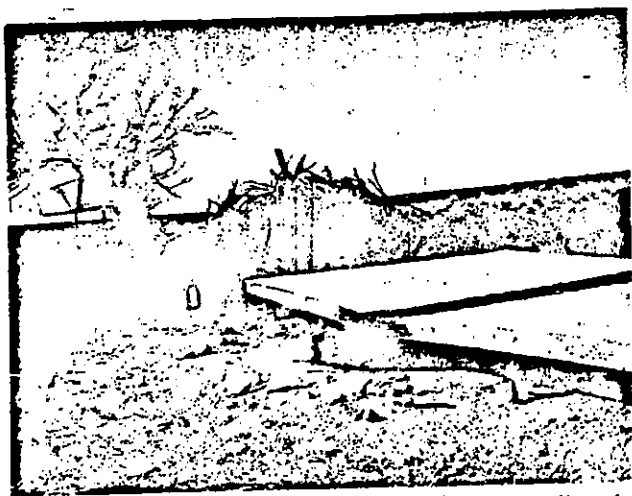


Fig. 2. Yucca on tightly sodded rangeland. Sod disturbance, to create food-producing forbs, combined with supplemental resting cover enhance this range type for scaled quail production. (Photo by Warren D. Snyder)

Feeders, if used, should supplement rather than substitute for natural foods; they can be economically constructed and are readily used by scaled quail. Feeders should be positioned at least three feet above ground to exclude rodents. Milo is one of the preferred grains for feeding purposes.

Water Supplements

Despite lack of evidence indicating the benefits of free water, precipitation catchments (guzzlers) have been used extensively in southwestern United States for quail habitat improvement. Various sites, shapes and forms have been tested. One of the most practical for scaled quail was designed and constructed by U. S. Forest Service personnel in southeast Colorado, but various modifications (Fig. 1) of this guzzler style have been made (Snyder, 1969).

Intensity of Habitat Development

Properly positioned resting cover alone will allow moderate increase in scaled quail numbers in many northern parts of its natural range. Ground disturbance, stimulating food production, can be combined with resting cover to open new home ranges in suitable locations. Overgrazing is not compatible with this technique, but light to moderate grazing is sometimes beneficial.

When large population increases of scaled quail are desired, all prevailing environmental limitations must be overcome. The economical feasibility of maintaining high quail densities is, however, uncertain due to inadequate knowledge of the species' requirements. Guzzlers, feeders and extensive supplemental cover help materially in many areas. Reduced livestock grazing and, in some instances, predator control should be considered in management plans.

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