

New Mexico's Quail

Biology, Distribution,
and Management Recommendations

 **New Mexico Department of Game and Fish**

QUAIL IN NEW MEXICO: Biology, Distribution, and Habitat Management



NW Dept. of Game and Fish

Scaled Quail
(Blue quail, Cotton top)
(*Callipepla squamata*)

Identification

Scaled quail are a grayish blue bird with a conspicuous white-tipped crest commonly called a "cotton top". The name scaled quail comes from the fish scale-like feathers on their breast and mantle (upper back). The sexes look similar. However the hen's crest is smaller with a buff hue and they have brown streaks on their throat. Males' throat patches are not streaked. Males are typically much bluer than females during mating season. Males call with a high raucous "QUEESH" or a slow rhythmic "ket kut". The primary coverts on sub-adult birds are tipped with white.

Distribution

In New Mexico, scaled quail are the most widely distributed species occurring throughout suitable habitats.

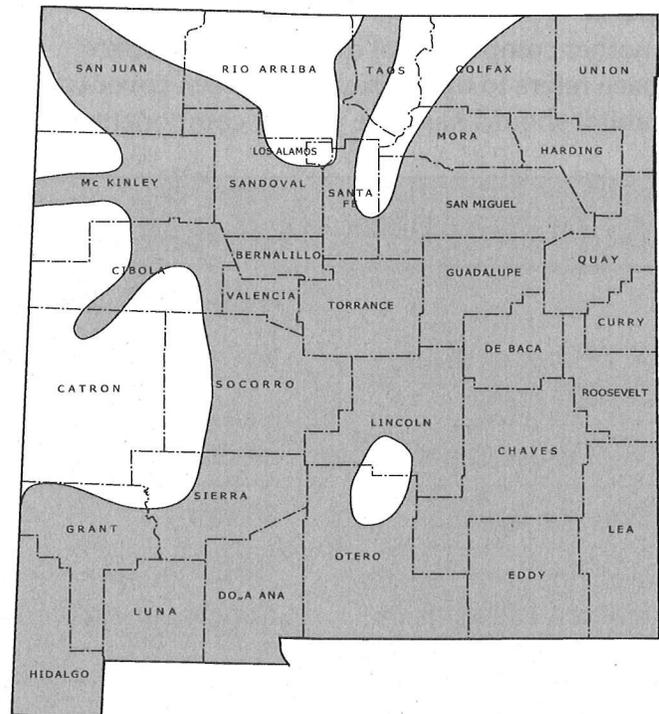
Breeding and Nesting

Like many other species, scaled quail nests are constructed of grasses and feathers and are found primarily on the ground. Nests are

occasionally found with an overhead cover of woven grass, and are usually associated with a guard object such as a pricklypear, yucca, dead Russian thistle (*Salsola tragus*) or abandoned farm machinery. Nesting begins as early as April, peaking in June and continuing through September.

The timing of adult pairing, nesting and egg laying is dependent primarily on precipitation and habitat condition. Double brooding (mating with different males and laying two separate clutches of eggs) has been documented. Clutches range from 9-18 eggs but average 13. Nests seen in May typically have more eggs than nests in August. Hens may sometimes re-nest if the first nest is destroyed. This depends on the hen's condition and if there is enough time to raise chicks before cold weather arrives. If range conditions are extremely dry during the nesting season, scaled quail may delay pairing or stop nesting altogether until conditions improve.

Scaled Quail Distribution



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habitat that is beneficial to scaled quail. Increases or decreases in scaled quail numbers have not been noted among ranges cleared of mesquite, or ranges with small irregular clearings within mesquite, or in undisturbed mesquite. However, significantly more scaled quail calls were heard in undisturbed mesquite than in mesquite-free range. Mesquite and broom snakeweed reduction projects may have an adverse effect on winter food availability for scaled quail.

Grasses including plains bristlegrass, panicgrasses (*Panicum spp.*), knotgrass (*Paspalum distichum*), and barnyardgrass (*Echinochloa crusgalli*), that increase in abundance following a reduction of mesquite are acceptable substitutes in scaled quail diets. However, these grasses are usually replaced by climax grasses, which are beneficial as nesting cover but provide little towards scaled quail food resources.

Scaled quail populations fluctuate widely and are adversely affected by drought, heavy snow cover and heavy rains. In Colorado, the movement of winter coveys to farmlands was reduced by the development of good winter habitat. This included creating brush piles for overhead cover, guzzlers (artificial sources of water used by scaled quail for both water and cover), and cover plantings around blowouts. Establishing natural cover (vegetation native to a particular area including mesquite, sumac, Apache plume, or saltbush) is preferable to the construction of artificial cover. Brush, post, and board piles, however, are inexpensive and readily used by scaled quail. Cover is especially important during extreme weather such as blizzards, hailstorms, and drought.

Recommended scaled quail habitat consists of early succession (multi-layered canopy with annual and perennial plants and grasses) plant stages with annual and perennial forbs and some food-producing shrubs. A patchwork of short grasses, tall grasses and forbs, and at least 25% low woody cover is ideal. Recommendations

for habitat improvement in Oklahoma include maintaining natural cover by fencing off four-wing saltbush and skunkbrush to protect them from trampling and grazing by cattle. An area to be managed for scaled quail should include at least one loafing covert per 52 to 70 ac, or the average size of a covey's winter home range. In Texas, recommendations include maintaining a 5 - 15 % brush canopy in pastures. At such levels, the distance between loafing coverts should ideally be about a softball throw apart (60-80 yds).



AZ Game and Fish Dept.

Gambel's Quail

(*Callipepla gambelii*)

Identification

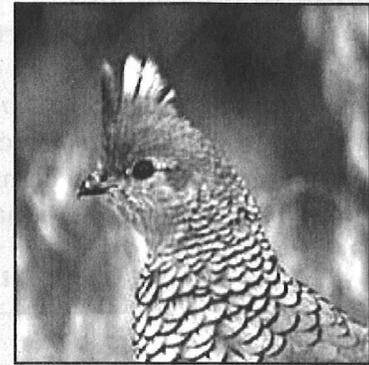
The Gambel's quail is a very distinct quail with a prominent teardrop-shaped black plume on top of its head. The overall body color is grayish with chestnut colored sides and plain underparts. Males have a dark forehead, black throat and belly patch, a chestnut crown. Females have a smaller, less distinct plume and no black throat or abdomen. The most often heard call of the Gambel's quail is the assembly call, this is a nasal "Chi-ca-go-go".



Scaled Quail Requirements

Habitat Types

- Scaled quail inhabit most of the state in varying densities except for higher elevations. Scaled quail are found in semi-arid rangelands and desert grasslands with mixed scrub (shrubs, grass, and bare ground).
- Interspersed bare ground also appears to be an important habitat component, since this species prefers to run, rather than fly, when disturbed.



Key Plant Species

- Common vegetation includes mesquite, prickly pear cactus, and scattered grasses. Scaled quail and Gambel's quail often occur together, although scaled quail use areas with more grass cover.
- They tend to avoid pure grasslands, particularly stands of introduced Lehman's lovegrass and areas that lack shrubs, grasses and forbs.
- Quail numbers often are greater in areas of high plant species diversity.

Food

- Seeds from forbs make up the largest portion of the scaled quail's diet. Seeds of woody plants like mesquites, acacias, and spiny hackberry are frequently consumed. Grass seeds, particularly from bristlegrasses (*Setaria spp.*), are important as food.
- The most often eaten forbs are considered "undesirable" range plants. These include small-flowered milk vetch (*Astragalus nuttalianus*), morning-glory (*Ipomoea eriocarpa*), foothill deer vetch (*Lotus humistratus*), lupine (*Lupinus sparsiflorus*), snakeweed (*Gutierrezia sarothrae*) and Russian thistle. Green vegetation is an important source of Vitamin A which is necessary for reproduction.
- Insects are eaten seasonally by both adults and young.

Management Considerations

- Scaled quail are more tolerant of grazing than other quail. However, heavy livestock use can be detrimental. In well-watered localities, moderate grazing may have a beneficial effect on quail habitat by encouraging forb and weed growth that provide a large portion of the scaled quail diet.
- Grasslands without shrub cover are much less suitable for scaled quail.
- Mesquite and broom snakeweed reduction projects may have an adverse effect on winter food availability for scaled quail. Reduction of saltbush cover reduces the scaled quail carrying capacity of the range.
- Scaled quail populations fluctuate widely and are adversely affected by drought or by prolonged flooding.
- Establishing natural cover is preferable to construction of artificial cover. However, brush, and post and board piles are inexpensive and readily used by scaled quail.
- Good scaled quail habitat consists of successional stages of annual and perennial forbs and some food-producing shrubs. A patchwork of short grasses, tall grasses and forbs and woody cover is ideal.



Bobwhite Quail Requirements

Habitat Types

- Bobwhite are found in the eastern third of New Mexico where mixed brush and grassland habitats dominate.
- In spring and summer, the bobwhite needs grasslands, drainage ditches and roadside and pond edges for nesting, feeding and roosting cover.
- In summer and fall, they may use croplands for feeding, loafing, dusting and roosting. Bobwhites depend on dense, brushy areas for food during fall and winter and for escape and roosting cover year round.



Key Plant Species

- Bobwhites require brushy cover for hiding and resting, although cover should be open enough to allow the birds to move about and see predators. The bobwhite prefers areas where half the ground is exposed and the remainder contains upright growth of herbaceous and woody vegetation.
- A mature mesquite and wolfberry (*Lycium spp.*) overstory with grama grass (*Bouteloua spp.*) in the understory provides ample cover for bobwhite quail. Shinnery oak (*Quercus havardii*) mixed with pricklypear cactus (*Opuntia spp.*), and sumac (*Rhus spp.*) provide good cover.
- Bobwhites need large expanses of clumped native warm season grasses mixed with annual weeds, legumes, and woody thickets that are dense on top but open underneath.

Food

- Northern bobwhite eat primarily seeds, fruits, and insects, as well as new plant growth in the spring.
- Food plants include: acorns, mesquite, hackberry (*Celtis spp.*), panicgrass (*Panicum spp.*), and clover (*Trifolium spp.*). Bobwhite quail consume cowpeas (*Vigna spp.*), corn (*Zea mays*), sorghum (*Sorghum spp.*), and other cultivated grains.
- Bobwhite eat insects including: aphids, mosquitoes, beetles, grasshoppers, and ants.

Management Considerations

- Changing land-use practices have simplified the landscape by promoting the abundance of one habitat type (grassland, agricultural crops or shrublands) to the exclusion of others. Consequently, modern agricultural practices that emphasize optimal crop production or establish former agricultural lands with exotic grass species, eliminate the mosaic landscape bobwhite and other quail species require.
- Northern bobwhite habitat requires an interspersed of food species and cover that is not too dense. Good habitat can support about one bird per acre.
- Habitats manipulated and planted with forbs and legumes can encourage insects, an important food for chicks.
- Food patch plantings generally fail to be of any long-term value. Habitat improvement projects that do include planting food for quail should always include legumes appropriate for eastern New Mexico climate conditions.

