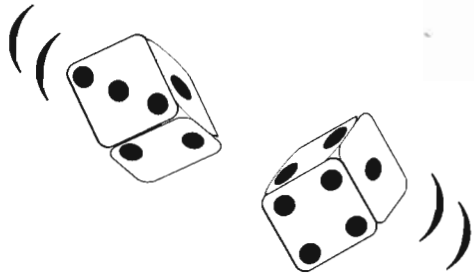




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IN THE DESERT

By Jim Heffelfinger, Wildlife Biologist
Photos by Pat O'Brien,
Arizona Game & Fish Department

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O MANY PEOPLE, TALK OF GAMBLING IN the desert is likely to conjure up images of a certain well-lit city in Nevada. To many sportsmen and women in the Southwest, however, there is a very different, but no less exciting "Gambel" which can be taken in the desert.

The Gambel's quail, named after early naturalist William Gambel, is a bird hunter's bird. These birds are moderately abundant in most years, beautiful in plumage, easy to locate, delicious and not known to be quite the "track star" as scaled quail or chukars. This latter trait, coupled with the gentle topography they inhabit, makes this bird a perennial favorite of all bird hunters in the Southwest.

Gambel's quail are the evolutionary answer to the question: "Can quail survive in the desert?" They are distributed primarily throughout Arizona and the Mexican state of Sonora, overflowing into the neighboring states of California, Nevada, Utah, Colorado, New Mexico, Texas, as well as Chihuahua and Sinaloa, Mexico. They have evolved to thrive in the diverse, yet dry, desert scrub areas of the Southwest where precipitation ranges from two to 20 inches per year.

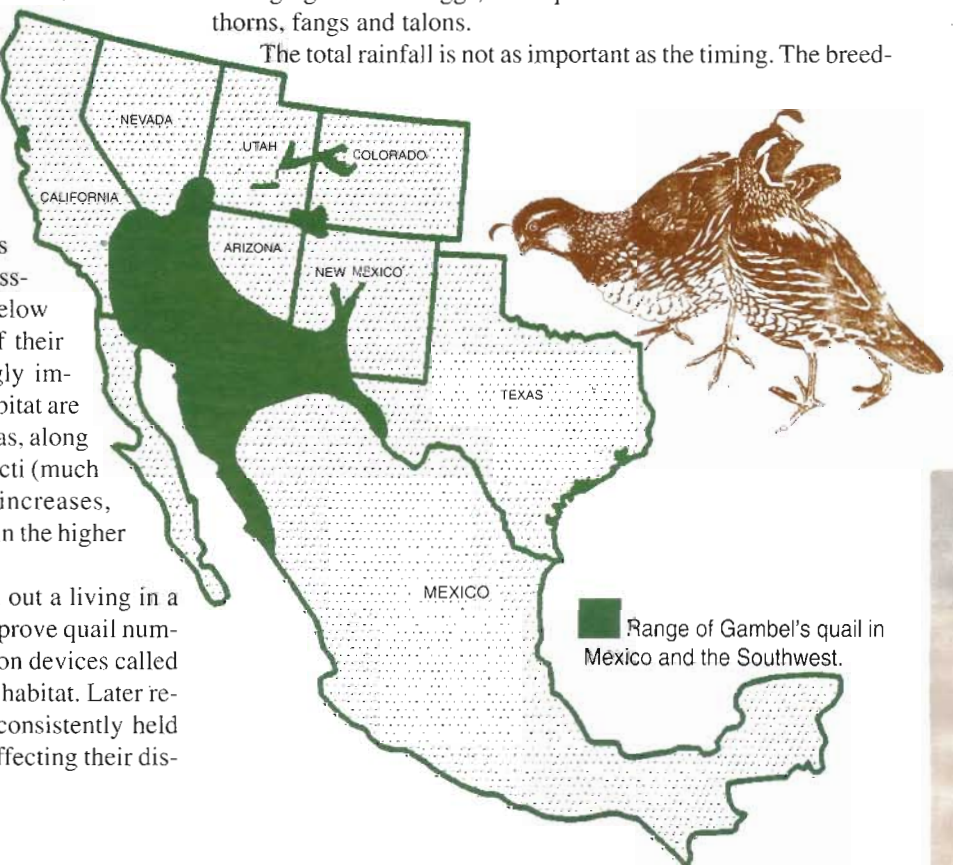
Within this range of distribution, Gambel's quail may be found in brush-invaded desert grasslands and Sonoran or Mohave desert scrub below 6,000 feet elevation. Along the outer limits of their range, riparian vegetation becomes increasingly important. Dominant plant species in Gambel's habitat are generally mesquite, various acacias and mimosas, along with saguaro, prickly pear, barrel, and cholla cacti (much to the chagrin of the dogs). As elevation increases, Gambel's populations give way to scaled quail in the higher desert grasslands.

In this desert environment, coveys scratch out a living in a home range of 20-100 acres. Early efforts to improve quail numbers included the construction of water collection devices called "Gallinaceous guzzlers" throughout this desert habitat. Later research revealed that although a water source consistently held quail, it wasn't necessary for their survival or affecting their distribution on a large scale.

Gambel's quail populations, like most small game in the southwest, frequently undergo wild fluctuations in abundance from one year to the next. These oscillations in population levels are called "boom-bust" cycles. In years of abundant and well-timed rainfall, the population literally explodes only to plummet if conditions turn dry the next year. Ecologists call small game species such as quail "r-selected" species, which means they have the reproductive capacity to rapidly increase their numbers to take advantage of temporarily abundant resources.

Vocalizations of the males in breeding condition are described as a "cow" call; not because it attracts bovines, but because the descending call roughly sounds like the word "cow." The peak of calling, and hence the peak of breeding, occurs from mid-April to early May. After a 21 to 24 day incubation period on nests averaging 10 to 12 eggs, the "quailitos" hatch into a world of thorns, fangs and talons.

The total rainfall is not as important as the timing. The breed-



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ing cycle of Gambel's quail is tied closely with the amount of precipitation falling in the winter months, October through March. It is this rainfall that produces the winter annuals that provide the nutrients which prime the pump for the upcoming spring breeding season.

The relationship between winter rainfall and quail reproduction is so high that hunter success in the fall can be predicted using only winter rainfall totals. In Arizona, spring call-counts are conducted by some wildlife managers to obtain an index to

found that variations in the spring call count index explained over 94 percent of the variation in fall hunt success.

The number of hunters in the field each fall has no effect on the annual fluctuations of the quail population. Arizona actually closed the quail season intermittently in the 1940s over concern that hunters were overharvesting the birds. Subsequent studies in the 1950s showed that quail populations the following fall in heavily hunted areas were as high or higher than nearby unhunted areas. The hunters' removal of birds each fall was completely

become reproductively active because of this substandard nutrition. Depending on the year, 25 to 75 percent of the males may not be calling to attract a mate. Call counts then do not index the number of males, but rather the number of pairs that will be reproducing that year. In species with an extremely high turnover rate, such as quail, this is an effective index to the amount of birds that will be present in the fall. This information, which has been collected consistently for over 30 years on some routes, provides a valuable index to the annual fluctuations of the quail populations.

The results of this call-count index show a higher correlation with fall hunt success than even the winter rainfall data. Extensive research in Arizona has shown that this call count index is a useful and accurate tool for predicting the quality of the fall hunting season. In fact, researchers Smith and Gallizioli



the number of male Gambel's quail that are reproducing that spring. This information considerably improves the ability to predict the quality of the fall season.

In years of poor winter rainfall, many males may have been present, but their nutritional intake has been poor and they do not

compensatory; that is, those quail would have died from natural causes anyway.

The number of quail in the population actually has more effect on the number of hunters in the field than vice versa. Looking at long-term harvest data it is apparent that when quail num-



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bers are up, hunters take to the field. Conversely, when quail populations are low, hunters find the Arizona Cardinals more interesting than the Arizona quail. This is simply the law of diminishing returns which affects all predator/prey relationships. When quail become scarce, foxes turn to mice and human hunters turn to FOX (Network).

With the winter rainfall Arizona received last winter, bird hunters may not see much football this fall. Winter rainfall (October-March) was double the long-term average in many areas of southern Arizona, and spring call-count indices in this same area were 61 to 96 percent above the 30-year average and the third highest since 1965. You can bet shotgun reloaders throughout the state crimped tops all summer in great anticipation of opening season.

Habitat management practices that have been so successful for other types of quail are not well-suited for this desert species. Food plots and discing are of little value without abundant and well-timed rainfall. If such a rainfall pattern is present, food plots are not needed as natural forbs are abundant. Cover is rarely a limiting factor in this desert scrub landscape and water supplementation is useless. Rain-dances (taught in senior-level wildlife classes in the Southwest) remain the only effective quail management tool.

If you have never been "gamb(ε)ling" in the desert, schedule a quail hunting trip to the Southwest this winter. Leave that hat with earflaps at home; bring a large game pouch, plenty of shells, and don't forget your sunscreen.



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