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How Winter Carry-over Relates to Fall Quail Populations

by Clay Sisson



A number of factors work together to determine the performance of bobwhite quail populations, and these factors can change from place to place and year to year. Quail have what is known as a high “turnover rate,” which means that most of this fall’s population (80% or more) will not be around next fall. Because of this high turnover rate it is very important to have a good hatch to replace these losses. In fact, for many years over-winter survival was not considered important because “80% of them are going to die anyway.” The tremendous amount of quail research in the Southeast over the last decade has pointed out the errors in this thinking and has in fact shown carry-over through the winter to be a very important factor in determining population performance and ultimately the number of coveys on your property.

Recently, we conducted a study with scientists from Mississippi State University which analyzed data from our long term radio-telemetry study of population dynamics on quail plantations in south Georgia. Using a population modeling technique called sensitivity analysis, all of the population parameters we measure annually were evaluated and ranked in their importance for population growth. The parameters we measure include adult survival, chick survival, nest production, nest success and a number of other variables totaling 26 in all. What this analysis showed was that Fall-to-Spring adult survival (or winter carry-over) ranked first among all of these variables. The other thing these telemetry projects have shown is that while it may be true that 80% (or more) of the fall population will die within 1 year, the timing of this mortality is crucial. We compared survival of these stable or increasing populations in good habitat to those commonly occurring in the more fragmented habitats occurring throughout the Southeast. Even under the best circumstances, annual mortality can reach the 80% mark over the course of a year. It is not unusual in less fa-

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Visit us at
www.wildlifetrends.com

E-Mail us at
wildlifetrends@home.com

Call us at
1-800-441-6826