

May 18, 1933

Mr. W. L. McAtee,
In Charge, Food Habits Research,
U. S. Biological Survey,
Washington, D. C.

Dear Mr. McAtee:

I have been carefully considering your manuscript relating to the ruffed grouse studies and will give my impressions as they occur to me. I also made some notations on your margins.

I wonder if the apparent discrepancies in the results of Bump and Edminster pointed out on the first page are not to be expected even though the figures may be presented as averages? The organization of my own quail data on eight Wisconsin observational areas representing periods of from two to four years shows tremendous variations in mortality percentages, reproductive resilience, and saturation points of populations, these varying according to the density of the populations and what may be called the inherent (though changeable) carrying capacity of the land, the latter in turn linked very closely with food, cover, and territory.

Indeed, I doubt if such things as averages should be presented; figures may vary as much as two or three hundred percent in localities representative of quail range and anything like a state-wide average, even if accurately arrived at, may be misleading if local application were attempted. There does, however, appear to be a constancy in mortality rates for given population densities and for populations living in environments of comparable carrying capacities. In other words, in the case of the bobwhite at least, one must discuss mortality and reproduction in terms of the birds the environment is capable of holding and the degree to which the environment is filled up. Mortality rates mount stupendously as a population ascends up to the carrying capacity of the environment; whether that carrying capacity is a bird per two acres or one per square mile.

For example, on the Prairie du Sac area (5 square miles) concerning which I have the most complete data the population at New Years 1931 had shown an increase since New Years 1930 of 112.2% in rising from a bird per 26.4 acres to a bird per 12.9; New Years 1932 a further increase of 55.6% from a bird per 12.9 to one per 8 acres; New Years 1933 an increase of only 1.5% or a rise from a bird per 8 to one per 7.9 acres. The population had in