



## National Quail Symposium Proceedings

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### Summation of the National Bobwhite Symposium

E. V. Komarek

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Table 2. Minimum nutritional requirements of quail.\*

| Nutrient           | Percent of diet |
|--------------------|-----------------|
| Crude protein      | 24.00           |
| Calcium            | 0.44**          |
| Phosphorus         | 0.65            |
| Lysine             | 1.40            |
| Sulfur amino acids | 0.80            |

\* From National Academy of Sciences (1971). Values are for coturnix quail.

\*\*From Miller (1967). A value of 0.20 was used in the actual analysis since it was apparent that no combination of species could meet the requirement of 0.44 percent.

#### SUMMATION OF THE NATIONAL BOBWHITE SYMPOSIUM

E. V. Komarek, Tall Timbers Research Station, Tallahassee, Florida

Your chairman, Dr. Morrison, has given me a difficult task indeed. That is to present to you a summation of this National Bobwhite symposium which in truth is within itself a summation of a large amount of investigative effort and study. No one person could absorb all of this information in a few days, and it would be presumptuous for me to try to do so. Perhaps I may be permitted to bring to you, then, what might be called the "sense of the meeting." Certainly this Symposium reflects the state of the science and art of bobwhite quail research and management including the many ramifications so necessary due to variations in the bird's habitat requirements throughout its wide range.

As was most fitting, the meeting had a prologue in a bird dog demonstration and workshop: without the use of bird dogs the hunting of the bobwhite would lose its attraction to many of its devotees. The use of dogs in bobwhite hunting brings in many extra problems, as the environment must be so managed not only to produce the quail, but to produce conditions in which bird dogs can operate well and be

observed properly. In my opinion, altogether too many research people in game management overlook this factor. Production of the game is only half of the job, and in many cases consists of the lesser half.

That the excellent barbeque was not only utilized for nourishment but for many discussions was self-evident and most appropriate; for, after-all, bobwhite hunting is an outdoor sport. One cannot help but wonder how an outdoor symposium would affect the conferees. I have long learned that many differences of opinion are solved quickly and amicably, even in connection with real controversy, when they are discussed right on the ground.

The first panel session: "Trends in Principal Management Themes" was most important, and fittingly was the first of the formal sessions, for the land on which quail are produced and are hunted must be owned by someone. The speakers, along with the discussions, showed the broad conditions under which quail hunting is and must be conducted; ranging from the intensive kind of hunting found on "Private Shooting Preserves" to that found on "Southern Plantations", "State Owned Public Hunting Grounds", and on "Small Farms and Timberlands." That good quail hunting can be obtained under such varying conditions highlights the versatility of both quail production and quail hunting.

The second panel session: "Heretical Ideas About Bobwhite Ecology and Management" discussed pertinent information directly related to management and the potential carrying capacity of quail lands. The subjects from the "One Quail Per Acre Myth", "Two Broods per Year - Fact or Fantasy?", "The Covey Unit - Organized or Disorganized" are in need of further exploration and study. The last paper in this session brought up a problem that has besieged quail management from its very earliest beginnings. "Releasing Pen-raised Quail in Kansas - Its Effect on Hunter Success and Population Levels" was not only of interest but brought on a considerable amount of discussion. It would appear from the discussion that bobwhite quail managers have not been effective in disseminating the results of studies on pen-raised birds, telling where and when they can and cannot be effectively used. Some of this discussion was very similar to those heated arguments of over 30 years ago, as if no progress had been made in understanding this management measure during the interim.

The third panel session: "Landholder-Sportsmen Relations: Solutions for a Problem" is as vital today as it was in the early days of quail management and research. The basis of the conflict between the hunter and the land-holder is found in the basic philosophy anchored in our pioneer heritage: that all of the game belongs to all the people. In quail hunting, this idea clashes directly with the proven management contentions that whatever the land owner does on his land can, and does, affect the quail population and hunting conditions. In other words, by the management of his land for farming, forestry, or other economic practices, he determines whether or not there will be quail to hunt. Stoddard pointed out over 40 years ago that management of the habitat of quail is the determining factor in quail production and abundance. This has been proven and reproven by nearly every scientist

ever involved in quail research and has recently been brought up to date by Rosene.

Quail is a crop of the land, just as much as any other economic crop. Once this is realized, it should be evident that the land-owner cannot and will not spend his money to make a more favorable habitat for quail unless he is reimbursed. It is important that we place a monetary value on the quail crop to induce the farmer or land-owner to go into the business of producing more quail hunting. The papers presented at this session: "Pennsylvania's Program to Improve Landholder-Sportsmen Relations", "The Landholders Views on the Problem and The Open Acres Program as a Solution", and the "Sportsmen's Hopes for the Future of Hunting on Private Land" all discussed and stressed important aspects of this fundamental problem in bobwhite hunting for the average hunter. It would appear from these papers and the ensuing discussions that some solutions to this problem are developing in some regions.

I have purposely left until last the Technical Sessions I and II: "Trends in Principal Management Themes" and "Current Research on Bobwhite Life History," respectively. It would certainly be presumptuous for me to even attempt to summarize the 22 excellent papers in these 2 technical sessions. I will, however, take the opportunity at this time to make some comments in lieu thereof. It is gratifying that such a large number of these technical papers were related to quail management and can be properly called management-research papers. I recall some discussions elsewhere that such management research papers could not be brought together and published. The chairman, Dr. Morrison, and his colleagues certainly deserve a great deal of credit for doing something that some people insisted could not be done. These papers show that research on bobwhite ecology is on a sound management basis; and this symposium will, I am sure, stimulate even greater interest in management. The papers also show a great deal of care in using ordinary English so that not only can other researchers understand them, but so can the sportsman. After all, the ultimate purpose of bobwhite research is to primarily furnish hunting of this magnificent game bird.

It may be of interest to you to interject here some comments from Dr. E. W. Nelson, Chief, Bureau of Biological Survey (now Fish and Wildlife Service) to H. L. Stoddard upon Stoddard's entering on duty at Thomasville, Ga. for the Cooperative Quail Investigation in 1924, for it shows the importance placed upon the sportsman and the necessity of applied research.

"It is scarcely necessary for me to say that the success or failure of the investigation will rest in your hands, and the initiative will rest largely with you as to how the work is carried on and the results obtained. It will naturally be necessary for you to maintain friendly relations with the people with whom you come in contact, both among the contributors to the fund and the residents of the section in which you are working, since such relations will go far toward bringing about a successful conclusion of the work.

It is hoped that you will be able to definitely determine methods whereby the quail can be increased and maintained in numbers far beyond those there present. The subscribers to the fund hold their lands in that region mainly for the quail shooting they get and naturally desire a practical outcome to the investigation."

Today in some circles, we seem to have lost the premise that the purpose of game research, particularly where it is financed by the sportsman's dollar, is that these people who furnish the funds "naturally desire a practical outcome to the investigation." Thus it is heartening to me that in spite of the discussions now going on in those circles as to the relative merits of "pure" (?) game research versus management research, that at least in quail management there is no such hiatus. Certainly this symposium shows that the state of both the art and of the science of bobwhite management research meets Dr. Nelson's earlier admonition as to the value of practical outcome of game research.

It is also most gratifying to me that the use of fire has finally become a recognized tool in the management of the bobwhite. Fully, a third of the papers have made reference to fire. Here again, it may be of interest to quote from the past, and this time from the Dean of both quail research as well as quail management in regard to what we now term "fire ecology", words that were not brought together until only recently (1962).

Stoddard wrote (1931) that fire and the effects of burning:

"...present a complex problem, one that would require years of careful research on the part of a well-equipped experiment station to work out. Such research is greatly needed, and should be carried on, for fire may well be the most important single factor in determining what animal and vegetable life will thrive in many areas."

The "sense of the meeting" shows up in this regard here with the awarding to George Hurst of the Wendell Bever Award for his most excellent study "Bobwhite Quail Chick Food Habits and Brood Habitat Management" in which he brought out the value of fire management in regard to insect food for quail chicks. I would like to point out that probably the greatest need in bobwhite research is more information of the relationship of insects and their habitat requirements to that of the needs of the bobwhite, particularly for the laying hen and for the baby chick in the first few weeks of its life. Stoddard was the first to point out the dependence of the baby chick on insect food during this period, and every study from which I have information on this situation has verified this fact.

I would like to impress on all of you that all gallinaceous birds require a high protein and high calcium diet at egg-laying time and that young chicks also have this requirement in the first few weeks of life. Where in nature can these birds find such a diet high in both of these factors? Certainly the insect groups can furnish both high protein and calcium requirements. At Tall Timbers Research Station

we have recognized that fire and its effects on insect populations are very complex. Let me leave with you the idea that certain insects that live on quail food plants may be of much more value, particularly during the chick-rearing and egg-laying periods, than the plants themselves directly as food.

Another phase of research that appears to be needed in more depth is the relationship of food and other requirements to cold weather around the northern edges of the bobwhite range. These regions are characterized by fluctuations of quail numbers directly related to severe winters. Certainly management research should be able to find ways and means to overcome these wide swings in quail numbers. The goal of research should not be production only in good years. Good game management insists upon tempering such natural extremes even by what might be termed unnatural methods. That food, and its availability is at least a major factor during severe winters has been brought out at these meetings. The question, then, is how can we supplement nature under these conditions? Certainly with today's tools and techniques this problem could be studied in greater depth, and some real benefits would occur to the quail-hunting sportsman by stabilizing the production of quail.

Another allied area for further investigation would be to study the great variations in bobwhite populations that apparently occur at the western edge of its range where moisture is a limiting factor.

I have mentioned these three areas: insect foods, extreme winters, and problems in arid climate, because so much of our game research seems to me, at least, to be a constant repeating of past studies, as if there were no major principles that underlie quail abundance and quail hunting. That past ideas should be questioned and restudied is of course of paramount importance to proper understanding. However, to make continual food studies or to census repeatedly seems to me to be a waste of the sportsmen's and taxpayer's moneys. From a critical viewpoint, it would appear that more imagination, more creativity, and new approaches should be the "order of business" in the future.

In concluding this "summation" it is apparent to me that this National Bobwhite Symposium has shown that the state of both the research and the art of bobwhite management is of high quality. The research and other papers presented here certainly show a high regard for practical application; and the papers themselves can be easily read and understood by both sportsmen and researchers. The group of people that originated, designed and conducted the Symposium have shown a real understanding of quail research and management, as well as the many ramifications of the sportsman-landholder relationship. It is my hope that the same group can hold another such bobwhite symposium when they deem sufficient new information is available.

## A PARTIAL BIBLIOGRAPHY OF THE BOBWHITE QUAIL

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This bibliography lists contributions to literature dealing with bobwhite quail. The literature sources surveyed include Wildlife Review, Nos. 1-145; the bibliographies in The Bobwhite Quail: Its Life and Management by Walter Rose, and The Bobwhite Quail: Its Habits, Preservation and Increase by H. L. Stoddard; Forestry Quarterly, Volumes 3, 4, 5, 7, 9-14; Journal of Forestry, Volumes 15-64; and Forest Science, Volumes 1-10. Other sources included the literature cited sections of many theses, bulletins, and proceedings of symposia.

Entries have been categorized according to major subjects. Literature available for a particular category usually will be found by searching that category. Additional material may be found by searching other closely related categories.

The regional breakdown of some categories includes the following states (1) southeastern: Kentucky, Virginia, Tennessee, North Carolina, South Carolina, Florida, Georgia, Alabama, and Mississippi; (2) southwestern: Missouri, Arkansas, Louisiana, Kansas, Oklahoma, and Texas; (3) northern: those states to the north of Kansas, Missouri, Kentucky, and Virginia.

Numerous references on diseases and parasites are cited in the article by Kellogg and Doster, on pages 233-68, in addition to the titles listed here.

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## Behavior

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