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BOBWHITE QUAIL AND CHANGING LAND USE

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Abstract: The downward trend of bobwhite quail (*Colinus virginianus*) numbers nationally is well established. Generally, this reflects deterioration and widespread loss of suitable habitat resulting from changes in land use. Since the 1940s research on the quail seems to have dwindled with few indications of on-going studies. There is much emphasis on setting aside areas as wilderness and natural areas and creating special funds, but these activities cannot accommodate the special needs of quail except in a general way. The intense emphasis on the economics of agriculture, use of chemicals in farming, and the activities of government and agricultural colleges have all but eliminated wildlife and diversity in many rural settings. Seemingly, a plausible course of action includes best land-use practices in concert with special programs of habitat development and preservation, an intensive effort to develop public awareness and support, the establishment of continuing long-term studies in connection with research-demonstration, a re-emphasis on well-trained field biologists with specialty in bobwhite ecology, a greater quail habitat management emphasis on public-controlled lands, a vastly improved and effective cooperation by various state and federal agencies, and carefully-planned and regulated land use for major soil types and/or ecosystems.

According to the geologic record, bobwhite quail (*Colinus virginianus*) have been around possibly a million years. However, because of the long periods of given dominating vegetation types, it is probable that prior to intrusions by man numbers were few and populations widely dispersed, being associated with the boundaries and "breaks" in vegetation types of major ecosystems. The absence of bobwhites in middens in its probable range suggests other forms of animal foods were more readily available and/or desirable; possibly its small population was an important factor. With the activities of the resident Indians, local patterns of vegetation were altered; these alterations probably represent the first enhancement of quail habitat that was not due to elements of weather. The story of the settlement of our country is well documented; and the increment in quail numbers, beginning with vigor about 1800, seems a consequence of the settlers' land-use practices. Abundance throughout its range seemingly prevailed until the mid-to-late 1800's followed by varying degrees of stability until the mid-20th century when declines became well documented. One can theorize that this pattern of population growth and decline exhibits the bobwhite's "fit" in ecosystems reflecting disturbance by man and an affinity with intermediate successional vegetational events rather than pre- and post-subclimax stages

intertwined in the mesh of diversity. This accommodation to habitat by quail should yield unique and productive management possibilities, as such vegetational conditions are more readily man-enhanced than are the pre- and post-subclimax stages. Unfortunately, as we now well know, the intermediate phases of succession are likewise the most attractive in accommodating man's many needs for food and fiber. Efficiency (money, time, and energy) of the immediate does not contribute to the long term; but, more important, it does not recognize the significance of natural events in an ecosystem nor does it identify values not readily deposited in the bank.

The trend in quail populations nationally, recognizing local exceptions, is downward and with an ever-increasing pace. A legitimate question is are we at a point of no recovery; is this bird on the way out in major portions of its range? To what extent can we retard (or maybe stabilize at a given point) the deterioration of habitat and hence the quail's demise? I wish I could be optimistic in response to these as well as other similar questions for quail and many other species that occupy successional stage habitats. It is my intent to examine several aspects, to "crystal ball" a bit, and to offer some thoughts regarding the future of the bobwhite. Do know there will not be apology for a gloomy picture and the

critical views expressed; facts of support are abundant and widely known by biologists throughout the quail range. You will note, of course, a Midwest orientation throughout, but there is reflected nearly 37 years of interest and study.

Examination of the literature on the bobwhite suggests that we have either considered, by in large, that there is no more to be learned about this important bird or we have, in general, given up hope that anything can be done to improve its status. The 30's through the 40's seemed a peak in the production of research and management papers and bulletins; indexes and federal aid documents suggest a reduced emphasis from 1950 to 1970 and that few states are currently studying the bobwhite. This seeming apathy is a disgrace to our profession; will we get excited when the bobwhite appears on the threatened or endangered lists? I recognize possible reasons for this, as generally monies are used for the "quick and dirty," the short-term effort for answers wanted yesterday. Also, there is a prevailing opinion that we can treat management practices generally and this will benefit the bobwhite as well as many other species. Such is only lip service unless the quail is the focus of these efforts. I personally find little comfort in most planned land use programs currently practiced on public lands as the quail is really not addressed; seemingly, the motivation is how many people can be accommodated. I suspect that it is hoped that some good will be contributed; some may be, but it will not be much.

Activities, as few as they are, in studying and in managing habitat for quail are too little, possibly too late in many cases, for too big a problem. States generally are beating "spot fires" and not addressing the roaring inferno which is consuming habitat everywhere. There is much evidence of grasping for any option, good or bad, hoping for the impossible. We are seemingly driven to grasp for any "flicker" to suggest we are doing something, but we never really come to grips with the fundamental issue of habitat loss. The identification of public or private land as wilderness, natural areas, nature preserves, special management units, etc., has its PR values; and it reflects an important effort. But we are kidding ourselves if we believe anything more than a 3-inch bandaid is being applied to a 30-inch incision. Do we really understand that these are largely last-ditch efforts to avoid complete loss of components of our environment? Further, that which offers hope for one state or region, one species or group of species, one habitat type or another, may have little utility generally because of different types of land uses now and in the future; but, more important, the future of such efforts may be questionable anywhere. We have tunnel vision and have a strong inclination to follow (or grasp for) almost anything initiated anywhere; Colorado is not Iowa nor is Florida Oklahoma. We move to generate a variety of special funds for a great many activities, requesting the support of legislators and the public, because problems will be resolved. Please remember that the crisis of the drought and depression of the late 20's and early 30's

provided a national soil conservation program which yielded outstanding data on how we could use our land for a wide range of integrated and interactive interests without serious impact on its resource base. Now 50 years later and after the allocation of 25-30 billion dollars of entitlements, a much worse situation exists than in 1932. A large part of that soil erosion problem and the enlargement of the State of Louisiana are due to the destruction of bobwhite quail habitat. No, I am not opposed to tapping many sources of funds or generating new revenue, but let us not be lulled into dreaming that this answers the real question of statewide habitat loss on private holdings. Further, don't reflect on accomplishments of the waterfowl stamp when thinking about upland species. Much of waterfowl management is "barnlot" animal husbandry; the bobwhite can be "crowded" only in propagation units located in one's backyard or government-operated game farms.

Over the years, programs to restrict crop production, namely feed grains in the Midwest, have come and gone; most offered little as habitat improvement for quail because of management practices designated for such acreages. However, should retired acres reflect a continuing program and there be opportunity and encouragement for wildlife habitat development and management, opportunities to "replace" quail habitat in certain regions are a possibility. But the likelihood of such occurring in the face of farm economics as related to the world markets and the GNP syndrome of economic strangulation seems remote. Further, even if such a hope became a reality, we cannot presume that travel lanes, fallow fields, and rotation farming will appear in those areas regarded as prime and high capability farm lands. Hence, banked or retired lands will occur only in very limited regions within a great portion of the quail range. In many cases, these will be "island" populations subject to intense pressures if hunted because they have no place to escape. But, this is surely better than nothing and probably can be appropriately managed if it is addressed by responsible administrators.

Nearly every thought over time, with regard to management of quail in an agricultural community, is without feasibility today except that there be a sacrifice by the farmer. We have not been able to sell because generally sales pitches did not address the real world. Farming is a business and no longer an activity which simply reflects a life style of the non-urban setting. To be successful, it reflects efficiency, but no longer as a self-contained unit. Because farming today is totally dependent on an enormous array of interactive processes that impact its fate as a business, it is an inescapable part of an entanglement which does not permit much thought and concern for wild animals. Appreciate one can no longer hear the sounds of wildlife or have time to reflect on seeing the first quail chick of the season; after all, the tractor is too noisy and the operator rides in a sound-proof air-conditioned cab, it moves too fast and requires one's undivided attention, and it shows no response to curses, gee and ho, or a loving pat

when the day is done. What we know to be in the best interest of quail today is as unacceptable as are unoccupied units in a condominium. To add "quality of life" to either setting requires higher rents. Increased short-term costs cannot be afforded either by the business effort or the consumer, and there is no motivation to contribute the luxury of diversity because its importance is not appreciated.

One must raise the question as to how and to what extent can we retard the deterioration and loss of quail habitat. The answer is only to the extent that a fluctuating status in land use can be accommodated that yields a variety of stages of early to mid plant succession, and/or permits incorporation of selected habitat management into land use programs that will yield profits for the farming enterprise. I see but one way to accomplish some of this, and that is through a variety of activities that focus on identification of best land use practices for major soil types. But there will be no progress in this direction without massive change attainable only through directed, coordinated efforts. Such progress requires the impact and support of continuous research and demonstration, educational institutions, legislation, elected officials, government administrators, professional societies, and the public in general. Is this a "cloud nine" perception? Yes, but we have the capability to marshal such togetherness as demonstrated by World War I and II. Although the nuclear age may prove otherwise, no civilization of record has been lost because humans could not get along. The record suggests that abuse of land (soil), and environment generally, was the real cause for the demise of 20+ civilizations. What are our excuses for not rising above this mentality? There is insufficient time for me to develop this issue now.

Let me address in more detail some of the matters I've identified and explore, and possibly evaluate, a selected few of the partitioned and disjunct efforts to enhance our environment.

(1) There are many ways habitat for quail can be improved if we do nothing more than emphasize best use and management of land in accordance with known prescriptions tried and proven over 50 years ago. This emphasis will not result in the "good old days," but it will be a major contribution especially when complemented by those efforts to delineate areas through lease, agriculture retirement, acquisitions as preserves and wilderness, etc. One cannot over-emphasize the dangers of isolation and the fragility of island populations due to the vicissitudes of weather, disease, parasites, predators, or competing organisms.

It is conceivable that the seriousness of soil erosion could result in a blessing. However, this will occur only if the public in general and government everywhere recognize the disaster of the alternative, that is to ignore the problem. Consider the contribution of strip-cropping, contouring, windbreaks, developed drainageways, retired acreages of permanent cover to protect marginal sites, and maybe even some small degree

of crop rotation. I see little chance, however, to change importantly the trend to larger field size, specialty agriculture, and monoculture. Clearly, the opportunity for extensive diversity reflecting the right vegetational mix is not great, but there is offered an opportunity and challenge that are in the right direction.

(2) Public awareness, but especially understanding and undiluted support, are required to address the problems at hand if there is to be change. The 50's and early 60's reflect a period of progress in this direction via training of teachers and classroom instruction. But, for a variety of reasons, largely related to apathy by school administrators, legislators, school boards, and teachers, this has dwindled significantly. Further, Agricultural Experiment stations, which in theory operate at the "cutting edge," have become the victims of chemical companies and Washington bureaucracies. In addition, the U.S. Department of Agriculture, with its tentacles in essentially every county in the United States, has willfully ignored the necessity for best land use, including a commitment to fauna and flora, because of the tiger it has by the tail, namely GNP as it relates to the economic health of agriculture. The Soil and Water Conservation District, an admirable effort at democracy and volunteerism, is the recipient of this long intestinal tract, which originates in Washington and which is "tributaried" largely by those who dare not address the real issues or tell it like it is. One might rationalize that Agricultural Experiment Stations could offer a "freedom road" out of this intellectual strangulation. But examine their track records via publications, extension programs, etc., the last 25 years. Do you find exception to the emphasis on chemicals, intensified land use, more acres taken from other important uses, continued promotion of the greatest cause of cancer, etc., as the way to increased crop production? Despite air, water, and soil being our essential life supports, these are treated as products of nature to be exploited; or, how much can one get for the least investment of time, dollars, and energy in the shortest time span. Is it any wonder that wildlife such as the bobwhite has been ignored, considered irrelevant in the scheme of things?

(3) We have no alternative but to re-establish essential habitat if there is to be maintenance and/or increase in quail numbers and their distribution. The widespread loss of premier habitat has had an insidious effect because previously less important factors now are critical. Individually and/or collectively factors such as severe weather, predators, crop harvesting, hunting seasons, chemicals, etc., once easily absorbed by quail populations, are now readily identified as seriously reducing populations. Often recovery from these problems is slow at best, if at all. As a result of these factors being identified as suspect, we lose proper perspective of the annual needs of quail and now focus on the individual items for resolution. Never before has the necessity for long-term studies, research-demonstration areas, and organized efforts of well-trained quail

biologists been so important. We monitor annual harvest levels and hunter success and bemoan the plight of those who buy a license. And we continue our presumption that we know all that needs to be understood regarding quail. How many state departments have on-going research that will identify the situation today? By default, we imply satisfaction that the invaluable work of Herbert Stoddard and several others representing a 3-decade period (1930-60) is in total applicable to current problems in the quail range. Does this represent an appropriate sensitivity for a research or management biologist?

Generally, we have no real understanding of the subtle happenings because we have not followed in detail leads identified years ago. Do appreciate the minuscule factors of yesteryear are the determinants today. We are no longer "living high on the hog"; the opportunity to endure risks with this unique bird is long past. Because of recognition of the importance of bits and pieces of biology as they apply to the whole, we developed the systems approach. Unfortunately, most of us are "hungover" with blackboard diagrams and have not been able to really sell the end product.

(4) Never before has there been such a necessity for the organized efforts of well-trained quail biologists to study and manage this outstanding bird. The true quail hunter can identify quality quail habitat and is reasonably successful in hunting because of this. I would judge that many biologists who have been employed in the last 15-20 years do not have an equivalent perception. This is in part because many states and universities have not focused on quail because of a lack of available support for and interest in its research. But, in large part, pressures of the new approaches to research, data analysis, and management sermonized in governmental and academic circles (program management systems [PMS], management by objectives [MBO], habitat evaluation procedures [HEP], etc.) have yielded prospective employees who are in large part mechanics, engineers, or technicians. Disgraceful as it may seem, thinking, philosophizing, and theorizing are passe unless the thoughts can be put through a computer and to the test of elaborate formulae that are readily fabricated if they don't fit. Unfortunately, in our efforts to be "definitive" and "sophisticated," both very noble and worthwhile objectives, we have forgotten that these are simply gimmicks, tools if you will, and will not, cannot, help us "think like a quail." Please, I am not negating the value of sophisticated methods in research and management. But I am truly ashamed and thoroughly embarrassed when our students and members of our profession can spout all sorts of technological terms, cover blackboards with formulae, and discuss all sorts of "packages" for computer analysis, yet not have the slightest notion of what it means in terms of quail biology. We must have both the highly qualified field biologists and the technical genius; but if I could have but one, it would be the former, who could think, whistle, and enjoy springtime like a quail.

(5) I believe there is opportunity to improve greatly bobwhite management practices on public-owned lands; however, public-owned lands suitable for bobwhite habitat range from little to few in terms of acreages in different states. Also, they usually show maldistribution on a statewide basis and hence are often considered unimportant and not useful to segments of the human population. More important, the fact that individual holdings are often too small to be effective as management units needs to be reconciled. A greater effort by federal agencies, especially in national forests and refuges, could yield important returns in given states. But there must be attitudinal changes to accomplish a more responding climate and responsible action, as many such holdings tend to focus on either a singular or multiple mission, neither of which has much to offer high-quality quail habitat.

Also associated with public holdings is the question of opportunities to hunt quail. Even if maximum habitat management is exercised, number of hunters benefited is often small at best. Further, to provide a good experience is immensely difficult unless hunting is restricted so as to avoid disruption of routine quail behavior patterns. This offers little in the long run, may be a questionable use of funds, and will not generate much hunter support. As unpalatable as it appears to many here, in some states particularly, production of high-quality birds and their release at well-planned intervals on properly-managed sites (habitat and hunter) may be justified. Obviously the cost of such an effort cannot be adequately subsidized by conventional hunting license fees.

(6) Although not significant in providing acres for quail, full and effective cooperation between state and state, state and federal, and federal and federal agencies can contribute much to public interest and understanding of proper resource management generally and the plight of the bobwhite quail in particular. Currently, much collaboration is lip-service and more times than not reflects indifference to antagonism. Although much of this is nothing more than "defense of turf," it is surely not in the best interest of the public dollar or the bobwhite. The opportunities to work with private interests and enterprises are structured in almost every government program, and few segments of the public are immune to the impact of one or more of these. Yet, one fails to see much that suggests coordinated coercion and leadership by responsible government agencies to ensure the best for the land resource and its occupants. Is there not a common ground and interest?

(7) Finally, I wish to address the question as to whether there will ever be accepted philosophically regulated land use in the rural setting. Will we ever establish by policy required practices for handling major soil types and ecosystems? Many believe this the only approach that will provide opportunity for diversity in our life and, in turn, enhance the bobwhite quail. But at what level will success in

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our efforts occur when there seems to be no exception to the bobwhite being a dispensable "by-product" of all other dominant or primary uses of land? If it's the "meat market" we wish to contribute to, appreciate the quail is but a delicacy and its rearing is easily accomplished in 1-2 acres of space.