

THE PARADOX OF THE BIGHORN SHEEP

by

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The decline of the bighorn sheep in western North America is largely attributable to the usurpation of much of the pristine range by agriculture, particularly grazing. However, it is also symptomatic of our past ecological ignorance, and our present impotence as wildlife managers and custodians of natural environmental quality.

The historical decline of the bighorn sheep, in the face of increasing pressures from the plow and the cow, is understandable. So also, is our failure to halt the further die-offs, when our knowledge of causal factors was inadequate and we accepted parasites and diseases, ipso facto, as benign agents limiting populations in order to prevent annihilation from some other cause. But, it is not understandable why wildlife managers have ignored, for more than a decade, the mass of evidence, summarized by Buechner (1960), incriminating man and his treatment of bighorn ranges, as the precursors of disaster. Furthermore, it seems incredible that wildlife management agencies should ignore the recommendations of their own wildlife managers until die-offs, such as occurred recently in south-eastern British Columbia, create public pressures that cannot be ignored. Under these conditions, it seems paradoxical that the bighorn sheep survives, giving us yet another chance to establish a suitable management program.

In the Endangered Species Protection Act of the United States, passed in 1966, bighorn sheep were not listed, in spite of the fact that only 1% of their pristine numbers have survived 100 years of "progress" in North America. Furthermore, a recent publication, entitled "Endangered Wildlife in Canada" includes the bighorn between its covers, but states that it is "not entirely endangered" because "sufficient populations exist in American and Canadian National Parks". Such statements, following the loss of 74% of the populations wintering at low elevations in south-eastern British Columbia, including 76% of the Kootenay National park population, are difficult to comprehend. How much further must bighorn sheep decline before they are considered endangered?

Buechner (1961) and others have suggested that surviving bighorn populations now occupy habitat which can only be considered marginal when compared with extensive pristine ranges. Certainly, populations occupying seral ranges, must be considered marginal in terms of their transitory nature and the lack of effective habitat management programs. Also, climax ranges, where they are still occupied by bighorns, must be considered marginal in terms of their transitory nature and the lack of effective habitat management programs. Also, climax ranges, where they are still occupied by bighorns, must be considered marginal, if only on the basis of restricted size. Moreover, most ranges, whether seral or climax, whether inside or outside national parks, are shared by other species such as cattle, elk or domestic burros, and are generally in various stages of degeneration as a result of excessive grazing.

Almost all populations, showing the stresses of marginal existence, are heavily parasitized with a variety of nematodes, cestodes and coccidia. Moreover, they passively carry disease producing organisms which seem to require only mildly increased physiological stresses to flourish and to succumb with their hosts.

To say the least, bighorn sheep are endangered, and perhaps, if sufficient protection and managerial skills are not applied, we may witness still further declines and the eventual extinction of yet another native mammal. Bighorn sheep are fragile, both in the wild state and in captivity, but, hopefully, they can respond to good management based upon sound and detailed knowledge gained through research.

Prerequisite to the management of bighorn, is the exclusive ownership of the habitat within which they live, and particularly, the winter ranges. Lawson Sugden (1961), in reference to California bighorns of British Columbia, stated: - "Protection of bighorn ranges from excessive human influence, and use by domestic livestock, must become a major part of California bighorn management.....All other management considerations are secondary to this, for without suitable habitat no amount of legal protection can benefit any animal."

Buechner, in his monograph considered that the key to the future of bighorn sheep lies in the improvement of forage conditions through reductions in interspecific competition from wild and domestic animals, particularly elk, cows and horses. Furthermore, he pointed out, as early as 1961, that we have sufficient background knowledge to serve as a basis for effective conservation. Research provided this knowledge and we need only to put this knowledge into practice to make a good start in the conservation of bighorns.

It is essential, that we acquire the title and grazing rights of all significant bighorn winter ranges and dedicate them in perpetuity, to the conservation of sheep. Having done so, we must then apply currently known principles of ecology and management to increase and maintain vigorous populations. In other words, the immediate future of bighorn sheep and a withdrawal from disaster, lies in the hands of wildlife managers and the administrators of the wildlife resource.

However, to increase our competence and, needless to say, our confidence, that we, as wildlife managers, can ensure the continued existence of bighorn sheep, and perhaps continue to provide moderate consumptive use of some populations, we must enormously increase our biological and ecological knowledge. To husband this fragile animal, we need to know much more about the relationship between sheep populations and habitat quality, seasonal range requirements, energy flows, nutrient recycling, specific nutritional requirements and the effects of all these on vigour and reproductive performance. We must learn more about the parasites and disease agents affecting bighorns, their life cycles, effects upon the hosts, susceptibility to control, density interactions between host and parasite, the factors influencing pneumonia, methods of treatment, and much more.

We also need to obtain accurate population statistics and a thorough understanding of population dynamics in various environmental circumstances, and at different density levels. We need to know potential and actual growth patterns, reproductive rates, mortality rates, the causal factors of mortality, age structures of populations in various habitats, the role of predation, and many other aspects of the biology and ecology of bighorn sheep.

In short, we really know very little about the specifics of bighorns and it is essential, while we still have sufficient numbers of animals to work with, that we intensify both our managerial and our research efforts.

As wildlife managers, we must develop a suitable philosophy in regard to bighorn sheep. Having done so, we can then prescribe policies appropriate for the future and can translate these into cooperative management and research activities. Without such a philosophy, without policies, without vigorous and decisive management and without intensified research effort, there can be little doubt that the bighorn sheep of western North America will eventually reach the end of its road to extinction, or will become

nothing more than a curiosity in parks and other outdoor museums.

The future of bighorn sheep is the yardstick by which we can measure our competence as wildlife managers. For positive results, we need more than pious hopes that someone else will do something before it's too late.