HABITAT MANAGEMENT FOR THE DESERT BIGHORN

by

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ABSTRACT

Habitat management for desert bighorn is maintaining or improving food, water, cover, and space for wild sheep in the southwest. Severe competition now exists in many ranges of the bighorn; consequently, wildlife managers need to more effectively manage both the bighorn and its habitat. Management plans should and can be cooperatively accomplished to improve herd populations and habitat conditions. Many pristine ranges do not contain bighorns, although the ranges await transplant ventures. Some ranges are deficient in quantity or quality of water and/or forage. This paper lists tried and tested techniques to re-establish bighorn populations and improve habitat conditions for native bighorns.

INTRODUCTION

When white man first came to North America, bighorns (*Ovis canadensis*) inhabited most of the lands in the southwest (Buechner 1960). However, today, less than one-tenth of these pristine ranges produce bighorns. Relentless yearlong hunting, competition with domestic livestock, and the decrease of available habitat due to human use, were all factors contributing to this drastic reduction in populations during the century from the 1850's to the 1950's. Man was, therefore, the responsible factor for the bighorn's decrease. But, man is learning how to take better care of wildlife populations and environmental conditions; consequently, the last two decades have witnessed increased herds in areas where they were formerly extirpated. The question facing us today is--can or will man continue the present trend of increasing desert bighorn herds and improving habitat conditions? The objective of this paper is to identify and document ways this can be accomplished. The actions of man in future years will determine whether this will be done.

RECENT MANAGEMENT ACCOMPLISHMENTS

Wildlife management is the science and art of changing habitats and wild animal populations to achieve human goals (Giles 1969). Today's knowledge of management emphasizes the need for a systematic "plan" to inventory physical and biotic data, analysis findings, document recommendations, and periodically evaluate results. Agencies such as the Forest Service and the Bureau of Land Management recognize the need for this management systems approach and each have administrative manuals outlining guidelines, methods and procedures, commonly referred to as "Habitat Management Plans" (Bureau Land Management 1968).

A recent survey disclosed Habitat Management Plans (hereafter referred to as "HMP's") have been completed and implemented in California and Nevada (Schneegas 1964; Light, Zrelack and Graham 1966; Light, Winter and Graham 1967; Myers 1969; and Warburton 1969). Other plans have also been completed, but copies have not always been readily available to the public as the HMP's cited above.

The two major methods of habitat management challenges for the future are: (1) herd re-establishments into presently unoccupied historic ranges, and (2) maintaining or improving food, water, cover, and space for bighorns.

RE-ESTABLISHING UNOCCUPIED RANGES

Buechner (1960) outlined the probable distribution of bighorns in the United States prior to the advent of the white man. He likewise mapped the present distribution which is less than one-tenth of the original distribution.

Today's wildlife managers have developed successful techniques of capturing and translocating bighorns (Yoakum 1963). Over 25 transplants have been made in six states. Some of the earlier transplants were not too successful, but more recent ventures have resulted in well established herds. The first transplant from British Columbia to Oregon resulted in a 200 percent herd increase in five years (Deming 1961). Within ten years, the herd had increased sufficiently to warrant a limited hunt, thereby resulting in a recreation return far earlier than many sportsmen dreamed.

One reason for the more favorable recent transplants has been the ability to capture large groups (20 or so animals) of sheep and moving the entire captured herd. There may be a behaviorism factor here in moving a herd group as opposed to attempts to collect a number of individuals.

New and improved techniques are also assisting in transplant ventures. Nevada's 1969 experiences (Tsukamoto 1970) are a good example of how a large herd can be captured today and transported with few, if any, mortalities.

The re-established herd of California bighorns in Oregon has a most notable record. This nucleus herd of 23 sheep was started in 1954. Since then the herd has multiplied to the extent that five bands have been transplanted to other areas and a total of four successful hunting seasons have been conducted to date. In addition, the herd has provided many recreation days to the public who enjoy trips to the transplant site to view the returned wild sheep.

IMPROVING HABITAT CONDITIONS

Habitat improvement projects to date have centered mainly around water developments and vegetation manipulation.

Projects to improve water quantity have been the most frequently used habitat improvement technique. Natural water holes and spring improvement work are methods described in detail by Halloran and Deming (1956); Weaver, Vernoy and Craig (1959); and Baker (1969).

Today, the wildlife manager is faced with making decisions and providing recommendations for waters developed primarily for human use. Frequently, a small additional unit to a pipeline or water facility can provide much needed water for wildlife. It, therefore, behooves the wildlifer to be acquainted with these procedures as well as to design water developments specifically for wildlife welfare. Further specifics regarding water developments beneficial to wild animals may be found in Chapter 14 of the Wildlife Management Techniques (Yoakum and Dasmann 1969).

Forage manipulation projects to increase desirable plants for bighorns have been very limited. Only one such project is known. This was a vegetation-type conversion from a dominant juniper-pinon community to a mixed browse, forb and grass type near Hawthorne, Nevada. The area was first chained and later seeded. It is now a successful project and transplanted bighorns thrive on the increased desired succulent forage.

Since desert bighorns are primarily grazers (Barrett 1964, Yoakum 1964), it appears that type conversion from habitats dominantly trees or browse to mixed communities of grass, forbs and browse is a highly desirable habitat improvement technique. Yoakum's (1964) studies substantiate that bighorns utilized forage in quantities of 59.5% grass, 32.0% forbs and 8.5% browse on the Silver Peak Range in Nevada which has a vegetative composition of 22% grass, 4% forbs, and 74% browse.

Another example of preferred forage class use was reported by Dr. Charles Hansen (personal communication) who noted that bighorns made greater use of grasses in old wildfire burns than adjacent abundant browse ranges. Based on this knowledge, the Bureau of Land Management in Las Vegas, Nevada has zoned certain high density bighorn ranges as areas of no wildfire control, thereby allowing nature to convert browse communities to more productive forbs and grasses preferred by native bighorns.

For the wildlife habitat manager seriously concerned with manipulating vegetation for the benefit of bighorns or other wildlife, the publication entitled "Restoring Big Game Range in Utah" (Plummer, Christensen, and Monson 1968) is highly recommended. The authors have been responsible for improving over 120,000 acres. The "10 Basic Principles" stated in this book provide principles and practices that are applicable to practically any set of circumstances in North America. Here is the most important single publication to any manager seeking knowledge on techniques of game range rehabilitation. The reader may also wish to consult other publications for methods of improving forage. Two recommended sources are: (1) Chapter 14 of "Wildlife Management Techniques" (Yoakum and Dasmann 1969), and (2) "The Ely Chain" (Cain 1971).

DISCUSSION

Today, there is a challenge to the wildlife manager to increase bighorn populations. The public desires more recreation days use of bighorns to enjoy observing, to photograph, or to harvest.

To meet this challenge, the wildlife manager should first place priority efforts in restocking historic ranges now unoccupied. It is true that not all pristine ranges are suitable for transplants today, but many are, and each suitable range should be stocked at the earliest possible date. It is estimated that the present bighorn population in the southwest could be possibly doubled if these efforts were actively pursued.

Projects can and should be accomplished to increase quantity and quality of water or forage for bighorns. But no such major project should be accomplished prior to completion of a thorough Habitat Management Plan. No funds for improvement projects should be approved unless the project's feasibility has been thoroughly investigated and justified. In most cases, tested and proven techniques to improve waters or forage are known.

The year 1971 witnessed the First North American Wild Sheep Conference on an international basis. Each attending nation discussed the problems of too few wild sheep today compared to a century ago. And each stressed the paramount problem of the impact an exploding human population will have on native bighorn habitat. Yet, in many regions, the bighorn population, through professional wildlife management, is better today than it was 20 years ago. This indicates man can properly take care of wildlife and the environment.

LITERATURE CITED

Baker, J. K. 1969. The Stubbe Spring guzzler. Desert Bighorn Council Trans. 13:103-107.

Barrett, R. H. 1964. Seasonal food habits of the bighorn at the Desert Game Range, Nevada. Desert Bighorn Council Trans. 8:85-93.

Buechner, H. K. 1960. The bighorn sheep in the United States, its past, present, and future. Wildl. Monographs 4:1-174.

Cain, D. 1971. The Ely chain. Bureau Land Mgt., Ely, Nev. 32 p.

Deming, O. V. 1961. Bighorn sheep transplants at the Hart Mountain National Antelope Refuge. Desert Bighorn Council Trans. 5:56-67.

Giles, R. H. 1969. The approach. In: Wildlife management techniques. The Wildlife Society, Wash., D. C. 623 p.

Halloran, A. F. and O. V. Deming. 1956. Water developments for desert bighorn sheep. U.S. Fish & Wildl. Ser., Wash. D. C. Wildl. Mgt. Series Leaflet No. 14. 8p.

Light, J. T., T. R. Zrelack, and H. Graham. 1966. San Gorgonio bighorn habitat management plan. Forest Service, San Bernardino, Calif. 24 p.

_____, F. A. Winter, and H. Graham. 1967. San Gabriel bighorn habitat management plan. Forest Service, San Bernardino, Calif. 32 p.

Myers, L. 1969. Highland range wildlife habitat management plan. Bureau Land Mgt., Las Vegas, Nevada. 30 p.

Plummer, A. P., D. R. Christensen, and S. B. Monsen. 1968. Restoring big-game range in Utah. Utah Div. Fish and Game, Salt Lake City, Utah. Pub. No. 68-3. 183 p.

Schneegas, E. R. 1964. A preliminary big game habitat management plan for bighorn sheep on the Inyo National Forest. Forest Service, Bishop, Calif. 42 p.

Tsukamoto, G. K. and N. J. Papez. 1970. The 1969 sheep trapping and transplant program in Nevada. Desert Bighorn Council Trans. 14: 43-50.

U. S. Bureau of Land Management. 1968. Habitat management plans. U. S. Dept. Interior, Wash., D.C. BLM Manual 6620. 6 p.

Warburton, J. 1969. A desert bighorn management plan. Desert Bighorn Council Trans. 13:14-21.

Weaver, R. A., F. Vernoy, and B. Craig. 1959. Game water development on the desert. Calif. Fish and Game 45(4):333-342.

Yoakum, J. D. 1963. Re-establishing native bighorn ranges. Desert Bighorn Council Trans. 7:122-125.

_____ 1964. Bighorn food habit-range relationships in the Silver Peak Range, Nevada. Desert Bighorn Council Trans. 8:95-99.

_____, and W. Dasmann. 1969. Habitat manipulation practices. p. 173-231. In: Giles, R. Wildlife management techniques. The Wildlife Society, Wash., D. C. 623 p.

DISCUSSION

QUESTION BY JOHN RUSSO, ARIZONA G & F: Jim, I was interested in what you had to say about the amount of territory that is not being utilized today that is historic range and I agree with you. But as I look at this habitat and mentally inventory it, I find that a lot of this is in the realms of BLM, Forest Service, State agencies and private land which we really can't do too much about because that almighty dollar has a big hook on it. When you start to throw domestic livestock off this country, somebody is going to scream. Now, you have been with the BLM long enough, give me a solution?

REPLY BY YOAKUM: Sure, Johnny, I've known you long enough to talk to you directly. I don't know your state well enough to make recommendations, but I know Nevada well enough to know that when the Indians were there, practically every mountain range in the state had bighorn sheep. On this day, less than 1/3 of it is occupied by bighorn sheep. I know that now we have management planning systems in which we have identified major ranges and have asked for bighorn sheep to be transplanted in those ranges. I have said that in many of those ranges there is no conflict with livestock. There were days when there was conflict with livestock. Let's live for today. Let's not live for tomorrow. There was conflict with diseases and parasites with livestock. Domestic sheep are going off the land at the present time at a tremendously accelerated rate. There is less and less of a problem. There are ranges in central and northern Nevada, as well as parts of California, Oregon and Idaho where there are no domestic animals whatsoever and there is no major conflict with any endemic species. The agencies are requesting the re-introduction of native bighorn sheep.

REPLY BY RUSSO: This is true. Of course I have to speak of Arizona and quite often I get myself into trouble by sticking my neck out and saying things I probably shouldn't. I think we've talked about this often enough in past meetings to sympathize with each other, but you can see what is happening.

We have Lake Havasu City. The McCulloch Corporation has stepped in there and has developed a beautiful city. Of course these people are demanding to move back into this mountain range. If you had flown over this country several years ago and fly over it now, you might have a tendency to "puke with pride."

You go a little further into this and you'll find that we are gradually being pushed out of the Colorado River area because of access roads that are being demanded. We have roads that are being put right through some of our best bighorn sheep areas. This certainly is pushing these animals back.

We have recently investigated what has happened to the bighorn sheep in the Superstition Mountains. At one time we had sheep there but they are no longer there. This is the Tonto National Forest. In visiting this area a month ago, we found that the grass cover in that country looked about like this floor. There are cattle all over. We had a promise from the BLM in Arizona that any place where we have wild sheep they will remove domestic sheep. But there is no promise here that they will remove domestic sheep from where we used to have bighorns so we could think of putting bighorns in. This is the problem we run into.

REPLY BY YOAKUM: Yes Johnny, Arizona and Southern California have problems that I don't think I'll ever be able to answer. But the world is not all that bad. I might leave this group with the feeling that people are problems, but hell, we're part of them and we can't get rid of them. We're going to live with them. It's not all that bad.

I'll cite you the other case which is good! When I went to Oregon 10 or 15 years ago there wasn't a sheep in the state and there hadn't been for 20 years, although 2/3 of Oregon used to have bighorn sheep. They brought in 20 from British Columbia and in five years increased by 200%. That particular herd has now produced enough for 5 successful transplants within the state. They are working on 3 more. They have even brought them to Nevada. They are thinking of sending them to other states. They are hunting them now. So these are places where, I am sure Johhny, we can't answer all the problems. But there are places where we can do the job too!

REPLY BY RUSSO: And I'm sticking with it, too!