

PANEL DISCUSSION: RESEARCH NEEDS FOR WILD SHEEP
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In order to gain some perspective of wildlife research we must recall the four basic steps of wildlife management, i.e.,

1. inventory: where are the animals and how many are there?
2. production: what is the annual production?
3. limiting factors (research): restrictions to population expansion.
4. management: based on the first three premises.

Research is devoted primarily to determining the factors that limit populations, while management procedures are generally based on those findings. The basic approach to sheep management is to "leave them alone and they will come home, wagging their tails behind them" provided of course that they have a home. Obviously then, the most important research need is to know the home range requirements of mountain sheep and these ranges must be protected. The second need is to know how to maintain or improve sheep habitat by fire management or any other reasonable means of maintaining a grassland community near escape terrain.

If home ranges are known, protected and managed, how then do you manage the sheep? Historically mountain sheep have been subject to die-offs from scabies, lungworm/pneumonia and now Johne's disease. Personally, I disagree with having the disease organisms spread or perpetuated using band-aid remedies like transplanting or treating the animals. What is required is a careful examination of what brought on the symptoms in the first place.

In Alberta, our strategy has been simply to regulate population numbers. Our objective has been to keep sheep populations in a perpetual state of recovery with either sex seasons. I believe sheep managers have been extremely cautious in managing a remarkably adaptable species.

R. E. KEISS, Wildlife Researcher, Colorado.

In the last 175 years, with increasing human exposure, bighorn sheep in Colorado have declined to their present day 'toe-hold'.

About 6 years ago, however, we were blessed with a "green light" and quite a bit of money to go ahead with a crash program on sheep research.

I'm not going to dwell on the details. We have raised a lot of dust and we have to wait until it all settles, before we evaluate what has been done and where we will go next.

W. E. HEIMER, Dall Sheep Biologist, Alaska

In Alaska we have had two different approaches. On the Kenai peninsula management-oriented research has produced a lot of good, basic biological information. In the interior we have been looking at biological parameters - population dynamics, movements, fidelity to home range, comparisons between low and high quality populations - and, by serendipity, stumbled onto useful management-oriented information.

Aside from long range planning, one of our greatest contributions has been to find an effective survey and inventory technique for the interior - through mineral licks. We feel that we know production, recruitment and population trends for the entire Alaska range.

But our research has to be management-oriented or it doesn't go anywhere. For the future, we are looking at the effects of resource exploration and development, particularly helicopter survey and its effects. We need research on the kind and quality of human experience people want from sheep. We need to find out consumptive user attitudes. Last, we need to be able to tell if hunting in a supposedly healthy eco system will lead to a decrease in stocks.

D. M. SHACKLETON, University of British Columbia

There seem to be two simple components to mountain sheep research: 1) plain biological interest, and 2) research for management of the species. The first is of boundless interest, but what are our goals for management research? Much of the time the answer seems to be that 'more is better'. Really, this is unacceptable to the hunter/photographer/backpacker/biologist kind of consumer we are dealing with because it is not clearly established exactly what this consumer really does want.

But let's assume we have the answer to that. Then, what are the goals of the manager for wild sheep? I think that managers first have to answer or develop some fairly specific management goals - quantitative, time-specific frameworks: how many sheep of what kind, over what time period, etc. A shopping list of research needs is the task of the manager, not the researcher.

Another important thing arising from symposia like this is the growing recognition of inter- and intra-population variability, of the complexity of these systems. We must recognize that there are some basic common factors under-lying this variability. We need to develop a sound conceptual framework against which we can evaluate the empirical confusion we are now faced with. One example is Geist's concept of population quality.

I would like to consider possible methods of improving our present knowledge of sheep, both academic and applied:

1. more compulsory game checks - morphometric data, etc.
2. select one or two representative sheep populations for intensive monitoring over time.
3. use management practises as bona fide research - there are several ways we can use management applications and learn directly from them in a much more rigorous, scientific way.
4. develop the co-operative wildlife unit concept - use a team research approach.
5. systems approach to management.
6. greater use of information and education departments of Fish and Game Branches.
7. If Game Branches want more applied research, you'll have to put your money where your mouth is - come up with some funds.