RC 076

From: Wayne Heimer <weheimer@alaska.net>
Subject: answer to Ted's question
Date: February 16, 2015 at 4:40:17 PM AKST
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Ladies,

In my testimony before the Board on Saturday, I mentioned that the age-structure based calculated harvest rate of mature Dall rams has been consistently low over the last 20 years (averaging 40-50% of what we are certain was available each harvest season). When I had concluded, Board Chairman Spraker, asked me a question, "*Why should we consider this harvest rate calculation relevant because it is based on age (all rams become legal at 8 years of age) when hunters base their decision to harvest on horn curl (not age).*" I did not have a ready answer for the Chair, so was not helpful at all. Still, I understood the question to define the Chair's position: that the calculation (reviewed by fussy extra-Departmental sheep managers before publication) is not worthy of consideration regarding the restrictive proposals before the Board. I note that the Department never acknowledges this calculation indicating a low harvest rate either.

Sadly, the best I could do for Chairman Spraker, beyond stating that I had never considered the possible choice between "age" and "curl" a particularly significant challenge to the method, was to defer to Joe Want, who subsequently offered written comments I have not seen. In an effort to be more helpful, I have given the question considerable thought since Saturday afternoon, and I would like to share my thoughts with the Board and Department.

Whether I can reach the Board at this stage of the game is currently beyond me as I am the most naive Alaskan out here with respect to the intricacies of Board comment process. Still, I think the harvest rate question is germane to the discussion of restrictions. Consequently, I think the best I can do is provide you (cc the Department staff and other participants) with this information, and if you can get it to the Board via "process" it may be of more service to the Chair and Board than I was on Saturday. My apologies for not being up to speed on the Chair's criticism earlier.

In an effort to get this information to the Board, I provided Karen Gordon this summary of ideas prior to her testimony. When she reported on her testimony, she mentioned Ted had stated his position on the harvest rate calculation as apparently too questionable to be relevant, but she was not allowed time (because a break was scheduled) to respond to the Chair's position when she asked if she might.

So, in an attempt to be as helpful as I can under the circumstances, please do what you can (within process) to help the Board understand the position (that the ram harvest rate is low). If I've been of no help due to process, I'm sorry. I've done my best.

The real question is "***Should we take Joe Want's age-based harvest rate calculation seriously given that hunters are most likely to make harvest decisions based on "curl" rather than "age?"***" Getting at this answer requires a willingness to consider the harvest rate calculation in the light of consistently high percent hunter success.

Obviously, hunter success must be linked to harvest rate. If harvest rate is low, we'd expect (all else being equal) more rams to be available per hunter, and hunter success to be high. Conversely, if harvest rate is high relative to recruitment, the number of rams available per hunter should decrease over time, resulting in lower hunter success. Hunter success has been high and stable for more than 35 years despite declining numbers of harvestable rams (starting with loss of 25% of Dall ram hunting to ANILCA) and despite the more recent biological population declines. This stability in hunter success should be rationalized because the perception is that the number of rams per hunter has declined with no corresponding decline in harvest success.

I think this calls for restatement of the question: "*Does it make any difference in the validity of our harvest rate assessment if hunters are using "curls" rather than "age" in making harvest decisions?*".

Here's my considered answer: **NO, IT REALLY DOESN'T MATTER.**

This is because, if we're killing more rams than are being recruited to legal age/size, the availability of rams to hunters should decrease, resulting in decreased success assuming the number of legal rams per hunter decreases. The decrease in available rams per hunter should lower hunter success (all else being equal). There has been no change in hunter success. This means we either have a low harvest rate or recruitment to legal age is adequate to sustain a harvest rate of 33 percent despite declining populations over the last two decades. Nobody thinks recruitment to legal age has increased over the last 30 years. Hence, we must have a low harvest rate. That's the concept I'm developing.

Now for some details to support the concept:

Normally, Dall rams grow full curl horns if they don't broom. However, some unbroomed rams don't ever meet our legal definition of full curl. Based on my examination of age and horn curl of thousands of Dall ram horns, I think it unusual for rams to be unbroomed with no chance of reaching full curl. The only guess we ever had about what percentage of rams don't reach full curl was a questionable calculation by our late colleague, Lyman Nichols, circa 1988. Lyman, a forceful opponent of full curl management, calculated 15% of rams will never reach full curl by methods that inferred individual development from average population statistics using a questionable "curve fitting" technique. I don't think that calculation was valid, and that Lyman's estimate was high. However, even if the percentage of atypical rams is 15%, and the hunters select rams exclusively on the basis of horn curl, the harvest rate (which would arithmetically increase by 15%—from 50 to 65%) is still well below what should cause a lowering of hunter success. Hunter success has remained remarkably constant. AND our "or eight years of age" caveat still allows these rams to be reasonably selected by hunters once they become "obviously old enough" to be safely taken before they die of old age. The "handy dandy" seems to invite identifying harvestable rams by age even as it cautions against the practice. Increasingly, hunters are considering age in their harvest decisions. I've consulted on several cases where this lead to mistakes resulting in harvest of sub legal rams.

In Summary: Even if hunters are selecting rams for harvest exclusively by their horn "curls" and (never "age"—which we know isn't happening—some hunters do select by age), we're not seeing a decline in percent harvest success. Consequently, we can't be killing more rams than are being recruited. Still, there is strong agreement that ram availability has been declining ever since ANILCA. The only way harvest success can remain high (as it has) in the face of declining huntable ram populations is for harvest rate to have been well below recruitment for a long time OR for hunting pressure or efficiency to have decreased at least as much (proportionate to) the population decreases. Hunter numbers have decreased, but restriction advocates argue access and technology have gotten better. Sheep hunters in general (not being generally aware of the data on

hunter effort) seem to think that hunting pressure has increased. Still, hunter success has been amazingly stable at a high level, even through the last 35 years of huntable sheep declines (counting ANILCA losses as the first 25% decline).

Conversely, if hunters are selecting for "age" the Want Method is perfect, and we have found the "Holy Grail" of wildlife management, a maximum harvest rate we can calculate from simple harvest reports. This allows us to define the "trigger" Ms. Sager-Albaugh (courtesy cc of this sent her way via personal email) asked one alarmed public member to recommend for restricting participation. This "trigger" could be either a harvest rate (say exceeding 75% if we want to be very conservative) or a declining hunter success which exceeds the estimated percentage population decline.

I should think every sheep manager would find these possibilities exciting enough to investigate and perhaps adopt as a component of management strategy or planning. I'm puzzled as to why they have been dismissed or ignored by the Department, apparently on the assumption there is a serious flaw using "age" rather than "curls." Age allows a harvest rate calculation, "curls" analysis is much less clear cut because of variability in horn growth.

One more thing:

Let's not forget, it take eight years to grow a legal ram. The last couple of years bad weather in the Brooks may not be reflected in the ram harvest for another 7-8 years. Prime age animals don't USUALLY fail in difficult weather events; mortality is generally focused on the lambs and older age sheep. Sheep have been experiencing difficult weather "forever," and seem to have survived rather well.

Thanks for anything you may be able to do.

Regards and best wishes to all,

Wayne Heimer