Hunting of bighorn sheep ewes could produce more trophy rams

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UW Assistant Professor Kevin Monteith, right, and graduate student Tayler LaSharr release a bighorn sheep ram on Wyoming's Wind River Indian Reservation last March. The two are among authors of a new paper that concludes that hunting of female bighorn sheep may well be one of the most effective ways to increase the number of trophy rams in North American bighorn sheep populations. Credit: Kevin Monteith

Although contrary to prevailing notions, hunting of female bighorn sheep may well be one of the most effective ways to increase the number of trophy rams in North American bighorn sheep populations, according to researchers at the University of Wyoming and other institutions.

That's because such harvests would make more forage available to

growing rams and, importantly, their mothers—boosting their nutritional levels, a factor that has been shown to be more important than genetics in producing rams with large horns, the researchers say.

Their conclusions are detailed in a paper that appears in a special section on management of mountain sheep in the *Journal of Wildlife Management*, a peer-reviewed, scientific journal devoted to the ecology of nondomesticated animal species and published by The Wildlife Society.

The paper's lead author is Kevin Monteith, assistant professor in UW's Haub School of Environment and Natural Resources, Department of Zoology and Physiology, and the Wyoming Cooperative Fish and Wildlife Research Unit. Also contributing was UW master's degree student Tayler LaSharr, along with researchers from the University of Idaho, the University of Nevada-Reno, the University of Alaska-Fairbanks and the California Department of Fish and Wildlife.

Unlike management of many other big-game species in the American West, there are few hunting opportunities for bighorn sheep ewes—in part, because of tradition and public resistance to the idea. But, Monteith and his colleagues say that not only could hunting of females improve nutritional conditions, leading to rams with bigger horns; it also could help stabilize bighorn sheep populations, reduce the frequency and severity of die-offs from diseases, and increase opportunities for hunters.

"We acknowledge and fully appreciate that initiating female harvest may conflict with hunting and management traditions…," the paper reads. "(However), if production of large, trophy males remains an important management objective…, then we contend that management programs should integrate monitoring of nutritional status of populations and, where evidence indicates nutritional limitation through density

dependence, seek to regulate abundance and per capita nutrition via harvest of females."

For decades, concerns about declines in the numbers of trophy rams have focused on the evolutionary effects of hunting such large males, as removing those animals from the gene pool could lead to fewer large-horned offspring. But, while horn size is known to be hereditary, a growing body of evidence shows that age and nutrition frequently override genetic contributions to the size of horns, the researchers say.

"Given the hyperbole surrounding trophy management and big horns, we suggest the importance of females in the management of mountain sheep has been largely forgotten," the scientists wrote. Those impacts include the lifelong effects of the physical condition of ewes during and after pregnancy on growth of their male offspring, as well as the overall nutritional condition of sheep herds where their numbers exceed what available habitat can support.

"Ultimately, we call for greater recognition of the pervasive role of females in the production of trophy males, and that, accordingly, females be better integrated into harvest and management programs," the researchers concluded.

Provided by University of Wyoming

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