

THINHORN SHEEP HARVEST REGULATIONS IN THE YUKON, 1990

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Abstract: Thinhorn sheep are managed as trophy animals. Harvest is restricted to rams of at least 8 years of age or with full-curl horns for several biological and fiscal reasons. Compulsory inspection of harvested horns is required. Differing definitions used in the field and in court cause minimum confusion, but require further work.

BACKGROUND

In the Yukon, thinhorn sheep (*Ovis dalli* sp.) are managed primarily to maintain natural densities. Each year licensed resident hunters take an average of 69 rams while guided nonresidents shoot an average of 161 rams, from a total Yukon population of approximately 22,000 sheep. While the licensed harvest is relatively small, the resident harvest, in particular, is localized in easily accessible areas. Harvest by aboriginal peoples is unregulated, but recent studies indicate that the magnitude of the harvest is small and primarily of rams (Quock and Jingfors 1988).

With the relatively small harvest, many of the current sheep hunting restrictions in the Yukon reflect hunter demand, rather than the status of the population. Also, the Fish and Wildlife Branch has expressed the opinion that liberal hunting restrictions must be accompanied by larger operating budgets to manage the populations more intensively (more population monitoring and more research). The government is unwilling to commit more resources to managing sheep unless the demand for more liberalized hunting of ewes or non-trophy rams to allow for more meat hunting opportunities is apparent. There is no demand for non-trophy sheep. In the 2 opinion surveys conducted since 1979, less than 25% of the resident hunters desired more liberal seasons or harvest of non-trophy sheep.

As part of an on-going management program, the Yukon Fish and Wildlife Branch closely tracks the number of rams shot annually, their average age, and the hunting effort and success. As well, we closely monitor a number of sheep populations to determine changes in population size and composition in relation to hunting pressure.

CURRENT REGULATIONS

Since 1981, all sheep harvested by licensed hunters must be "full-curl" or have attained 8 years of age. The description used to define full-curl actually describes an arc of 315° (7/8-curl) but is termed full-curl for the sake of simplicity: "When viewed from the side, with anterior horn bases in alignment, a full-curl ram has at least one horn that extends beyond a line drawn between the center of the nostril and the lowermost edge of the eye" (Figure 1).

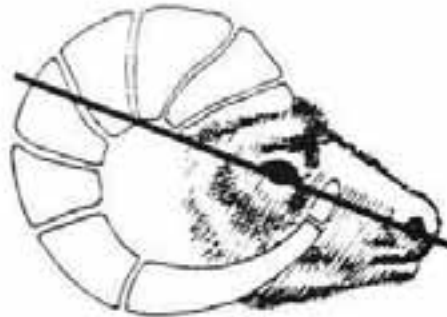


Figure 1. Full-curl ram as depicted in the Yukon Hunting Regulation Synopsis.

Nonresident hunters must obtain the services of licensed outfitter/guides who operate in designated concessions, but resident hunters are free to hunt in any open area. The exception is a small area in the southwestern Yukon where hunting effort is regulated through a limited-entry draw system. Any resident hunter who was not issued a permit in the previous year may enter the permit hunt lottery.

Throughout the Yukon, the bag limit is restricted to one ram per license holder per year. The season extends from 1 August to 31 October. The horns of all sheep shot must be submitted to the Fish and Wildlife Branch for inspection and insertion of a numbered metal plug.

BIOLOGICAL RATIONALE

There has been considerable controversy among North American sheep biologists concerning the extent to which liberalization of ram hunting can occur without negative impacts to the population, and the extent to which liberalized hunting can increase the annual sustainable harvest (Nichols 1984; Heimer et al. 1984; Heimer and Watson 1986; Murphy et al. 1990). One side of the argument is based on a theory put forward by Geist (1971) that suggests that the removal of older-aged males from a population will result in social disorder among the younger males who have neither the experience nor the horn mass to establish an undisputed dominance hierarchy, leading to a dramatic increase in male interactions with both females and other males. The end result is males expend

needless energy, jeopardize their ability to survive the winter, and persistently harass ewes, which may minimize the chance of successful copulation.

The risks borne by liberalized hunting include lower productivity, decreased survival of young rams, and a further skewing of the sex ratio toward females. Observations of thinhorn sheep in the rut in the Yukon and the MacKenzie Mountains of the Northwest Territories found small, widely scattered groups (Barichello et al. 1987; G. Calef, pers. comm.). Generally, 1 or a few rams were courting a small group of females. Under such circumstances, the consequence of a more liberalized ram harvest may be a severe impairment of reproductive potential.

In the Yukon, we believe a more fitting question than that of negative impact is that of net benefit. If the gains in allowable harvest through liberalized hunting are minimal, then the risk of population detriment due to social disruption may be unnecessary. We have estimated that the average natural mortality of young rams (3-8 years) is low (less than 10%). Therefore, a 3/4-curl rule would provide only limited opportunities over a full-curl rule as 90-95% of 3/4-curl rams live to become full-curl rams.

Side view photographs of harvested rams with unbroomed horns submitted for inspection have allowed us to assess the relationship between horn-curl and age. Ages within each of 3 horn-curl classes (1/2, 3/4, and 4/4) were determined for 862 ram skulls to provide frequency distribution of ages in each horn-curl category. Full-curl rams are predominantly older than 6 years (93.2%); 85% of all rams had attained legal status before achieving their 9th annuli; 55% of rams became legal in their 7th or 8th years (Figure 2).

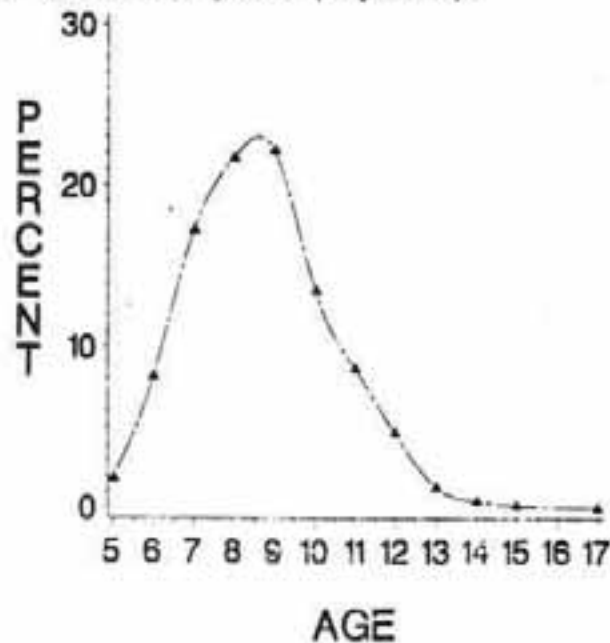


Figure 2. Distribution of ages at which Dall sheep rams attain legal status, expressed as a percent.

Since implementing full-curl restrictions, the Yukon harvest of thinhorn sheep has modestly increased while the age distribution has been relatively stable. The average age of the harvest is 8.7 years, with a range from 5 to 17 (Figure 3). Populations of sheep in hunted areas have also shown relative stabilities of numbers and sex ratio, despite variation in lamb production (Burles and Hoefs 1984) and relative sizes of each ram curl-class (Barichello and Carey 1988). Hunting effort (number of hunters and number of days hunted) and success (as measured by days hunted per hunter and number of days per ram killed) have also been relatively stable.

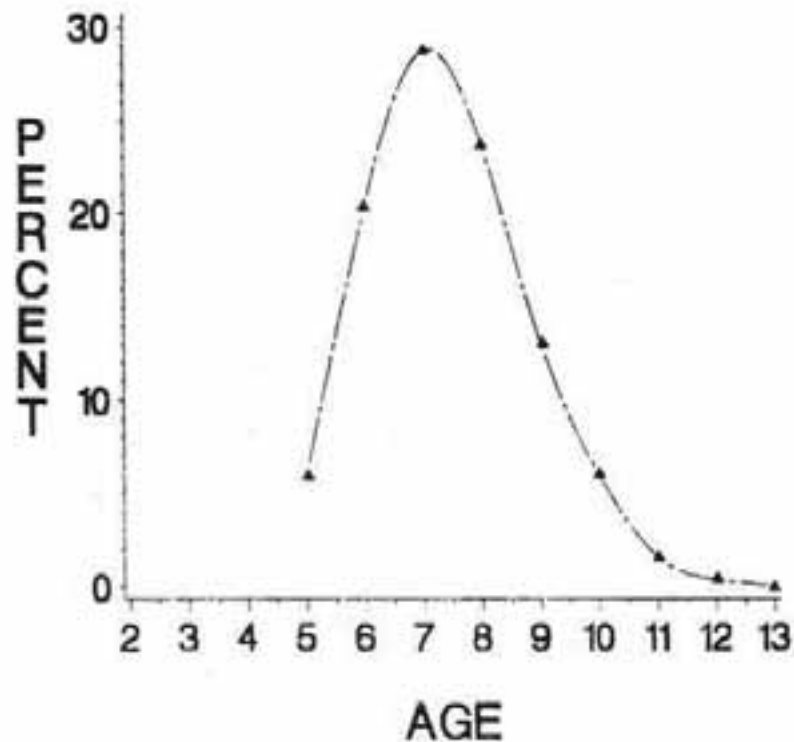


Figure 3. Age distribution of the licensed harvest of Dall sheep rams in the Yukon, expressed as a percent.

Comparisons between hunted and unhunted populations have revealed no difference in lamb production or mortality rates of 8+-year-old rams (Barichello et al. 1987; Hoefs 1984). Differences, however, have been observed of mortality rates of 3- to 8-year-old rams; the estimated mortality of young rams in hunted populations exceeds 10% while in unhunted populations is less than 10% (Barichello et al. 1987). We believe hunting mortality is additive to natural mortality in the young cohorts while hunting of 8+-year-old rams is largely compensatory mortality. Still, the removal of full-curl rams less than 8 years old has not had a negative impact on productivity or population trend.

In summary, a full-curl rule that selects for old-aged males appears not to jeopardize population well-being; it provides an allowable harvest only marginally less than a more liberal and riskier 3/4-curl rule; it costs little to implement as frequent monitoring of population may be unnecessary; it escalates the monetary value of the trophy resource, and it imposes minimal harassment on nursery groups, and is therefore more compatible with wildlife viewing opportunities.

ENFORCEMENT/PROSECUTION

As part of the compulsory inspection, each set of horns is examined to verify its legal status. To do this, the skull, including the eye socket, must be attached to the horns. It is then placed in a horn jig, (Merchant et al. 1982) to allow for a standardized assessment (Figure 4). The plane formed by the skull and horn jig when the skull is secured mimics the imaginary line between the nostril and the eye used as the field definition. We believe this jig overcomes legal problems associated with the variability of viewing the horn at different angles.

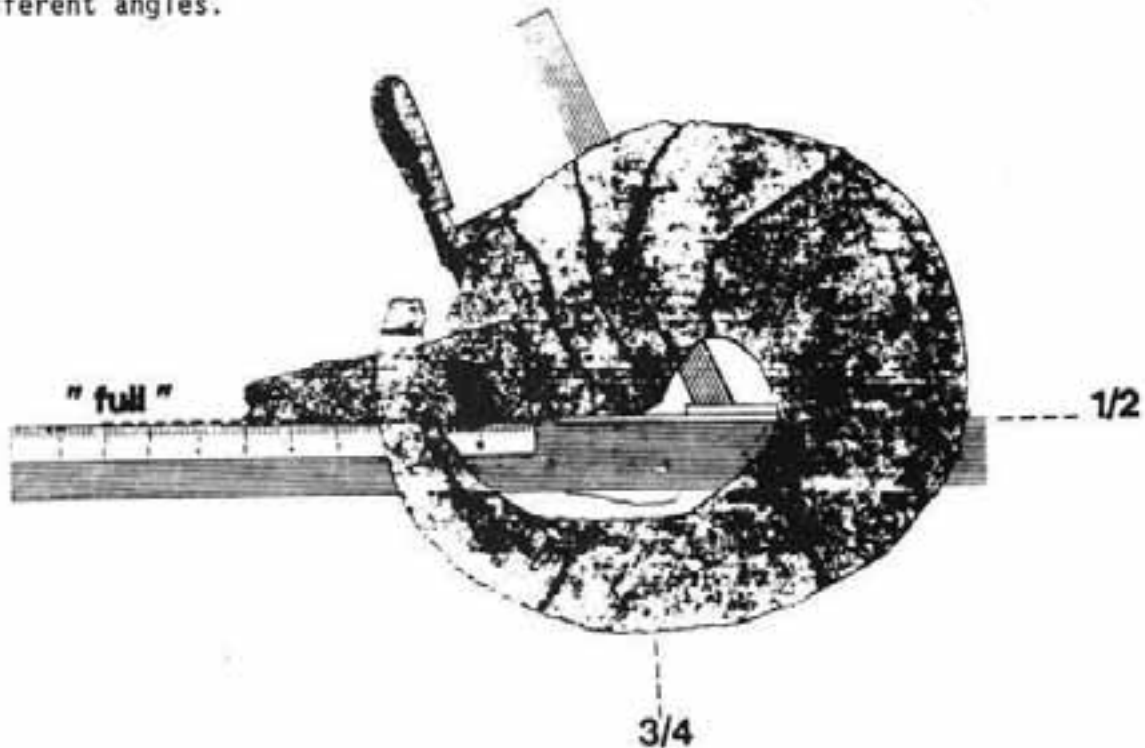


Figure 4. Depiction of Dall sheep horns secured in the measuring jig.

There are, on average, approximately 6 reported infractions of the full-curl rule each year. Of these, 5 are committed by nonresident hunters. Since nonresidents usually choose not to contest the charges and appear in court at a later date, there have been very few cases brought before the courts. Generally, only verbal warnings are issued if the horn is less than 2cm under the legal size. In the cases where rams are legal on the basis of age rather than horn size, the hunter is made aware of the fact, in an attempt to avoid problems in the future.

Problems have been encountered in association with the prosecution of full-curl rule infractions. The defense of "due diligence" is often used in cases of this sort; the hunter need only convince the court that he made an honest attempt to correctly interpret the regulation and honestly did not believe himself to be in error. While the age/annuli relationship is constant, in borderline cases it may be difficult to testify that there is absolutely no possibility of doubt in the age determination, especially in broomed rams, where the lamb tip and possibly the first annulus are missing.

INTERPRETATION TO HUNTERS IN THE FIELD

One point needs clarification: the hunter is asked to assess legality according to a side-view perspective and horn geometry in relation to an imaginary line. However, the law is enforced according to the geometry of the horn in relation to the horn jig. We need quantified evidence of the relationship between horn configuration in relation to the imaginary line drawn from the eye through the nostril.

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