

# Sheep

## Management Guidelines

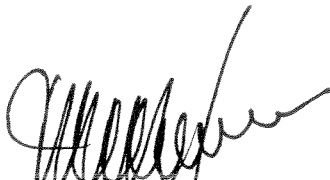
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## ***Foreword***

These interim management guidelines were developed by the Sheep Management team from the Yukon Department of Renewable Resources. The management principles, concepts and assumptions outlined here represent the consensus of the team. The guidelines are intended to provide a framework for consistent Departmental input and responses to management plans, programs and regulation proposals. In addition, they should provide a common understanding amongst those involved in sheep management decisions and serve as a focus for future discussions and refinement. These guidelines are not formal policy, but working guidelines which will be reviewed periodically and amended and updated based on new and additional information, including local and traditional knowledge and experience. The guidelines are provided for your information and use.

Comments, suggestions and questions are welcome.



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## ***Sheep Management Team***

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## Sheep Management Guidelines

### Management Principles, Concepts and Assumptions

1. Conservation of sheep populations and their habitat within the framework of ecosystem biodiversity is the first and foremost principle of sheep management.
2. The Yukon's sheep are the most readily visible and predictable of the large mammals living here. The public places a very high value in knowing that sheep will be a continuing and secure part of the natural community. This value is both aesthetic and economic. Sheep have very high value as a hunted species, yet just experiencing them in the wild may be their chief value. A high public demand for their conservation will continue for the foreseeable future.

### Abundance and Distribution

3. Thinhorn sheep distribution is restricted to specific mountain ranges, generally on the dry sides of mountains (see attached map).
4. Sheep are believed to be at, or near, historic population levels, and have recolonized some ranges where they had previously disappeared (probably due to overhunting). There are approximately 22,000 sheep in the Yukon, with densities ranging from less than 2 sheep/100 km<sup>2</sup> to more than 30 sheep/100 km<sup>2</sup>.
5. Of the Yukon thinhorn sheep population about 18,000 are white Dall sheep, 1,500 are dark Stone sheep, and 2,500 are of an intermediate colour phase known as Fannin sheep.

### Habitat and Disturbance

6. Thinhorn sheep have very specific requirements for key and limited habitat types. They need windblown, grassy slopes as winter range; steep, secure areas where ewes can safely bear their lambs; steep rugged cliffs where they can escape from predators; and access to mineral licks.
7. Not only do all key habitats need consideration and protection, but sheep must have free access to these areas. Key areas are used on a seasonal basis so movement between the ranges must be accommodated.

8. Continued identification, cataloguing and protection of key areas is essential for the management of sheep.
9. Knowledge of local people, as well as aerial surveys, is necessary to provide information about the location of key habitat and traditional and seasonal range use patterns.
10. Dispersal is not a significant factor in sheep population dynamics or life history. Sheep rely so heavily on key habitats that they do not readily explore new ranges. The environment and vegetation where sheep live are typically very stable and unchanging: sheep can continue to use and rely on these areas over long periods of time.
11. A small sheep population, isolated from other populations, requires special consideration because it can easily be eliminated by hunting and disturbance. Inbreeding may also be a concern if the population is very small and totally isolated. Because there are so few animals, it is difficult to identify key habitats by the presence of animals, yet these areas may play an even more important role in what may be marginal sheep range.
12. Relatively large and widespread populations can support both harvesting and recreational viewing opportunities within their range. If sheep are not hunted they can become habituated for viewing.
13. The concept of a "sanctuary" within the home range of a population where hunting does not occur and human disturbance is minimal should be considered. Sanctuaries could offer viewing opportunities but careful management of this would be necessary to keep the situation truly non-consumptive.
14. Sheep can more easily learn to tolerate the presence of people and withstand the disturbance of industrial activities if they do not associate people with hunting activities.
15. Sheep are very susceptible to disturbance by aircraft, especially helicopters. This susceptibility, combined with their very traditional use of habitats, makes disturbance an important matter to consider in a management strategy.

16. Thinhorn sheep easily catch diseases carried by domestic sheep. Every effort must be made to avoid any contact between wild and domestic sheep.
17. Thinhorn sheep and domestic sheep are genetically compatible and could easily interbreed. Every effort must be made to avoid any contact between wild and domestic sheep.

**Biology**

18. Thinhorn sheep have only 1 lamb/year and reproductive success varies widely from year to year. Observed rates range from 1.5 to 67 lambs/100 "nursery sheep" (ewes, yearlings, and some 2-year-old rams) during June/July surveys.
19. Winter weather, in particular snow conditions, affects the birth rate.
20. Weather during lambing in May affects lamb survival.
21. Because of variable lamb production, and variable survival rates, the age structure of any sheep population will shift from time to time. The number of lambs entering the population is the driving force in sheep population dynamics, rather than the number of animals leaving the population through predation or hunting. The number of full curl rams entering the population is dependent on the number and survival of lambs born 6-8 years before.
22. There are usually 40-60 rams for every hundred "nursery sheep". If there are fewer than 40 rams/100 nursery sheep, further study is needed to determine what caused the imbalance. Two reasons are overhunting or different range use at the time of the survey.
23. We have no evidence that predation affects year to year sheep population levels.

**Surveys**

24. Census counts are total counts. The number of sheep seen in a game management subzone during surveys in June or July is used as the population size. We assume distribution patterns are traditional so a change in the number of sheep seen is considered a change in the population size.

25. During aerial surveys, sheep can be classified using size and/or horn shape as rams (either half, three-quarter or full curl), lambs or "nursery sheep" which includes ewes, yearlings and some young rams. During early June surveys it is usually possible to distinguish yearlings from the other nursery sheep.
26. Details of sheep survey results will be treated as confidential; only summary information will be released. This precaution is necessary because specific range use and distribution information may make sheep populations more vulnerable to overhunting.
27. Sheep harvest management must accommodate natural fluctuations in numbers.
28. Licensed hunting is restricted to full curl rams while First Nation hunters traditionally hunt animals of either sex and any age for subsistence purposes.
29. If there is a considerable harvest of ewes and young rams, the population should be closely monitored.
30. The current regime of restricting the licensed harvest to full curl rams is believed to minimize the risks to the population. Once rams reach full curl and are fully involved in the rut, their average annual mortality rate approaches 50%. By restricting the harvest to these older rams, there is a greater chance that an animal shot during the hunting season would not have survived the winter. Younger rams with much higher survival rates are allowed to reach maturity and have a chance to breed before being vulnerable to harvest.
31. There is a concern that the removal of all old, big-horned sheep could be detrimental to the population. It is important that superior quality rams (as exemplified by exceptional horn growth) be allowed to breed and pass on their genetic qualities to succeeding generations. It is also important that older-aged rams remain in the population to pass on traditional range-use patterns. This is known as the "Big Ram" theory.

**Harvest  
Management  
Principles**

32. Under the current harvest regime, it is believed that there are sufficient big-horned, older-aged rams remaining in the population following the hunting season such that the "Big Ram" theory is not an important consideration. There may be, however, some small, localized areas that require further investigation.
33. Data from Sheep Mountain in Kluane National Park Reserve indicate that rams attaining full curl in any one year represent, on average, about 4.4% of the population (not including lambs and rams older than 8 years).
34. We assume the average age of rams harvested is an indicator of population well-being. Studies show that 55% of rams become legal in their 7th or 8th years, with 85% of all rams attaining legal status before achieving their 9th annuli. We assume a harvest skewed towards older-aged rams indicates that all rams are not being cropped as soon as they become legal.
35. Licensed hunting of "any ram" or "either sex" may be considered in specific areas. These management regimes are considered to be much riskier and would necessitate more detailed current population information and increased harvest monitoring and regulation.
36. Compulsory submission of the horns of harvested sheep by all users provides the most detailed and accurate harvest information and is essential for sheep management. This information will be treated as confidential.
37. The current general hunting season (August 1 - October 31) does not, for the most part, interfere with key range use or movement patterns. In some cases, an earlier closing sheep season may protect particularly vulnerable populations during migration to winter range.
38. The licensed harvest is relatively small (less than 2% of the total estimated population), but the harvest by residents tends to be localized in easily accessible areas. The harvest by non-residents is more evenly distributed.

39. Sheep harvest will be regulated on the basis of a subzone, or group of subzones that describe a mountain range.
40. Population data in almost all areas are not refined enough to modify the number of permits or allowable harvest on a year to year basis.

### **Management Decision Criteria and Approaches**

#### **Harvest**

41. A harvest rate of 4% of the non-lamb population is sustainable.
42. In circumstances where the management objective is to increase population size, the harvest rate should be limited to 2% of the population.
43. Sheep harvesting can be regulated for a number of reasons. In addition to limiting the number of animals taken, harvest management can also reduce disturbance levels during the hunting season, promote non-consumptive uses and increase the tolerance of sheep to industrial activities.
44. Limited entry permit areas are one mechanism to regulate harvest. Permit hunting can limit and distribute the kill according to sheep density. By limiting the number of hunters, it is possible to increase the number of legal rams, increase hunter success, improve the quality of the hunt and improve the quality (size) of rams harvested.
45. Accommodating special hunting interests (such as bowhunting) may allow for increased hunter participation while maintaining a limited harvest.

#### **Allocation**

46. Outfitters will be placed on quota whenever a sheep permit area is established for resident hunters.
47. Highly accessible sheep populations, notably near highway corridors, will tend to be secured from hunting for their non-consumptive values.

#### **Habitat**




48. Protection from hunting and other human disturbance will be provided as a rule where key habitats are identified; this protection from disturbance will extend to all uses including non-hunting.



**Non-Consumptive**

49. Viewing aids based on current biological data will be developed to assist visitors in finding opportunity, and to outline guidelines for safe (non-disruptive) viewing opportunity.
50. Educational opportunity for Yukon residents or students will be emphasized as the prime use where populations are deemed accessible near population centres.
51. Access to populations for viewing will be controlled primarily to avoid disturbance. Helicopter access and all terrain vehicle use (including snowmachines) will be discouraged.

Fig. 1 - Distribution of Wild Sheep in Yukon (1983)

-  DALL SHEEP
-  STONE SHEEP
-  ZONES OF OVERLAP

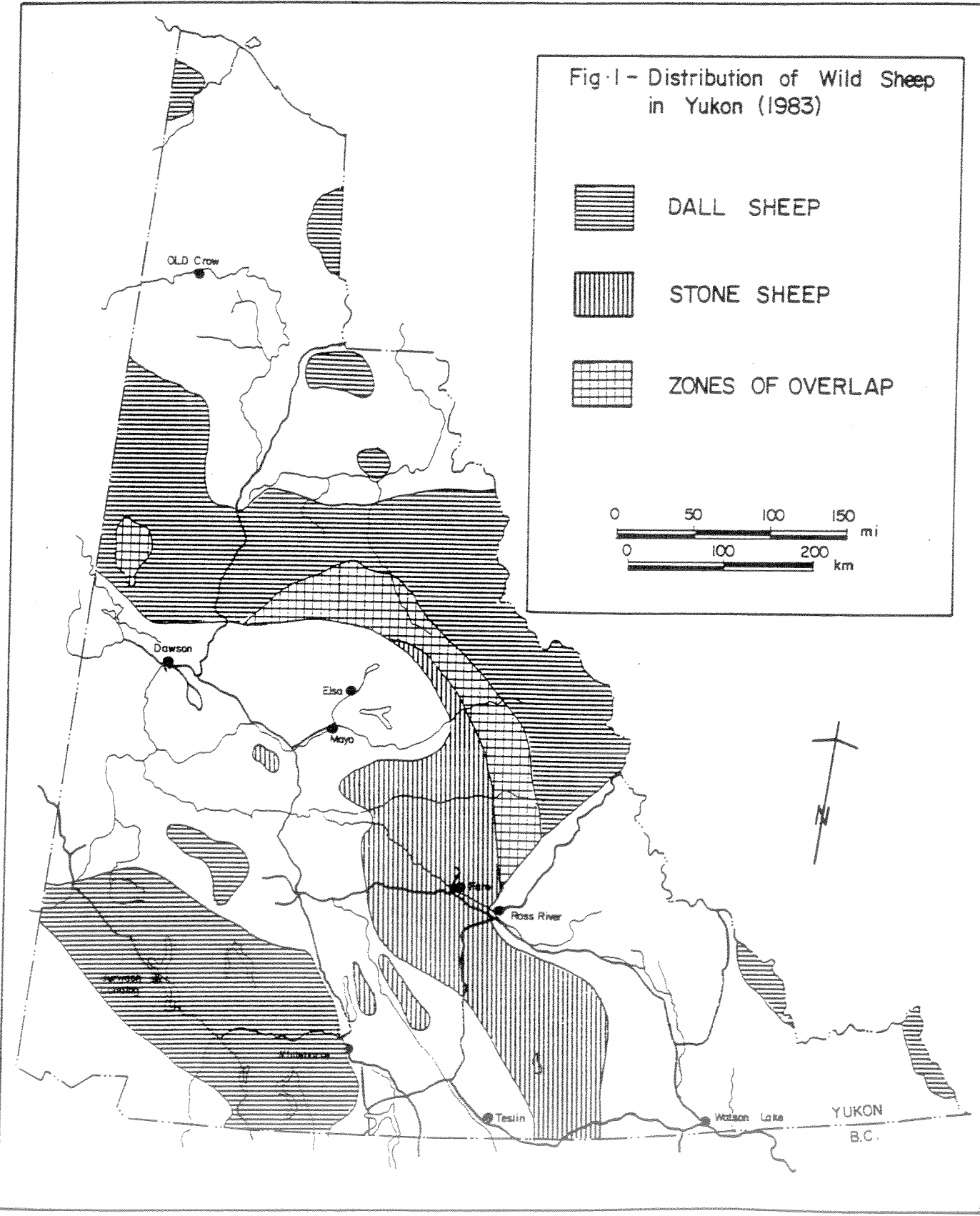
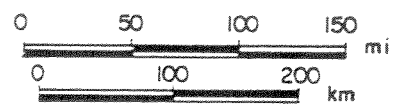


Chart 1

Number of Sheep Killed by Resident and Non-Resident Hunters 1980-95

