

METHODS FOR CONDUCTING AN  
ANNUAL DALL SHEEP SURVEY  
(MCKINLEY NATIONAL PARK)

INTRODUCTION:

Dall sheep have fluctuated widely in McKinley National Park the past 40 to 50 years varying in number from less than 1,000 animals to more than 5000. Reasons for such fluctuations are not fully understood but may be due to predation, weather factors, diseases, range conditions and etc. Sheep are one of the prey items of the wolves in the Park and thus are an important species in the complex predator-prey relationships that interact within the Park.

To understand the sheep's role in this complex relationship it is necessary to monitor sheep population dynamics on an annual basis and a long-term basis.

OBJECTIVES OF SURVEY:

To determine population trends, fluctuation, productivity, composition and mortality on an annual as well as long-term basis.

AREA TO BE COVERED:

All sheep habitat within the Park east of the Muldrow Glacier.

DATE AND TIME:

The survey should be completed during the month of July. Normally aerial census is best conducted in the early morning between 4:00 A.M. and 9:00 A.M.

BEST CONDITIONS:

The mountains should be relatively free of snow so the white sheep are visible and the surveys are conducted during the early morning hours when there is little wind turbulence.

Skies should be either clear or good visibility with high haze. The cloud cover should be above elevations inhabited by sheep.

AIRCRAFT TYPE:

150 H.P. Supercubs are the best fixed wing aircraft for this type of census as it permits slow flight and a short turning radius. Some consideration might be given to using helicopters although their disturbance factor may be greater than fixed wing.

ESTIMATED HOURS REQUIRED:

15-18 hours.

CURRENT AIRCRAFT COSTS:

\$1,000 - \$1,300

STEP BY STEP METHODS:

An experienced pilot and observer should be used in conducting the aerial sheep census. By using a Cub or similar plane both the pilot and observer can look out either side of the plane and have good visibility.

Surveys are flown by dividing the portion of the Park containing sheep into small recognizable units. Mountains are then flown with the pilot and observer usually both scanning a slope on the same side of the plane. During this time of the year most sheep are between 3,000 and 6,000 foot elevation. Usually one flight along the side of a mountain permits scanning the entire side. If there is too great an elevation variation in the sheep distribution then more than one flight may be necessary at varying elevations.

Once a single animal or group is located, low circling passes are made over the animals in an attempt to classify the sheep. Sheep are classified into three major categories:

Lambs, Ewes and Yearlings and Rams. Yearlings cannot be distinguished from ewes with any degree of accuracy. Rams are further classified as small, medium and large. Large rams are those estimated to have a full curl or nearly so and greater. Medium rams are those around  $3/4$  of a curl and rams with less than  $3/4$  are classified as small rams. The pilot continues to circle or make low passes until both he and the observer agree on the number and composition. It is a definite asset for each to have a hand counter to rapidly click off each animal of a given category. Usually if the group is relatively large (ten or more) then the survey team first agrees on a total number. Then in a ewe-yearling-lamb group, the lambs are counted and the remainder are classified as ewes and yearlings. At the same time the group is searched for rams. Normally during July, rams are in separate groups, although it is *not* unusual for one or two to be mixed with the ewes and lambs.

The observer then records the sighting on a map (scale 1:250,000) with a sequence figure. On a separate paper he then records the same sequence number and the composition of the group. The pilot then continues the search for sheep. If rams are observed the same method is employed in an attempt to classify the rams into the 3 categories mentioned.

If weather conditions are good then circling is conducted with half flaps to slow down the speed of the plane. Occasionally a group is found in a deep narrow gulch that cannot be safely approached. If they cannot be classified then they are recorded as unclassified. In many instances the census team can see horns and know they are rams but cannot determine the degree of curl. These are then tabulated as unclassified rams.

This method continues with the pilot going from drainage to drainage until the survey is completed.

Normally sheep are not found west of Muldrow Glacier in McKinley Park or on the north side of the Range. However in periods of high populations sheep may be found west of Muldrow Glacier especially in the McGonagall Mountain area.

Also a small population of sheep inhabit the Denali National Monument just west of the Park boundary. This area should be checked in the future to determine numbers and status of the population.

An annual report is written after the census recording all pertinent data. Past reports are available to serve as guidelines in preparing this report.