

BIGHORN SHEEP AND OVERGRAZING IN THE
LOWER CHILCOTIN RIVER REGION,
BRITISH COLUMBIA

by

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The Lower Chilcotin River region of British Columbia supports populations of California bighorn sheep (*Ovis canadensis californiana* Douglas) and domestic cattle. The earliest records about the bighorn on this range referred to them as a "nice little band of sheep", Williams (1926) or "a small band (of bighorn)", Cowan (1940). Cowan even went as far as to omit this area from his distribution map of native bighorn in recent historical times.

The earliest recording of bighorn here was by Simon Fraser in 1808 (Lamb, 1960). Fraser was the first white man to explore this portion of the Fraser River. At a narrow constriction of the Fraser River approximately three miles upstream from the mouth of the Chilcotin River he noted a "horn of the Sasyan or Rocky Mountain Ram".

There were no estimates at the numbers or distribution of the bighorn until approximately 1917. However, most of the records are subject to bias until Sugden studied this area in the mid - 50's. Sugden (1961) speculated that the bighorn in this region had fluctuated over the years with a major low about 1915.

The bighorn in this area were observed from the ground or in fixed-wing aircraft until 1961. I had reason to believe that the earlier estimates of the population were grossly in error and under estimates.

In 1961, H. B. Mitchell counted 401 sheep on this range. In 1962, C/O J. Lesowski estimated 300 plus bighorn on one portion of the range. In May 1964, H. Mitchell and J. Lesowski classified 313 sheep. And so the counts go until 1968 when I conducted the research for my Master's degree on this range. Harold Mitchell conducted several classified counts at the same time as I was studying the range conditions. Of the four counts from August 1968 to August 1969 the highest total animals seen was on August 2nd, 1968, when 358 animals were classified.

The ratio of rams to 100 ewes classified fluctuated slightly being 37, 52 and 34 rams per 100 ewes on August 2nd, November 22 and March 13 respectively (Table 1). But the proportion of lambs to 100 ewes showed a rapid decline, being 41, 23, 25 lambs per 100 ewes in August, November and March. At the same time the number of animals classified dropped from 358 to 284 to 231 (Table 2).

The snow conditions during the 1968-69 winter were very adverse, as this was one of the first winters in recent times when the snow did not blow off the slopes. However, this does not explain the drop in lambs and the total count between November and August. It is rather significant that the count of lambs dropped from 81 to 38 during this period, but from November to March did not vary.

I did not include any data from my ground counts during the spring and summer of 1968. I had confined myself to a limited portion of the range, and access was difficult so that I did not observe many of the sheep. Perhaps though I should say that on June 7, I observed 109 ewes and 68 lambs and then on July 21, I observed 124 ewes and 62 lambs, which is a drop of 12 lambs per 100 ewes in this period. Incidentally, my count on July 21 is the same as the helicopter count on August 2nd for the same area.

The bighorn sheep occupy mainly the Agropyron/Poa habitat type. Overgrazing of the Agropyron/Poa association by livestock has greatly reduced the climax dominant grass species, Agropyron spicatum. Stipa comata increased as overgrazing began and it continued to increase until overgrazing was severer, then it too decreased. Weedy forbs such as Antennaria rosea, Opuntia fragilis, Chenopodium album and Lepidium densiflorum invaded the overgrazed community and became well established as the severity of grazing increased.

Grazing decreased the density and weight of Agropyron spicatum plants. At the same time the relative amount of crude protein in this species was increased. Grazing did not appear to affect the chemical composition of Stipa comata. There was more protein per square meter in Stipa comata from fair condition sites than in Agropyron spicatum from excellent condition sites. Stipa comata from poor condition sites produced as much crude protein per square meter as did Agropyron spicatum from excellent condition sites.

The phenological development Agropyron spicatum and Stipa comata affected their chemical composition. Crude

protein, phosphorous and moisture percentages were highest in the leaf stage and lowest in the cured and weathered stages. Total ash and calcium percentages were highest in the cured and weathered stages and lowest in the seed-ripe stage. Crude fiber was lowest in the flowering stage and highest in the cured and weathered stages.

Increased stocking rates and poor livestock distribution are believed to be responsible for the degradation of the Agropyron/Poa climax community on this range. Close cropping of Agropyron spicatum resulted in a relative increase in forage quality, but almost eliminated this species.

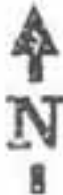
Literature Cited

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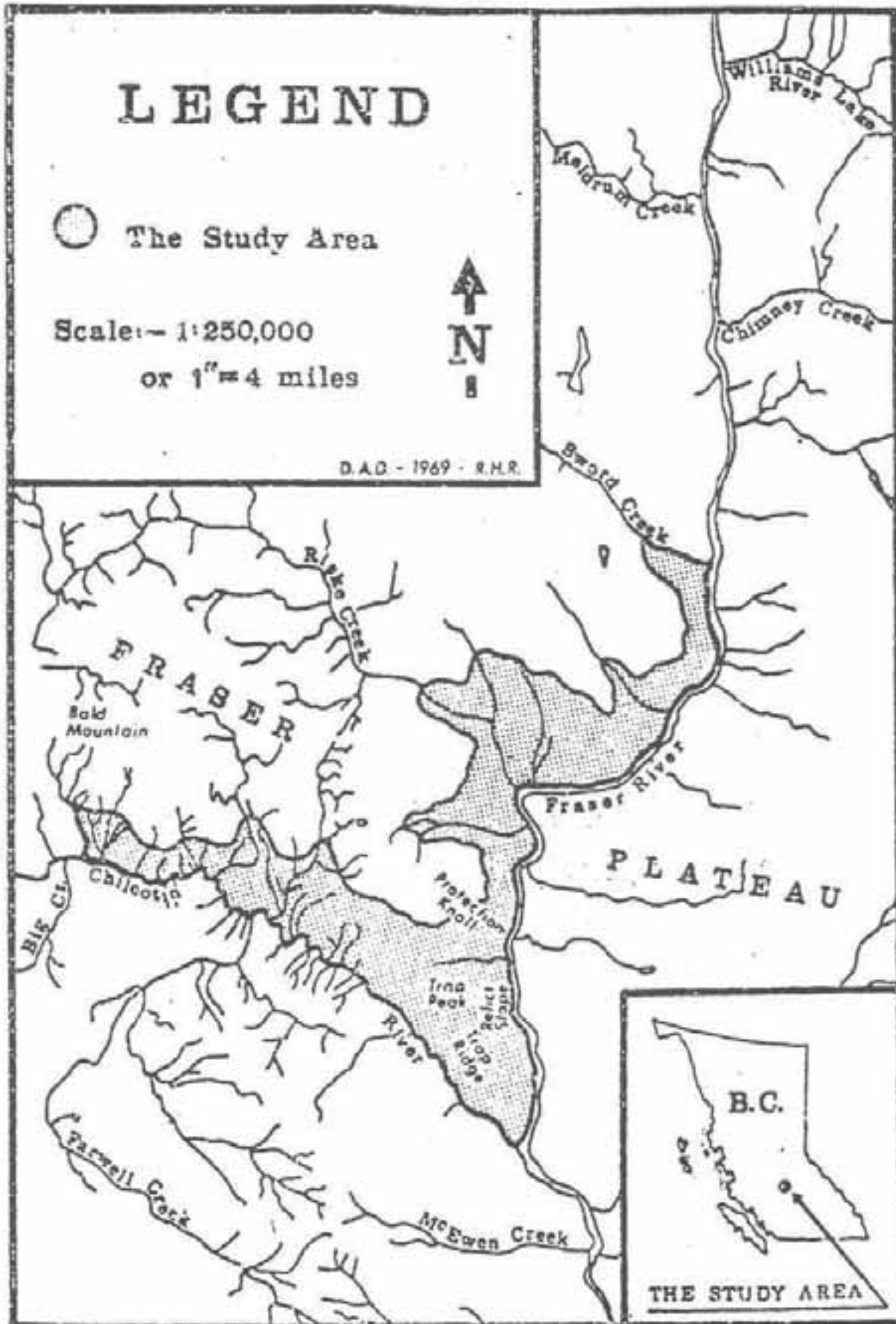
LEGEND

○ The Study Area

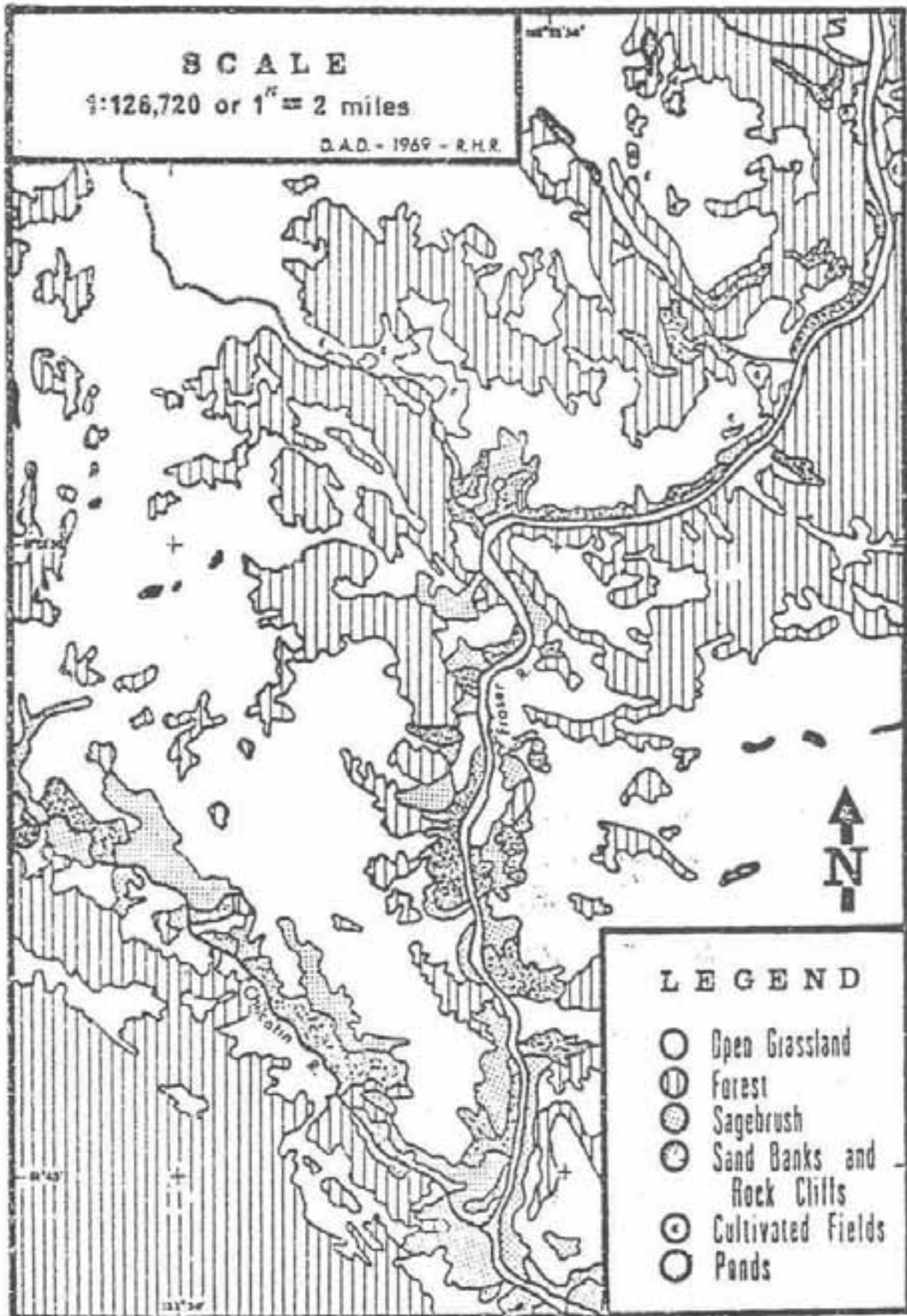
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or 1" = 4 miles



D.A.D. - 1969 - R.H.R.



THE STUDY AREA



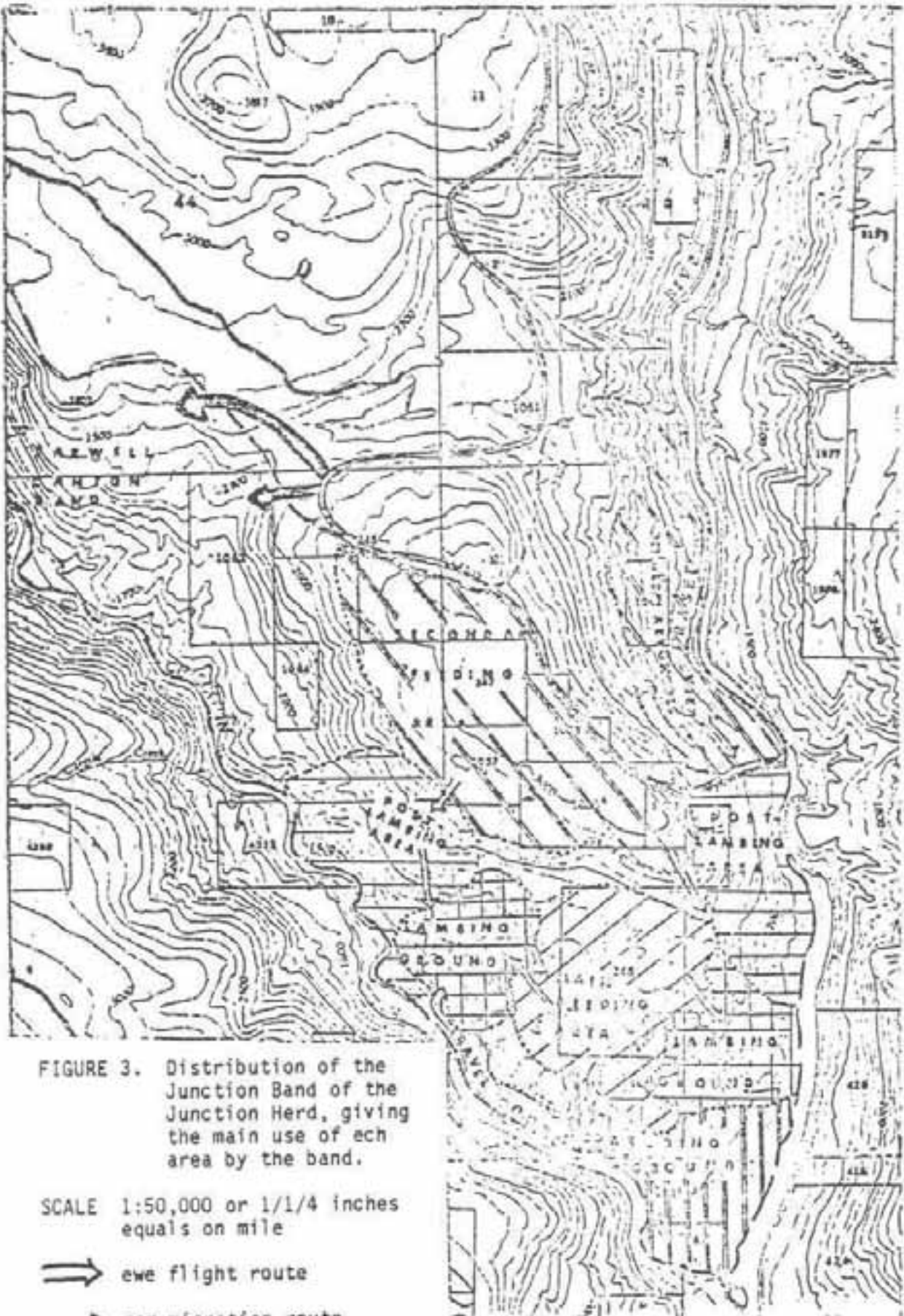




FIGURE 3. Distribution of the Junction Band of the Junction Herd, giving the main use of each area by the band.

SCALE 1:50,000 or 1/1/4 inches equals one mile

-  ewe flight route
-  ram migration route during rutting period

Summary of Classified Counts of Bighorn on the
Chilcotin River Range

May, 1970

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Ratio of Rams: 100 Ewes:Lambs

Date	Rams:100 Ewes: Lambs	Observer
June 7, 1968	-:100:62	Demarchi*
July 21, 1968	-:100:50	Demarchi*
August 2, 1968	37:100:41	Mitchell & Demarchi**
November 22, 1968	42:100:23	Mitchell & Lesowski**
March 13, 1969	34:100:25	Mitchell & Stringer**

* Ground count on a restricted portion of the range

** Helicopter count over all the range

Classified Counts of Bighorn

	Rams	Ewes	Lambs	U/C	Total	Observer
May 22, 1964	38	126	94	55	313	Mitchell & Lesowski
August 2, 1968	74	199	81	-	358	Mitchell & Demarchi
November 22, 1968	84	162	38	-	284	Mitchell & Lesowski
March 13, 1969	49	145	37	-	231	Mitchell & Stringer