

## Caribou Management and Inventory in M.A. 12

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This report deals with results and implications of a caribou inventory of Wells Gray Park and contiguous ranges to the south in M.A. 13 on July 15, 1970. The objectives of the survey were to obtain a population estimate for the park caribou and to define their summer distribution as a background for management recommendations particularly regarding hunting regulations and control of guided hunting.

Methods A Bell 206 turbo helicopter chartered from Okanagan Helicopters was used on the survey. There were three observers beside pilot. The observer in the front seat recorded track observations and classified caribou seen as to bulls, cows, calves, or yearlings wherever possible and using a fifth classification – small antlered adults to include cows and yearlings where they could not be segregated. One of the rear seat observers classified ungulate range and the other plotted the locations of caribou sightings on a 4" to 1 mile topographic map. All observers and the pilot searched for caribou.

The pilot flew slightly above the 6,500 contour at a height of 100 to 300' from ground level depending on topography. Snow patches were investigated for animals and tracks, where tracks were found, a more intensive search was carried out for animals.

On July 20, Grant Hazelwood, a fixed wing aircraft (P.A. 12), searched peripheral areas missed in the helicopter survey.

Results: Hot weather had reduced alpine snow fields to a very small size and caribou were concentrated on these patches which occurred above 6,500' on southern exposures and down to 6,000' on sheltered north facing basins. Since caribou were only found in the elevations above 6,000', the total area to be searched was only 680 square miles of which much could be eliminated as being too steep or rocky to support caribou. A total of 305 caribou was seen in 9 1/2 hours of flying time in caribou inhabited range. (Table I, Map I) An additional 30 caribou were seen on the fixed wing flight. Nearly 90% of the caribou were tallied between 6,500, and 7,500' contour while over 70% if this group were tallied between 6,500 and 7,000'. The altitudinal limits of searching were thus very narrow. (All caribou were within 1/4 mile of snow.) In the 1965 survey, carried on in cool cloudy weather with extensive snow patches still remaining, caribou were scattered in distribution from 5,000 to 6,800'. In the 1964 survey, with higher temperatures, most caribou were above 6,500'. The cooling effect of the snow patches was evident flying above them, temperatures averaged 12°C above the snow patches near mid day, in nearby area without snow patches 22°C, in the valleys near 2,500' – 35°C and the Kamloops weather office recorded a high of 38°C on July 15.

Despite the animals being concentrated, we were unable to cover all the area above 6,000'. The better ranges of this remainder were flown on July 20 under less than ideal

conditions. The 30 caribou seen on this flight probably does not represent the total number of caribou in the area.

Table I

Caribou Observed in Three Summer Surveys –Well Gray Park

Area	1964	1965	1970	1970
	Super Cub 6 1/2 hr.	Helicopter Bell G2 9 1/2 hr.	Helicopter Bell 206 9 hr.	P.A. 12 2 hr.
Raft Battle	2	2	19	
Mica-Isosceles	29	5	68	
Upper Clearwater River- Hobson Lake	12	0	13	12
Mt. Huntley - Azure River	2	0	12	18
Hogue Mt.-Azure Mt. Mobely Mt.	95	30	139	
Cast of Murtle Lake	<u>0</u>	<u>14</u>	<u>57</u>	<u>0</u>
	140	51	308	30

Sex and Age Ratio: Caribou were segregated as to bulls, cows, calves yearlings and small antlered adults. The small antlered adults category included some yearlings so the two have been combined in the summarized data (Table II). The percentage of calves in the population has been virtually the same in three summer surveys but is slightly higher than the calf crop of 16% observed in the early 1950's (Ritcey 1955). The summer to spring calf loss is unknown so the 16% yearly increment figure cited by Kelsall (1968) is used in the allowable harvest calculations that follow.

The sex ratio of 56 bulls: 100 cows observed as the average for the three flights is probably a fair approximation of the actual sex ratio prevailing in the herd.

Table II

Caribou Sex and Age Ratio -- Wells Gray Park

<u>Year</u>	<u>Total Observed</u>	<u>Bulls</u>	<u>Cows</u>	<u>Calves</u>	<u>Small Antlered Adults</u>	<u>Calves</u>
1964	148	23	31	28	66	19%
1965	61	16	34	11	0	18%
1970	308*	35	68	58	147	19%

\* Fixed wing data not included

Population Estimates: The total of 338 caribou seen in both flights probably represents at least 75% of the park population. Nearly all of the herd was in the survey area for previous summer reconnaissances in the park has shown that very few caribou remain in timbered areas in mid summer. An intensive search of the beaches of Azure Lake on the day after the survey revealed no caribou tracks. This is an area where caribou frequently cross when migrating between mountain ranges. Fishing parties at Murtle Lake during the time of the survey also reported no caribou or sign during the time of the survey.

It is unlikely that any caribou on the snow patches were missed. However, caribou feeding away from the snow patches were difficult to see unless they had been alarmed and moved by the helicopter. In the fixed wing survey, during the cloudy, cool weather; at least some of the caribou were away from the snow and went unobserved.

Two good caribou basins were not surveyed -- Goat Creek and East Creek as well as some minor tributaries of main watersheds. A conservative allowance of ten animals should be allowed for this.

From this, it is estimated that the caribou population of the park is between 350-400

Management: The Wells Gray caribou population represents the most southerly distribution of any sizeable bands in British Columbia. Further, the population, or part of it, is relatively accessible. It thus has the potential of being an important recreational resource.

Range management for caribou entails both short and long term protection of arboreal lichen stands used as winter food by caribou. Short term protection demands adequate control of caribou numbers so that lichens are not overused. Hunting is the only feasible method of doing this at present within the park. Population control by wolf predation may be possible in future but at present is does not appear to be an important factor.

Long term protection means preservation of mature timber from fire and logging. The nature conservancy in the central part of the park will ensure protection of most of the good caribou winter range. However, forests to the west are threatened by logging both inside and outside the park. This logging also creates accumulations of fuel that threaten adjoining uncut stands. The large fire in Spanish Creek in 1967, is a prime example. The remaining mature stands west of the Clearwater River should be given adequate protection especially in the area from Daniel Creek to Summit Lake on the Quesnel Lake – Hobson Lake divide. Mature stands of timber on the eastern park boundary on the Blue River road are also threatened. These stands are part of an important caribou migration route and should be protected by the Parks Branch. This would involve acquiring Timber Licences 5416 and 5406 as recommended by Hartman (1961)

There is little danger that the population has been over harvested. From 1955 to 1962, annual harvests averaged 14 head per year (4% of this present population) with a peak kill of 39 head on 1962. The estimated harvest for the park for the hunting seasons 1965-1968 compiled from the hunter questionnaire and guide returns (Table III) has averaged 30 head per year or 9% of the estimated population. The kill is fairly well distributed amongst accessible segments of the population.

Harvests in adjoining management areas are small but increasing in M.A.19. The annual increment from observed calf crops is thought to be at least equal to the 16% cited by Kelsall (1968) as the 'norm' for barren ground caribou. The population is thus in no danger of overharvesting at present hunting intensities. However, two herds – at Murtle Lake and Battle Mountain – are not accessible enough that they would be seriously reduce harvest in the park should be watched closely so that regional closures could be imposed if over harvesting is suspected or seasons curtailed if harvests for the park as a whole are suspected to be excessive. It is not known to what extent the various caribou bands migrate from one mountain to another. However, it would be prudent to assume that intermingling is limited until established otherwise. It is not difficult to see that isolated bands could be easily overharvested as the numbers involved are small. Table IV gives the suggested maximum number of caribou that could be safely harvested from each area based on observed numbers and an annual increment of 16%. The area harvest estimates are subject to revision when more becomes known of local migrations. However, until then, the estimated should be useful in determining possible dangerous harvest levels.

An annual harvest of 15 caribou could probably be allowed for areas not already extensively hunted. This remainder includes the Angus Horne area (already lightly hunted by one guide) and the headwaters of the Azure River. Increased access from the North Thompson will put additional pressure on this part of the population by unguided hunters. It is doubtful that the population surplus would support another active guide in addition to the unguided hunters.

Table III

Caribou Harvests in Well Gray Park and Adjacent Management Areas

Year	M.A. 12(Wells Gray)			M.A. 13			M.A. 19		
	Total Guided	Unguided		Total Guided	Unguided		Total Guided	Unguided	
1955	8*								
1956	11								
1957	7								
1958	8			NOT			NOT		
1959	7								
1960	14								
1961	20			AVAILABLE			AVAILABLE		
1962	39								
1963	NOT AVAILABLE								
1964			29**	13	0	13			15
1965	24	10	14	11	0	11	19	6	11
1966	36	24	12	5	0	5	39	24	15
1967	25	14	11	9	0	9	22	7	15
1968	<u>36</u>	<u>9</u>	<u>27</u>	<u>23</u>	<u>0</u>	<u>23</u>	<u>18</u>	<u>8</u>	<u>10</u>
Mean(1964-68)	30	14	18	61	0	12	24	12	13

\*1955-1962 - figures from hunter check. Wells Gray Park

\*\*1964-1968 - figures from hunter samples and guide returns.

Table IV

Estimated Allowable Annual Harvest of Caribou, Wells Gray Park

Area	Maximum Safe Harvest
Murtle Lake	15
Clearwater-Azure Lake	11
Hobson Lake	11
Battle-Trophy	3
All other areas	<u>13</u>
TOTAL PARK	55

Recommendations: (1) Timber Licences # 5416 and 5406 should be acquired by the Parks Branch to preserve an important caribou route.

(2) Logging in the area west of Clearwater Lake should be prohibited as soon as present agreement expires. It is especially vital to prevent any intrusion of logging into the area of Summit Lake on the divide between Quesnel and Summit Lake.

(3) Caribou harvests in the park should be closely monitored by the Parks Branch to prevent over hunting of local bands. Suggested harvest limits are given by region with a total park limit of 55 head.

(4) A summer Inventory of the caribou population should be carried out every 5 years to establish population bands.

#### REFERENCES:

Hartman, J.H. 1970 -- Development Consideration for Wells Gray Park –  
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