

Haley Lake

Ref. No.:

583 c.1

ECOLOGICAL RESERVES COLLECTION
GOVERNMENT OF BRITISH COLUMBIA
VICTORIA, B.C.
V8V 1X4

VANCOUVER ISLAND MARMOT INVENTORY 1984

NOTE:

Certain maps and tables have been removed in order to prevent widespread knowledge of specific marmot areas.

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October 1984

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PURPOSE

The purpose of the 1984 Fish and Wildlife survey was to continue a field inventory of Vancouver Island marmot colonies initiated in 1982. The emphasis of the present survey was to monitor known colony areas identified in the last two years to record number of animals present and reproductive success. As well an effort was made to search for marmot presence in logging slash adjacent to known marmot colonies and in new potential areas.

METHOD

Known marmot colonies were visited and observations made to determine their current activity status. The major emphasis of these visits was to determine whether reproduction was occurring.

The investigation of an area followed a standard procedure of thoroughly searching the terrain to observe actual animals and also to determine the number and state of burrows. Active burrows were those that showed signs of this year's use, i.e. trampled vegetation, fresh digging, fresh scats. Animals sighted were classified as either adult (entering their second year) or as young (distinguished by physical size difference). Whistles were also recorded but differentiation of age class was not possible. Sightings and whistles provided minimum population estimates for a particular area while the sighting of young confirmed the viability of a specific colony.

Marmot colonies and colony complexes have been defined by Munro et. al. (1983) as follows:

A colony is a circumscribed habitat containing two or more marmots with evidence of reproduction.

Verification of present use of historic colonies implies population recruitment, as does direct observation of infants or yearlings within a three year period. In addition, based on a review of average colony size, direct observation of 5 + individuals in any single day will be interpreted as a viable colony.

The geographic area occupied by colonies is small, and non-dispersing marmots are not known to wander more than 500 m from their colony. Thus, colonies separated by distances greater than that may be considered to be distinct.

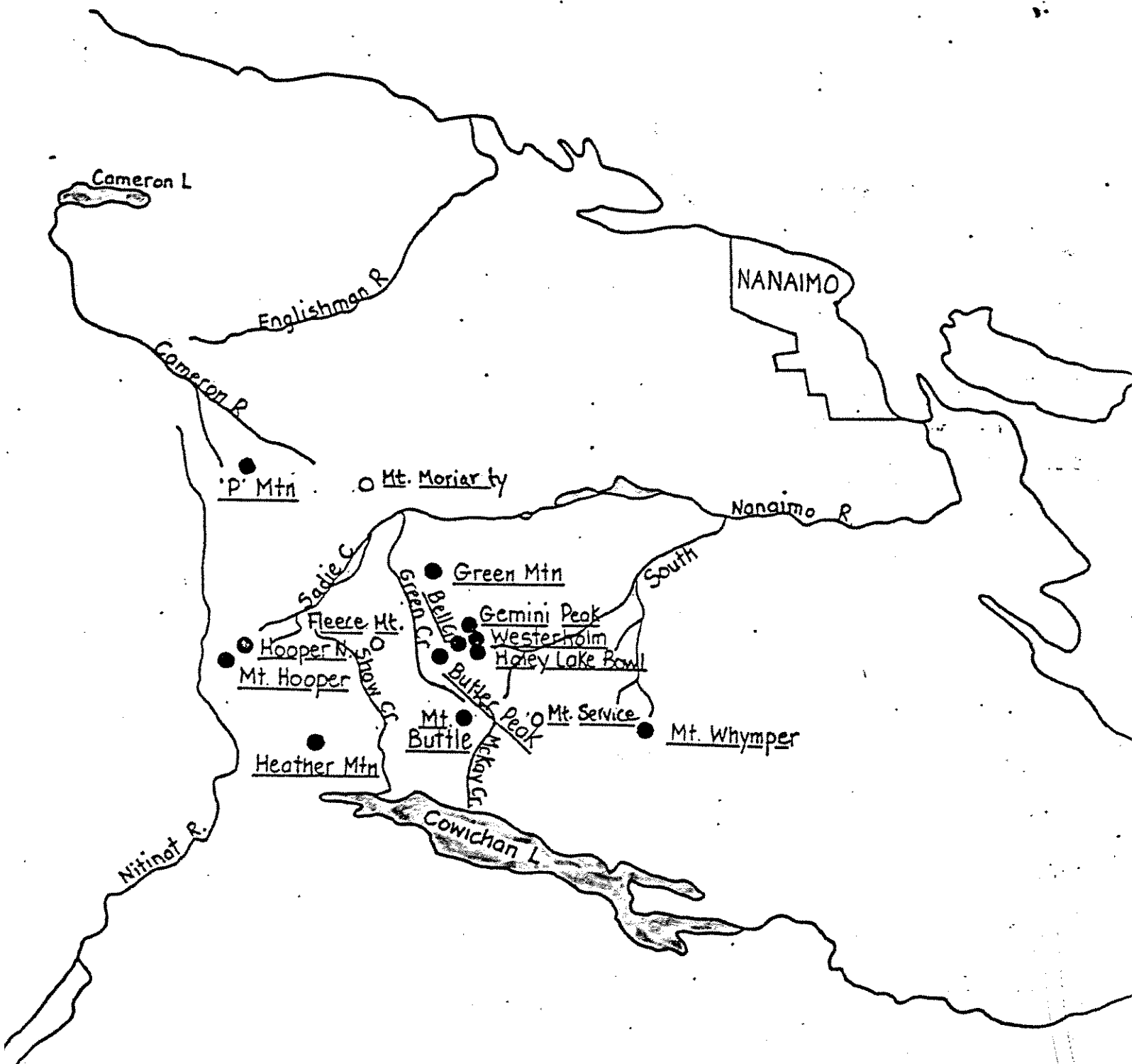
A colony complex is a grouping of two or more colonies, none of which are separated from their nearest neighbour by more than 500 m.

For each newly discovered area, altitude (m above sea level), aspect (azimuths) and slope (%) were recorded. General notes on the areas topography and plant species were also made. Every new marmot colony or area of marmot activity was marked and named on existing aerial photographs. As well access routes to new areas were noted.

RESULTS

The 1984 Vancouver Island marmot inventory, conducted from June 8 to September 26, concentrated on areas that were surveyed over the past two years (Maps 1 and 2). Some new areas were searched including Williams Lake (headwaters Green Creek), Mt. Service and Mt. Moriarty. However, no recent marmot activity was detected in these areas except on Mt. Moriarty where active burrows and marmot trails were seen in an area where one marmot had been reported in 1983 and two marmots observed by a reliable reportee in 1984. The slash area on the lower western slope of Mt. Whympers was also searched, but no marmot activity was observed.

Map 1. Areas Searched For Marmot Activity - 1984

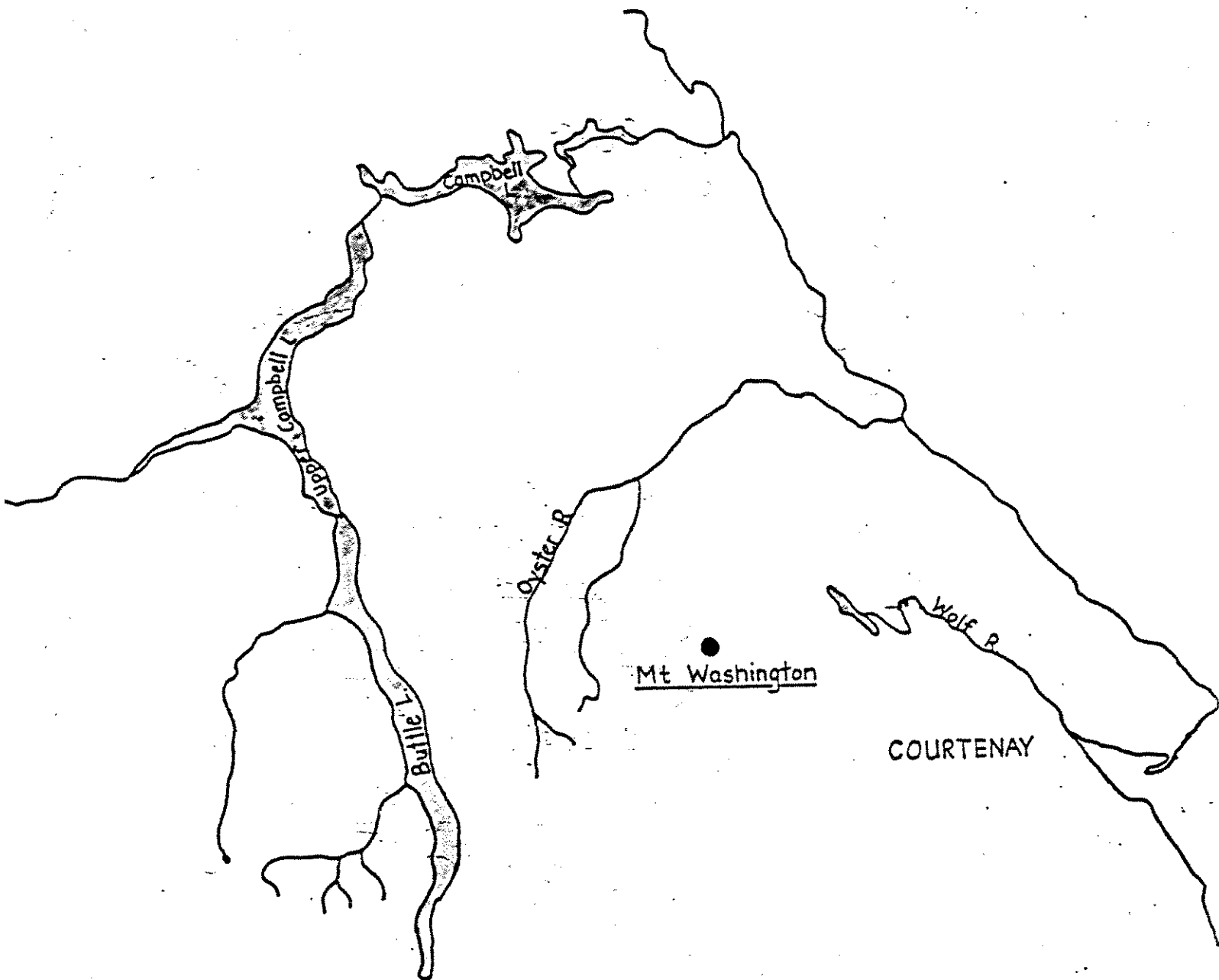


1 inch = 6 miles

N

VHJH

Map 2. Areas Searched for Marmot Activity - 1984.



1 inch = 6 miles

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Snow survey measurements have been recorded regularly at Snobird Lake on Green Mountain. A summary of June 1 snow depths and snow level elevation for the past four years appears in Table 1. Snow accumulation in June and July was higher during the first month of the marmot survey than last year. This created problems, both with access to and with observations of some colony locations. However, the fine summer weather in 1984 created an opportunity for an increased number of field days than what were possible in 1983.

Table 1. Snow depth measurements Snobird Lake Green Mountain June 1. (Green Mt. Elevation 1,456 m.)

YEAR	SNOW DEPTH	SNOW LEVEL ELEVATION
1984	299 cm.	1,066 m.
1983	200 cm.	1,300 m.
1982	324 cm.	1,040 m.
1981	29 cm.	1,295 m.
HISTORICAL SNOW DEPTH AVERAGE AT THIS LOCATION = 234 cm.		

The areas found to support marmots generally occurred between 975 metres (3200 feet) and 1433 meters (4700 feet) above sea level. However, a number of marmot areas occurred in logging slash at lower elevations down to 853 meters (2800 feet).

There was an overall increase in numbers of marmots observed in 1984 compared to previous survey years (Table 2). This was partly a result of an increase in the number of areas that marmots utilized within known locations. Expansion of marmot activity was observed in seven locations: Green Mt., Westerholm-Basin, Butler Peak, "P" Mountain, Mt. Buttle, Mt. Heather, and Mt. Washington.
not Haleslake.

In terms of habitat use it is interesting to note that a total of 56 marmots including 25 young were observed in logging slash in five locations: Green Mt., Butler Peak, South Fork, Middle Fork and North Fork of Dunsmuir Creek. The 25 young represented 8 colony groupings.

There appears to be an adequate supply of both food and cover in some logging slash to sustain viable marmot colonies for quite some time. Age of cutovers where marmots were successful in producing young during 1984 ranges from one to 16 years. Fireweed and other shrubs, herbs, grasses and sedges provide ample food while blow-down stumps, cut-banks with boulders and bull-dozed landing provide necessary burrow and look-out sites.

All of the 'slash' colonies are in relatively close proximity to larger colony complexes and one can assume that expansion of core areas has occurred, resulting in the occupation of adjacent logging slash sites.

Young marmots were observed at all locations visited except Mt. Whympier, North Hooper, Mt. Moriarty and Bell Creek north. However, Whympier was considered a viable colony as 9 marmots were observed in a single day.

North Hooper is interesting in that a dramatic crash in its population seems to have occurred in the fall or winter of 1982. The 1982 summer survey accounted for 8 animals including three young. However, the following year no animals or sign of marmot use were in evidence. In 1984 only a single animal was recorded in mid-July when snow cover of the alpine meadows was extensive. A subsequent visit in late August resulted in no marmots seen and no sign of recent activity despite the abundance of food and cover.

No marmots had been observed at Mt. Washington for two years. The location of a colony in the old mine site north of the ski area came as a surprise and confirms the theory of "the more you look, the more you will see". The area occupied by the marmots - an abandoned quarry - was certainly not what has been described as typical marmot habitat. Nevertheless, marmots used the boulder piles and rock faces as shelter while nearby pockets of meadow were used for feeding.

Table 2. Marmot Survey Results 1979 - 1984.

COLONY COMPLEXES	°1979	°1980	°1981	°1982	*1982	*1983	*1984
Haley	11	15	14	12	24 (4 y)	25 (7 y)	23 (6 y)
Bell Creek	3	3	9	7	10	13 (4 y)	16 (4 y)
Green Mt./Proper	9	40	32	20	29 (4 y)	41 (5 y)	36 (9 y)
Westerholm/Basin	6	2	4	7	19 (2 y)	14	25 (7 y)
Gemini	-	17	14	13	16	20	15 (3 y)
Butler/Proper	3	7	6	6	14	22 (3 y)	38(13 y)
"P" Mountain	8	6	3	8	11	8	17 (6 y)

COLONIES

Mt. Buttle	-	1	-	-	3	4 (1 y)	7 (2 y)
Mt. Heather	1	0	-	-	1	3 (1 y)	7 (3 y)
Mt. Hooper	3	4	3	4	7 (3 y)	4	7 (4 y)
Hooper North	-	-	-	-	8 (3 y)	0	1
Mt. Whympier	-	0	-	-	-	9 (2 y)	9
Mt. Moriarty	-	-	-	-	-	-	2
Mt. Washington	1	-	2	1	-	0	6 (1 y)
Middle Fork/ Dunsmuir Creek	-	-	-	-	-	-	15 (7 y)
North Fk (D Rd)/ Dunsmuir Creek	-	-	-	-	-	1	5 (3 y)
Shaw Creek (W°)	-	4	-	-	-	-	-
Bell Creek (N°)	-	-	-	-	6	1	2
TOTAL	45	99	87	78	148(16 y)	165(23 y)	231(68 y)

° Vancouver Island Marmot Preservation Committee Report

* Fish and Wildlife Surveys

y young

CONCLUSIONS AND RECOMMENDATIONS

The 1984 marmot survey had two major accomplishments. Firstly it established that marmots do use logging slash for reproduction and will use slash at relatively low elevations. Secondly new marmot areas were found, suggesting that increased survey effort results in an increase in number of marmots observed. Mt. Washington is a good example of what an expansion of search area will produce.

There appears to be a genuine expansion of marmots in at least five locations: Westerholm Basin, Mt. Butler, "P" Mountain, Mt. Buttle and Mt. Heather. It would be premature to make conclusions on marmot population dynamics until more detailed studies have been done.

Long term monitoring of marmots in logging slash should be maintained to determine habitat suitability, especially where seral succession is rapid. Finally, there should be an ongoing effort to survey new potential marmot habitats to gain a better understanding of their population level and distribution on Vancouver Island.

REFERENCES

Heinsalu, V. and G. W. Smith, 1983. Vancouver Island Marmot Inventory 1983. Unpublished report. B.C. Fish and Wildlife Branch. 27 pp.

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