

# **Vancouver Island White-tailed Ptarmigan Project**



## **Progress Report 1997 Summer Surveys**

available on-line at: <http://www.forestry.ubc.ca/alpine/docs/wtpvi-3.pdf>

## EXECUTIVE SUMMARY

Very little is known about the Blue-listed white-tailed ptarmigan subspecies (*Lagopus leucurus saxatilis*) which occur only on Vancouver Island. In 1997, an inventory was done on a total of 25 mountains on 16 sites covering 2,303 ha for an approximate cost of \$32.58 per ha. Ten professional and technical field workers spent 203 days covering the terrain. From June-October we observed 206 ptarmigan across the Island from the Nimpkish valley south to North Cowichan. The first active nest of the project was found in Strathcona Park in mid-July. We located 25 broods and placed radios on 24 brood hens. Twenty chicks were radio-marked from 6 different mountains (3 on the south Island, 1 in Strathcona Park, and 2 on the north Island). As a value added component, we conducted a census of birds using alpine sites during late summer and fall migration. We observed 53 species using the alpine over a 3 month migration period. Habitat types were evaluated in the field for GIS mapping, and GPS and map UTM's were evaluated for accuracy.

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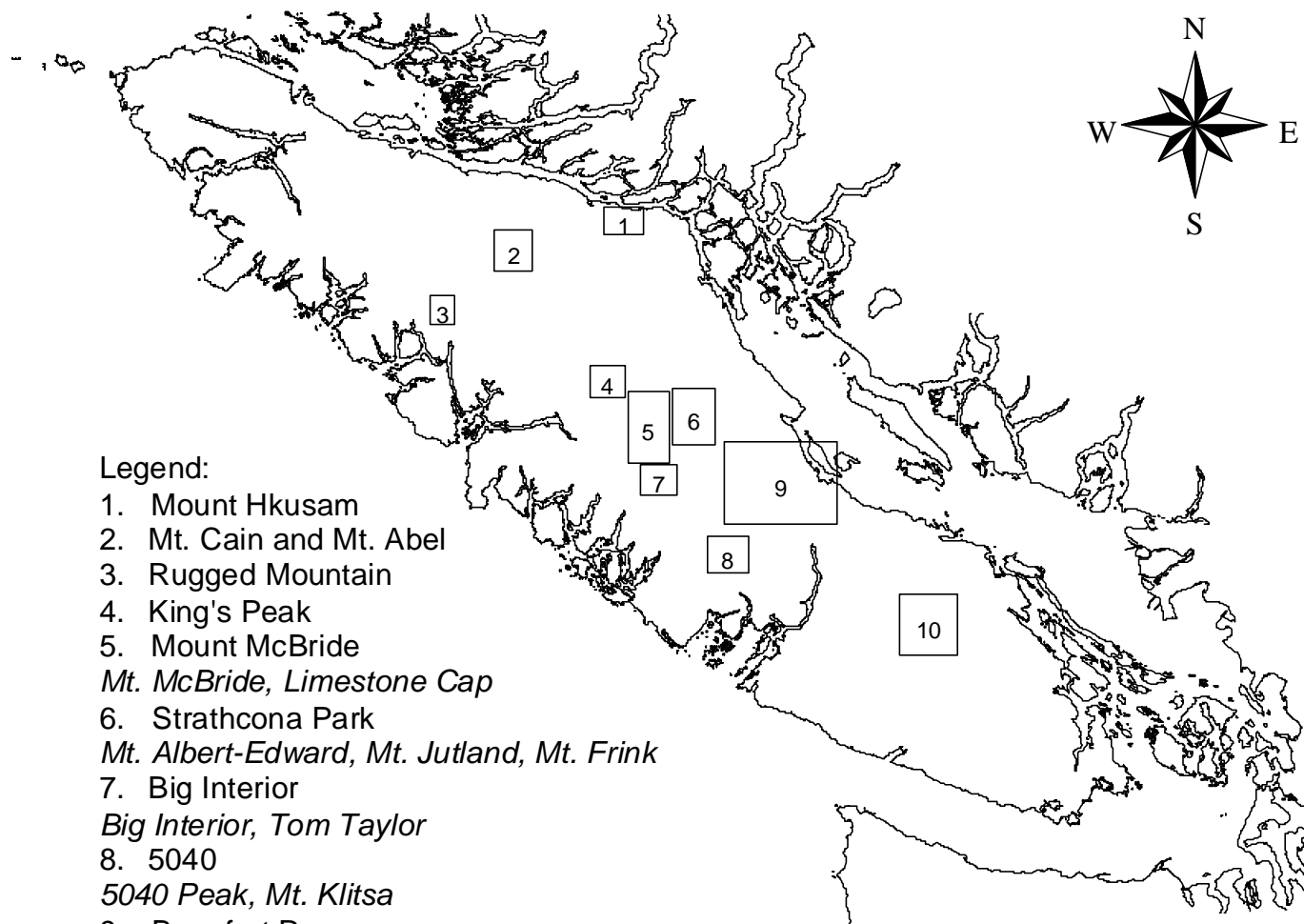
## INTRODUCTION

White-tailed ptarmigan, *Lagopus leucurus*, is a hardy alpine grouse that occurs only in North America in alpine areas ranging in elevation from 900 - 4250 m (Braun et al. 1993). It is one of the very few vertebrates that lives year round above ground in the alpine. The subspecies, *L. l. saxatilis*, is believed to be restricted to Vancouver Island. This subspecies is on the BC Blue List (1996), primarily due to a lack of information. Currently, little is known about the distribution and abundance of *L. l. saxatilis*. Nothing is known about how it differs ecologically and genetically from the other subspecies of white-tailed ptarmigan. Ecological traits are possibly different, such as habitats used, and there may be differences in timing and patterns of dispersal between breeding and wintering areas.

Virtually nothing is known about whether the status of the Vancouver Island ptarmigan is changing in relation to habitat loss from forestry or increased recreational activities and developments. These activities have the potential to adversely impact both summer production, winter survival, and dispersal between breeding and winter sites. The goal of this inventory is to provide information on the abundance, distribution, and status of this listed subspecies. A preliminary census of white-tailed ptarmigan on Vancouver Island began in 1995. In 1996 and 1997, with acquisition of FRBC inventory funding, the white-tailed ptarmigan inventory project was established, personnel were hired, and systematic searching of ptarmigan was instituted. We report on year two of a five year project.

This draft report is a summary of work completed in 1997. Our principal focus was to search areas for white-tailed ptarmigan, and band and radio mark a sample of birds from each site. In 1997, detailed habitat use assessment was established, spatial GPS versus map UTM (Universal Transverse Mercator) comparison was evaluated for accuracy of locations, and a systematic census of other birds using alpine sites began. Further, 17 of 20 radio-marked chicks from 6 field sites were fitted with mortality sensor radios to determine dispersal.

# 1997 Study Areas for Vancouver Island White-tailed Ptarmigan Inventory



**Legend:**

- 1. Mount Hkusam
- 2. Mt. Cain and Mt. Abel
- 3. Rugged Mountain
- 4. King's Peak
- 5. Mount McBride  
*Mt. McBride, Limestone Cap*
- 6. Strathcona Park  
*Mt. Albert-Edward, Mt. Jutland, Mt. Frink*
- 7. Big Interior  
*Big Interior, Tom Taylor*
- 8. 5040  
*5040 Peak, Mt. Klitsa*
- 9. Beaufort Range  
*Squarehead, Mt. Joan, Mt. Curran, Mt. Stubbs*
- 10. South Island  
*El Capitan/Mt. Landale, Mt. McQuillan, Mt. Arrowsmith, Mt. Cokely, Mt. Moriarty*



## **INVENTORY**

### **AREAS and CENSUS EFFORT**

In 1997, 323 observer days were spent working on the ptarmigan project from June-October (field time, preparation time, data management and logistics). This included 10 personnel and 3 volunteers. We spent 203 of the 323 observer days in the field searching for ptarmigan, 12 additional field days were put in by volunteers. Nine alpine areas were re-censused and seven new sites (a total of 25 mountains) were inventoried for the presence of white-tailed ptarmigan on Vancouver Island in 1997 (Table 1). This represents approximately 2,303 ha for the 25 mountains.

The following is a list of areas searched:

<b>South Island</b>	<b>Central Island</b>	<b>North Island</b>
El Capitan/ Landalt	Tom Taylor	Mt Hkusam
Mt Moriarty	King's Peak	Mt Cain/ Mt Abel
Mt Arrowsmith/Mt Cokely	Mt Albert-Edward/ Mt Jutland/ Mt	Rugged Mtn
5040 Peak	Frink	
Mt McQuillan	Marble Meadows	
Mt Klitsa	Big Interior/Cream Lake/Sugar	
Mt Curran/Squarehead/Joan	Ridge	
Mt Stubbs		

### **METHODS**

Search methods included: audio playbacks, looking for sign of ptarmigan (freshly moulted feathers and/or scat), aerial surveys, and talking to hikers, naturalists, and agency personnel (Braun et al. 1973). Playbacks of male territory challenge calls were used to elicit male response during the breeding season and were occasionally effective for locating males in summer and fall. Playbacks of chick distress calls were used in the brood rearing season to locate females with chicks. Once a bird was located an attempt was made to catch it using an extendible noose pole (Zwickel and Bendell 1967). Once caught, if an adult, the bird was banded with a numbered aluminum leg-band and a unique colour band combination. The majority of birds were also radio-collared, thus allowing us to determine brood success and seasonal habitat use. Blood and feathers were collected from most birds for genetical analysis and presence of blood parasites.

Chicks were tagged with either a numbered wing-tag or aluminum leg band, depending on their size.

## **RESULTS AND DISCUSSION**

### **Abundance**

A total of 206 (Table 2) birds were located in 1997, 7 of the 206 were previously banded in 1995 and 14 in 1996. One-hundred and thirty-one ptarmigan were banded in 1997, 64 of 131 banded birds were radio-collared, 59 were wing-tagged as chicks, 14 of which also received bands. Ten additional chicks were banded only (Table 3). Sixty-five other birds were seen (24 of 65 were chicks), but not captured.

Twenty of the 69 chicks located were radio-tagged (17 of which received 12 month mortality sensor radios). Nine chicks were radio-collared on Mt Albert-Edward and Mt Jutland, 2 chicks were radio-collared on Mt. Cain, 1 chick on Mt. Abel, 2 chicks on Mt. Stubbs, 5 chicks on Mt. Arrowsmith, and 1 chick on Mt. Moriarty. Further work is required before we can determine accurate estimates of population size for specific areas.

### **Production**

The first active nest ever recorded on Vancouver Island was found below Morrison Spire in Strathcona Park on 12 July 1997. Five eggs were found in the nest and all hatched successfully. A total of 24 (17 adults, 7 yearlings) females with broods were banded and radio-collared, another 2 successful females were seen. Four females without broods were located (1 previously banded in 1995, another in 1996). Brood size ranged from one to six chicks. No information is available on clutch size, nesting success and chick survival on Vancouver Island. However, data gathered in 1997 revealed that average number of chicks per hen seen pre-flight was 5.2 ( $n = 5$ ). This is similar to data from Colorado where average number of chicks per hen was 5.8 (Braun et al. 1993). Average number of chicks per hen seen post flight was 3.2 ( $n = 26$ ). This differs from Colorado where average fledging success was only 2.5 (Braun et al. 1993). Thus, overall fledge success among white-tailed ptarmigan on Vancouver Island appears to be higher than in Colorado.

### **Distribution and Habitat Use**

The range of the white-tailed ptarmigan on Vancouver Island extends further north and south than previously thought (Campbell et al. 1990). They have been documented as far south as Mt Brenton (elev. - 1100 m, north of the town of North Cowichan) and as far north as Rugged Mtn. in the Nimkish region and Mt Cain (north of Schoen Provincial Park). We believe that their range is more extensive than known presently, especially in the north, where so far little exploration has been done.

White-tailed ptarmigan on Vancouver Island appear to live at lower elevations and use a wider range of habitats than on the mainland. The majority of the habitats used on Vancouver Island would be considered marginal or sub-optimal habitat when compared to the large expanses of alpine on the mainland. All birds captured in Strathcona Park were found above timberline in moist, rocky, alpine patches dominated by white and pink mountain heather (*Cassiope mertensiana* and *Phyllodoce empetriformis*, respectively). Birds captured in the southern areas occurred in more subalpine areas where krummholz and subalpine fir (*Abies lasiocarpa*) intermix with patches of white and pink mountain heather. Consequently, they appear to overlap more with blue grouse than has been observed on the mainland. In the future, core areas used by white-tailed ptarmigan will be identified and risk factors for the subspecies will be assessed.

## **OTHER WORK UNDERTAKEN**

### **Habitat Use Assessment/GIS Mapping**

A more detailed habitat use assessment was initiated in 1997 to identify specific habitat types used by white-tailed ptarmigan. General vegetation within 20 m of bird locations were recorded. Slope, aspect, elevation, and percent rock and snow were also recorded (Appendix A). The habitat types were evaluated in the field for GIS mapping. In addition, both map and GPS UTM's were recorded to identify the accuracy of GPS units and coordinate comparisons between the two. Universal Transverse Mercator's were recorded at each bird location.



## **Public Education**

- Society for Conservation Biology, Victoria, British Columbia, June 9-12, 1997. Poster.
- Society of Canadian Ornithology, Peterborough, Ontario, August 8-10, 1997. Poster and oral presentation.
- Partners in Flight, (Vancouver, British Columbia), August 8-10, 1997. Oral presentation.
- The Wildlife Society, Snowmass, Colorado, September 22-25 1997. Oral Presentation.
- “Wanted” poster placed at Wheaton Hut, Strathcona Park, Vancouver Island (Appendix B).

## **Alpine Bird Census**

In 1997, a systematic method to census other bird species using alpine sites was initiated. This task was undertaken to identify the avian biodiversity for alpine areas on Vancouver Island. A checklist was established by identifying all birds seen previously in alpine habitats on Vancouver Island (Appendix C). Numbers of birds were recorded on the checklist for each trip in the alpine. We observed 53 bird species in the alpine and subalpine regions of Vancouver Island ranging from shorebirds, raptors, and Band-tailed pigeons to hummingbirds, songbirds, and woodpeckers. A total of 64 bird species were observed during the study including those in forested habitats. Migration of birds through alpine areas began in late July when number and species of birds observed increased. Numbers remained high through September, and began to decline again in mid-October. In addition to identifying bird species, other vertebrates were also recorded on a general basis.

## **Information Exchange**

During 1997, we coordinated numerous site visits with other researchers (Goshawk and Marmot crew), BC Parks, and representatives of FRBC. On 8 September, Susan Holroyd of FRBC took a site visit to Rugged Mountain with Dr. Kathy Martin to learn more about what we are doing in the field. Members of BC Parks went on site to exchange knowledge of the area within Strathcona Park. Researchers from Ministry of Environment also shared information on sightings of ptarmigan and access into areas outside of the park that had not been previously searched by the white-tailed ptarmigan team. In addition to site visits by professionals, we have provided requested information about Parks Planning to three ecological planning consultants from Vancouver Island.

## Alpine Vertebrates On Vancouver Island

The following birds were seen or heard in the subalpine or alpine sites we censused:

White-fronted Goose	Northwestern Crow
Barrow's Goldeneye	Steller's Jay
Sandhill Crane	Gray Jay
Phalarope spp.	Chestnut-backed Chickadee
Baird's Sandpiper	Red-breasted Nuthatch
Spotted Sandpiper	Winter Wren
Ruffed Grouse	American Dipper
Blue Grouse	Golden-crowned Kinglet
Sharp-shinned Hawk	American Robin
Cooper's Hawk	Varied Thrush
Northern Goshawk	Townsend's Solitaire
Red-tailed Hawk	Swainson's Thrush
Bald Eagle	Hermit Thrush
Golden Eagle	Orange-crowned Warbler
Merlin	White-crowned Sparrow
Band-tailed Pigeon	Fox Sparrow
Common Nighthawk	Dark-eyed Junco
Hummingbird spp.	Snow Bunting
Northern Flicker	Rosy Finch
American Pipit	Red Crossbill
Black Swift	White-winged Crossbill
Common Raven	Pine Siskin

Other vertebrates observed and recorded in the alpine on Vancouver Island:

Shrew sp.	Black Bear
Deer Mouse	Elk
Red Squirrel	Garter Snake - <i>Thamnophis sirtalis</i>
Vancouver Island Marmot	Rough-skinned Newt - <i>Taricha granulosa</i>
Tree frog - <i>Pseudacris regilla</i>	

## General Summary- 1997- March through October

In 1996, a list was developed to discuss future activities to be accomplished. The following is a list of those tasks accomplished in 1997.

- Initiated GIS/GPS component, provided habitat maps for each site.
- Began using radios with mortality sensors to increase quality and amount of information concerning dispersal and mortality of chicks.
- Censused alpine birds and other vertebrates on Vancouver Island.
- Coordinated with other wildlife habitat inventories (Goshawk and Vancouver Island Marmot), BC Parks, and FRBC representatives.

- Presented posters and gave talks concerning Vancouver Island ptarmigan at four professional societies.
- Produced a poster - “Wanted - White-tailed ptarmigan” - requesting additional historical and current sightings of white-tailed ptarmigan and placed at Wheaton Hut.
- Extended sample of radio-marked birds from both north and south Island as well as Strathcona Park.

## ACKNOWLEDGMENTS

The continuation of the project would have been difficult without the help of many people. Don Doyle (MELP) has been extremely helpful in every aspect of the project. Susan Holroyd (FRBC) and Don Doyle expedited funding for 1997. Many hikers, naturalists, Provincial Parks, and industry personnel gave invaluable support in determining access to the alpine, offering their assistance, and giving us information about white-tailed ptarmigan sightings.

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**Table 1. Vancouver Island white-tailed ptarmigan 1997 field summary.**

<b>Date</b>	<b>Area</b>	<b>Sign/Sightings</b>	<b>1Personnel</b>	<b>Comments</b>
16-20 June	5040	Saw 1 male, fresh sign, challenge call	JRY, TMD	weather rainy/foggy
23-26 June	Albert-Edward	No sign, no signals	JRY, TMD	weather foggy, cold, rainy
2-Jul	McQuillan	Re-locate D0630, banded 1 male	JRY, MLC, TMD	short helicopter flight in
2-5 July	5040	D0654 found depredated, re-located DO658, banded 1 hen 6 chicks	MLC, TMD	Lots of sign everywhere! Still lots of snow but access good.
9-Jul	Arrowsmith	banded 1 male on Cokely	SST, MLC, TMD	Lots of snow in AS bowl
11-15 July	Marble Meadows	Re-locate D0732 w/brood, D0735 on hatching nest, D0741, D0725, D0737, D0734, D0677 w/brood, D0676, D0742. Band hen w/brood, and 3 males.	SST, MLC, TMD	Very successful trip
19-24 July	Albert-Edward	Re-locate D0611 w/brood, D0705, D0701 w/brood, D0621. Banded 8 hens w/broods, 1 other hen and 3 males	SST, MLC, TMD	Area includes Jutland and Frink
28-Jul	Arrowsmith	Band 1 hen w/brood, got signal for male.	SST, TMD, MLC	Tons of sign along ridge to top
1-2 Aug	Albert-Edward	Re-locate D0680, D0744, D0683 w/broods, and D0613	MLC, TMD	Fog/rain, short trip
4-6 Aug	El Capitan/Landalt	Old sign near top of both peaks. No birds	MLC, TMD	Weather very hot
4-5 Aug	Hkusam	Band 1 male and 1 hen, lots of sign	SST, SRO	Very little H2O, hot/dry weather
6-Aug	Cain	Band 1 hen w/brood	SST, SRO	Sign along entire ridge
7-Aug	Abel	Band 1 hen w/brood, see 1 male	SST, SRO	Great habitat along north face
9-10 Aug	Klitsa	No sign	MLC, TMD	Explored access only
9-11 Aug	King's Peak	Re-locate D0724 w/brood and D0722	SST, SRO	Replaced radios on male and hen
11-Aug	Curran	No sign	MLC	Explored access w/Ken Rodonets
14-Aug	Moriarty	Found 2 feathers	SST, SRO	Not great looking, little sign found
17-20 Aug	Big Interior	Band 4 males, lots of sign	KM, SRO	Includes Cream Lake, Little Jim, Sugar Ridge, lower glacier of Big Interior.

17-20 Aug	Tom Taylor	Band1 hen w/brood and 1 male	SST, MLC	2 days on Tom Taylor, then to Little Jim w/ KM and SRO
28-29 Aug	Klitsa	Band 1 hen and 2 males	SST, JG	Needs more exploring
2-4 Sep	Curran, Squarehead, Joan	Found sign on Squarehead	SST, SRO	Needs another going over
6-Sep	Stubbs	Band 1 hen and 1 chick	SRO	w/Ken Rodenets, looks good
8-Sep	Rugged	Band 1 male	KM, SRO	w/ Susan Holroyd, Dorey Mankey, Difficult terrain
8-Sep	Arrowsmith	1 faint signal, some sign	MLC	w/Doug Shaw, hen inaccessible
9-Sep	Landalt	Old sign	MLC	w/Doug Shaw, flew in w/ marmot crew
10-14 Sep	Albert-Edward	Band 1 hen and 2 chicks, 6 males, Re-locate 4 hens w/broods, band/ radio 8 chicks, re-locate D0647, D0615, D0682	MLC, SRO	w/Doug Shaw and Katrine Vogt
18-Sep	Arrowsmith	Re-locate D0685 and band 6 chicks	SST	w/Katrine Vogt
18-Sep	Cain	lots of sign, no signals	MLC, SRO	Planned to come back in 2 days
19-Sep	Moriarty	Band 1 hen and 1 chick	SST	w/Katrine Vogt
19-Sep	Abel	Re-locate D0754, band 1 chick	MLC, SRO	Replaced radio on hen, radio-marked 1 chick
20-Sep	Cain	Re-locate D0753, band 2 chicks	MLC, SRO	Replaced radio on hen, radio-marked 2 chicks.
20-21 Sep	McQuillan	Re-locate D0630, see 1 UB male	SST	w/Katrine Vogt and Len Thomas Needs further exploration from ground route, Mike Steini led way.
22-24 Sep	Big Interior	D0759, D0757	LJT, KV	Found birds along Sugar Ridge
22-24 Sep	Tom Taylor	Band and radio 1 hen and 2 males	SST, SRO	Needs further exploration
5-Oct	King's Peak	Signal for D0724, no other sign	SST, MLC	Hen was on inaccessible cliff
10-Oct	King's Peak	No sign	SST, MLC, SRO	3 feet fresh snow at top, no signals
11-Oct	Moriarty	some fresh tracks and sign, no birds	MLC, SRO	Fresh snow along ridge
11-Oct	Arrowsmith	tracks, fresh sign, signal for D0767 on cliff	KM, SST	Lots of fresh sign/tracks in snow
17-Oct	Arrowsmith	Re-locate D0685, D0663, and D0767 chick	MLC, SRO	Birds very jittery, flushed easily.
18-21 Oct	Albert-Edward	Band 2 new birds. re-locate D0782-Dead,	SST	With Lea Elliot, could not find most of the signals from Jutland, Albert-Edward, and Frink.

18-Oct	Stubbs	re-locate D0611 w/ UB bird, hear male challenge call at night Re-locate D0746 chick, Band 1 new chick	MLC, SRO	Unable to capture rest of brood b/c flushed over cliff
19-Oct	Cain	from new brood (1 hen 3 chicks total) Re-locate D0786 chick from Abel, see 1 UB bird on cliff	MLC, SRO	Did not find any of the Cain birds, but Mt. Abel chick moved to Cain.
20-Oct	Abel	Retrieve radio for D0754	MLC, SRO	Unable to ascertain whether she lost the radio or was depredated b/c radio found beneath 4 feet of snow, no feathers or sign of depredation.
21-Oct	Hkusam	Get signal only for D0751, and D0752	MLC, SRO	Birds on steep cliff on north face
24-Oct	Moriarty	Old feathers and sign	SST, MLC	No signals or fresh ptarmigan sign

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1 JRY = Jessica Young, TMD = Thomas DeMaria, MLC = Michelle Commons, SST = Sabrina Taylor,  
SRO = Steve Ogle, KM = Kathy Martin, KV = Katrine Vogt, LJT = Leonard Thomas,  
JG = Jen Grant

**Table 2. Summary of white-tailed ptarmigan banded, radioed, and seen on Vancouver Island in 1997.**

<b>Sex</b>	<b>Banded<sup>1</sup></b>	<b>Radio-marked<sup>2</sup></b>	<b>Seen/heard only<sup>3</sup></b>	<b>Total Birds<sup>4</sup></b>
Males	40 (5) (7)	18	38	78
Females	32 (2) (7)	26	3	35
Chicks	69	20	24	93
<b>Total</b>	<b>131</b>	<b>64</b>	<b>65</b>	<b>206</b>

1. Represents all birds banded or wing-tagged. Numbers in 1st set of brackets indicate birds banded in 1995, numbers in 2nd bracket indicate birds banded in 1996.

2. Represents all birds with active radios and also seen in 1997.

3. Represents birds not captured but seen or heard and not banded.

4. Represents total number of banded and unbanded birds.

**Table 3. Vancouver Island white-tailed ptarmigan study 1997 summer and autumn banding summary<sup>1</sup>**

Location	Sex <sup>2</sup>	Band # <sup>3</sup>	Colour band <sup>4</sup>	Frequency	Comments <sup>5</sup>
Mt McQuillan	M	D0661	RBlu/RBlu	151.150	with D0630
5040	F	D0662	BluY/BluR	150.093	with 6 chicks A412-A417
Klitsa Mtn	M	D0690	WR/RW	150.109	with D0691
Klitsa Mtn	F	D0691	BluG/RG	150.070	with D0690
Klitsa Mtn	M	D0692	RBlu/BluY		Alone
Mt Cokely	M	D0663	RW/RBlu	150.479	Alone
Mt Arrowsmith	F	D0685	RG/RG	150.361	with 6 chicks A461-A466
Mt Arrowsmith	M?	D0764	WP/RY	150.431	Aka A464 with D0685 + 5 chicks
Mt Arrowsmith	F?	D0765	BluG/YP	151.239	with D0685 and 5 chicks
Mt Arrowsmith	F?	D0766	WR/WBlu	150.146	Aka A463 with D0685 and 5 chicks
Mt Arrowsmith	M	D0767	PY/BluP	150.517	Aka A462 with D0685 and 5 chicks
Mt Arrowsmith	F?	D0768	RG/YP	150.144	Aka A465 with D0685 and 5 chicks
Mt Arrowsmith	F?	D0769	WP/BluP		Aka A461 with D0685 and 5 chicks
Mt Arrowsmith	?	D0772			Depredated on site by a COHA
Mt Moriarty	F	D0770	YBlu/YR	151.259	with chick D0771
Mt Moriarty	F?	D0771	PG/BluR	150.840	with D0770
Mt Stubbs	M?	D0746	PBlu/BluR	150.045	with D0747
Mt Stubbs	F	D0747	PBlu/BluW	150.443	with D0746
Mt Stubbs	F?	D0773	RBlu/PW	150.195	with 1 UB hen and 2 UB chicks
Mt Tom Taylor	F	D0686	BluP/BluP	150.739	with 2 chicks and male D0687
Mt Tom Taylor	M	D0687	RG/RBlu	150.383	with 2 chicks and hen D0686
Mt Tom Taylor	?	D0688			with parent D0686 and male D0687
Mt Tom Taylor	?	D0689			with parent D0686 and male D0687
Mt Tom Taylor	M	D0789	YP/GR	150.259	with D0790 and D0791
Mt Tom Taylor	M	D0790	PY/GW	150.581	with D0789 and D0791
Mt Tom Taylor	F	D0791	BluR/GW	150.196	with D0789 and D0790
Sugar Ridge	M	D0757	RBlu/GY	150.678	Alone
Sugar Ridge	M	D0758	RW/GBlu		Alone
Sugar Ridge	M	D0759	RW/PY	150.480	with male D0760
Sugar Ridge	M	D0760	BluG/PR		with male D0759
Mt Albert-Edward	F	D0669	YBlu/RY	150.338	with 2 chicks A440
Mt Albert-Edward	F?	D0781	GR/PBlu	151.142	Aka A440, with parent D0669
Mt Albert-Edward	F	D0611	BlkG/WP	150.178	with 6 chicks A441-A446
Mt Albert-Edward	F?	D0780			Aka A443 with parent D0611 ,chicks
Mt Albert-Edward	F	D0670	WG/WY	150.220	with chick A448
Mt Albert-Edward	F	D0701	YP/RBlu	150.300	with 1 chick
Mt Albert-Edward	F	D0673	BluP/WY	150.117	with 3 chicks A449-A451
Mt Albert-Edward	F?	D0782	WBlu/PY	150.748	Aka A449 with parent D0673, D0783
Mt Albert-Edward	M?	D0783	WG/PW	150.901	Aka A451 with parent D0673, D0782
Mt Albert-Edward	F	D0744	RG/YW		with 5 unmarked chicks
Mt Albert-Edward	F?	D0698	WP/BluR	150.274	with parent D0680 and 5 chicks
Mt Albert-Edward	F?	D0699	GY/BluP		with parent D0680 and 5 chicks
Mt Albert-Edward	M?	D0761	YG/WR	150.126	with parent D0680 and 5 chicks
Mt Albert-Edward	M	D0671	RBlu/WG		with D0672 and D0705
Mt Albert-Edward	M	D0672	YBlu/YP	150.322	with D0671 and D0705
Mt Albert-Edward	M	D0696	YBlu/BluW		with D0697, D0647, D0615
Mt Albert-Edward	M	D0697	RP/RP		with D0696, D0647, D)615
Mt Albert-Edward	F	D0682	RW/RW		with D0621
Mt Albert-Edward	F?	D0749	PW/BluY	150.966	with parent D0611 and 7 chicks
Mt Albert-Edward	M?	D0750	PY/RG	151.251	with parent D0611 and 7 chicks
Mt Albert-Edward	M	D0762	PG/BluY		with D0682 and D0763
Mt Albert-Edward	M	D0763	GP/WR		with D0682 and D0762



Mt Albert-Edward	M	D0784	BluP/GW		with D0785
Mt Albert-Edward	M	D0785	BluW/GR		with D0784
Mt Albert-Edward	M?	D0792			Aka A445 Killed by noose
Mt Albert-Edward	M?	D0793	BluY/RG		Alone
Mt Jutland	F	D0674	RBlu/WBlu	151.083	with 3 chicks
Mt Jutland	F	D0675	RP/Ry	150.670	with 5 chicks 3 are A452-A454
Mt Jutland	F	D0680	Ry/BluP	151.210	with 3 chicks, 2 are A455-A456
Mt Jutland	M?	D0693	BluR/RBlu	150.539	with parent D0695 and chick D0694
Mt Jutland	M?	D0694	WG/WP	150.505	with parent D0695 and chick D0693
Mt Jutland	F	D0695	WY/YW		with 2 chicks D0693 and D0694
Mt Jutland	M?	D0794	YP/YR		with D0763 and UB hen
Mt Frink	F	D0681	BluP/BluR		with 5 chicks
Mt Frink	F	D0683	BluG/BluG	151.018	with 5 chicks 4 are A457-A460
Mt. Frink	M	D0684	PW/YP		Alone
Limestone Cap	F	D0664	WR/BluR	150.712	with 6 chicks 5 are A424-A428
Limestone Cap	M	D0665	Ry/RBlu	150.139	with D0676, D0666, D0667
Limestone Cap	M	D0666	BluG/Ry	150.160	with D0676, D0665, D0667
Limestone Cap	M	D0667	BluW/BluW	150.198	with D0676, D0665, D0666
McBride/Morrison Ridge	M	D0668	GP/BluR	150.639	with D0735, D0742, A436-A439
King's Peak	M	D0722	YW/BluR	150.280	Alone
King's Peak	F	D0724	PY/Ry	150.759	with 4 chicks 2 are D0755, D0756
King's Peak	?	D0755			with parent D0724, D0756 2 chicks
King's Peak	?	D0756			with parent D0724, D0755 2 chicks
Mt Hkusam	M	D0751	GP/PY	150.458	with D0752
Mt Hkusam	F	D0752	GR/PR	150.240	with D0751
Mt Cain	F	D0753	GBlu/GP	150.925	with chicks D0787 and D0788
Mt Cain	F?	D0787	BluY/PR	150.206	with parent D0753 and chick D0788
Mt Cain	F?	D0788	RW/PG	150.186	with parent D0753 and chick D0787
Mt Abel	F	D0754	Ry/PR	151.330	with chick D0786
Mt Abel	F	D0786	RG/GR	150.496	with parent D0754
Rugged Mtn	M	D0748	BluR/PR		Alone

1. Total = 82 birds banded as of October 31, 1997, of which 4 were previously banded and radios replaced.
2. Not always possible to determine sex of young chicks or adults in advanced body moult.
3. Band and tag numbers of chicks indented below female parent.
4. Read colours top to bottom, left leg first; Bk = black, W = white, P = pink, G = green, R = red, Blu = blue, Y = yellow. Chicks not colour banded until they were at least 75 days old.
5. Mt. Albert-Edward includes ridges to the North, South and Southwest.

## **APPENDICES**

- Appendix A** Habitat inventory data sheet used to provide detailed habitat and GPS inventory data.
- Appendix B** “Wanted” poster used to inform people about white-tailed ptarmigan on Vancouver Island.
- Appendix C** Alpine bird census card used to monitor songbird and other birds migrating through the alpine in late summer and fall.

**Appendix A** Habitat inventory data sheet used to provide detailed habitat and GPS inventory data.

Microhabitat Data Sheet

Bird ID \_\_\_\_\_ Sex M/F \_\_\_\_\_ # of birds (Ids) \_\_\_\_\_ Brood (Y/N) \_\_\_\_\_  
Observer(s) \_\_\_\_\_ Time begin \_\_\_\_\_ Time end \_\_\_\_\_ Date \_\_\_\_\_  
Weather \_\_\_\_\_ General Temp \_\_\_\_\_

Habitat type (e.g. Alpine, Subalpine, Conifer) \_\_\_\_\_  
% Rock \_\_\_\_\_ % Snow \_\_\_\_\_ % Dominant vegetation/type \_\_\_\_\_

Loc: Gen \_\_\_\_\_ Spec \_\_\_\_\_ Nearest Peak \_\_\_\_\_

GPS: UTM N \_\_\_\_\_ UTM E \_\_\_\_\_ Hz corr. factor \_\_\_\_\_

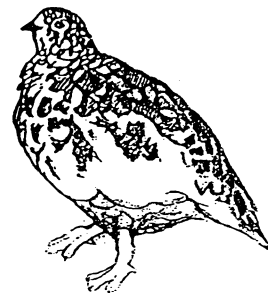
Topo: UTM X \_\_\_\_\_ UTM Y \_\_\_\_\_

Map Sheet #: \_\_\_\_\_ Zone # 9U/10U/11U Scale \_\_\_\_\_

Slope \_\_\_\_\_ Aspect \_\_\_\_\_ Elevation \_\_\_\_\_

Unit type \_\_\_\_\_ Time: \_\_\_\_\_ Amt. time unit on: \_\_\_\_\_

# WANTED



## Vancouver Island White-tailed Ptarmigan

### Description:

Ptarmigan are small, pigeon-sized birds, and have distinctive white tails and wings throughout the year; however, they molt their remaining feathers three times each year. Males and females are completely white in the winter. During the spring their head, back and sides are barred with black and buffy brown feathers and during the fall they have finely spotted cinnamon, brownish and black feathers.

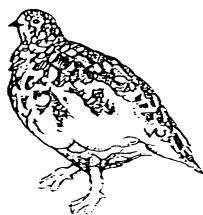
### Habitat:

These wily birds are likely to hide in plain sight in the alpine areas of tall mountain peaks in the heath and heather or on rocky slopes. They appear to range on Vancouver Island from the mountains found west of Duncan to the northern tip of the island. They will generally freeze upon your approach, relying on their cryptic colors to keep them safe.

### The Study

From July 1995 till June 1997, 111 white-tailed ptarmigan have been coloured banded in alpine areas all over Vancouver Island to study their population ecology and behaviour. Bands can be read with binoculars from distances of 25 m. Band colours should be read from top to bottom, left leg first. Currently, we have little information about this Blue-listed subspecies.

If you observe any white-tail ptarmigan please note the following information:

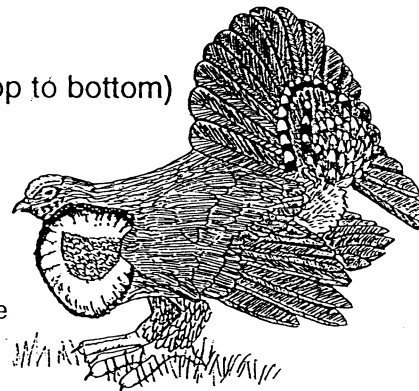


- Date
- Location (e.g. Mt. Frink, Strathcona Park)
- # of birds seen (e.g. 10 total, 9 chicks)
- Habitat (e.g. heather, rock, snow)
- Bands (if present) - (left and right legs, top to bottom)

### Caution!

White-tailed ptarmigan are often confused with blue grouse. Blue grouse are darker, with a distinct dark band on their gray-blue tail. Male blue grouse are often seen "hooting" in the spring in clearings in the subalpine and trees.


Blue Grouse





Please send your name and sighting information to:

Dr. Kathy Martin and Dr. Jessica Young  
Department of Forest Sciences  
University of British Columbia  
Vancouver, B. C.  
Canada, V6T 1Z4

**Appendix C** Alpine bird census card used to monitor songbird and other birds migrating through the alpine in late summer and fall.

Forest: 

Sub-alpine: 

Alpine: 

Date: \_\_\_\_\_  
 Time in: \_\_\_\_\_ Time out: \_\_\_\_\_  
 Observer: \_\_\_\_\_ Temp/cloud: \_\_\_\_\_ / \_\_\_\_\_  
 Route: \_\_\_\_\_  
 Alt - F: \_\_\_\_\_ S: \_\_\_\_\_ A: \_\_\_\_\_

Date: \_\_\_\_\_  
 Time in: \_\_\_\_\_ Time out: \_\_\_\_\_  
 Observer: \_\_\_\_\_ Temp/cloud: \_\_\_\_\_ / \_\_\_\_\_  
 Route: \_\_\_\_\_  
 Alt - F: \_\_\_\_\_ S: \_\_\_\_\_ A: \_\_\_\_\_

	F	S	A		F	S	A		F	S	A		F	S	A
BLGR				RCKI				BLGR				RCKI			
COHA				GCKI				COHA				GCKI			
SSHA				AMRO				SSHA				AMRO			
ACCsp				VATH				ACCsp				VATH			
RTHA				TOSO				RTHA				TOSO			
GOEA				YRWA				GOEA				YRWA			
MERL				OCWA				MERL				OCWA			
BTHI				WCSP				BTHI				WCSP			
RUHU				GCSP				RUHU				GCSP			
NOFL				SAVS				NOFL				SAVS			
AMPI				SPAsp				AMPI				SPAsp			
BLSW				DEJU				BLSW				DEJU			
CORA				ROFI				CORA				ROFI			
STJA				RECR				STJA				RECR			
GRJA				PISI				GRJA				PISI			
CBCH				FINsp				CBCH				FINsp			
RBNU								RBNU							
BRCR								BRCR							
WTWR								WTWR							