

WILDLIFE INFOMETRICS INC.

PROGRESS REPORT

2002 ONCP Summer Habitat
Pre-Analysis Report

KARIN SCHMIDT¹

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¹Wildlife Infometrics Inc., PO Box 308, Mackenzie, BC, V0J 2C0, wild_info@cablerocket.com

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ABSTRACT

The 2002 summer field session consisted of 23 days of fieldwork over 4 Sessions between July 1st and August 24th. Within that time 139 plots were inventoried, 136 of which were seasonal habitat comparisons while the remaining were mortality sites. Greater than 50 percent of all sites inventoried were located in the Alpine Tundra Biogeoclimatic Zone with an additional 30% of the Akie/Ospika plots located in the SWBb; 20% of the Chase/Sustut plots in the SBSmk2 and 32% of the Wolverine plots in the ESSFmv3. The total cost of the field sessions, including helicopter time, camp, salary, and truck costs across the Mackenzie Timber Supply Area (TSA) was \$52,000.25

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INTRODUCTION

The purpose of this report is to briefly summarize the timelines, costs and habitat plots completed through the 2002 summer field season.

STUDY AREA

All habitat plots were completed in three study areas (Akie, Chase and Wolverine) within the Mackenzie Timber Supply Area (TSA). Generally, all study areas are characterized by mountainous terrain with extensive alpine habitat, large river valleys, and dense coniferous forests.

The Akie study area encompasses an area of approximately 10,252 square kilometers, and is bounded in the north by the Kwadacha River, in the west by the Finlay River and the Finlay Reach of the Williston Reservoir, in the south by the Ospika River and the Ospika Arm of the Williston Reservoir, and in the east by the Rocky Mountains. The central and eastern part of the Akie is dominated by the Northern Rocky Mountains; consequently it is characterized by steep terrain, and has a broad elevation range. It contains several large drainages including the Kwadacha, Akie, and Ospika Rivers. At low- to mid-elevations, the Akie study area is dominated by the BWBS dry cool Stikine variant (BWBSdk1), while at mid- to high-elevations the ESSF moist very cold Graham (ESSFmv4) and the SWB moist cool (SWBmk) variants predominate. The Williston Reservoir shoreline and the lower Ospika River valley bottom are dominated by the SBS moist cool Williston variant (SBSmk2). The Alpine Tundra parkland (ATp) prevails above the tree line.

The Chase study area encompasses an area of approximately 9,700 square kilometers including the Mesilinka, Osilinka, Swannell and Ingenika river drainages. The area is situated in steep, mountainous terrain and contains multiple watersheds and mountain ranges. The study area encompasses Chase Mountain and is bounded in the north by Barriere Peak and the Russell Range, in the west by Johanson, Dartatelle, and Carruthers Creeks, in the south by Duckling, Haha, and Wasi Creeks, and in the east by the Finlay Reach of the Williston Reservoir. At low- to mid-elevations, the area is dominated by the BWBSdk1 and the SBSmk2, at mid- to high-elevations the ESSF Omineca variant (ESSFmv3) predominates. The ATp prevails above tree line.

The Wolverine study area encompasses an area of approximately 5,623 square kilometers surrounding the Wolverine Mountain range, situated in rolling high-elevation foothills. It is roughly bounded in the north by the headwaters of Discovery, Goat, Nina, and Big Creeks, in the west by Ground Hog and Valleau Creeks, in the south by Klawdetelle Creek, Sylvester Creek, and the Nation River, and in the east by the eastern slopes of the Wolverine Mountain Range. Of the three study areas, the Wolverine is the least mountainous with the smallest elevation range. At low- to mid-elevations, the area is dominated by the BWBSdk1, SBSmk1 and SBSmk2 variants, and the ESSFmv3 dominates the mid- to high-elevations. The ATp prevails above tree line.

METHODS

Four collared caribou in each study area were located bi-monthly (once per session) from November 2001 to June 2002. At each location, snow depth and tree cover measurements were taken and a 20x20 meter plot was laid out on the ground with flagging tape. These locations were then visited and remeasured for the next three consecutive sessions and then again in the summer for a more complete inventory of vegetation and soil properties. The methods employed for summer site assessments were in accordance with the Resources Inventory Standards Committee (RISC) for Describing Terrestrial Ecosystems in the Field (B.C Gov. 1995).

During summer sampling, elevation; slope; aspect; and macro and mesopositions were determined and photos were taken for each winter location. Soil mensuration involved the determination of the organic layer thickness, the humus form, the soil texture and its coarse fragment content. Terrain texture, surficial material and surface expression were also recorded and site drainage, moisture and nutrients established.

Impediments to caribou (blowdown) were assessed as being nil to major and their percent coverage on the ground was recorded. Any wildlife signs observed were also recorded and coarse woody debris measurements were taken in accordance with RISC standards. A vegetation inventory was then performed and percent coverage of each species recorded.

Terrestrial lichens were quantified using methods outlined in Lance and Eastland 1999, and arboreal lichen abundance was assessed using methods outlined in Armleder et al. 1992.

RESULTS

The 2002 summer habitat field season began on July 2nd and was concluded on August 20th (See Appendix 1). Within that time, a total of 139 plots were inventoried for vegetation, soil characteristics, lichen abundance and coarse woody debris throughout the TSA: 40 were completed in the Akie/Ospika study area, 49 were completed in the Chase/Sustut and 50 were completed in the Wolverine study area (Table 1). Of the 139 plots inventoried, 136 were seasonal habitat comparisons and 3 were mortality sites (Table 1).

More than 50 percent of sites throughout all study areas were located in the Alpine Tundra zone: a characteristically treeless, shrub-dominated zone above 1500m in elevation (Table 2). The Akie/Ospika also had 30 percent (12) of sites in the White Spruce- Grey-leaved Willow-Scrub Birch (SWBb) zone (Table 2). The SWBb occupies the subalpine (800-1500m) zone north of the Mesilinka River and therefore encompasses all plots below alpine at the Mine Road and in the Trimble Lake area. Tree species common to the SWBb includes White spruce (*Picea glauca*), which usually

forms an open canopy with minor amounts of Subalpine fir (*Abies lasiocarpa*). Scrub Birch (*Betula glandulosa*), willows (*Salix* spp.), *Potentilla fruticosa* and soopallalie (*Shepherdia canadensis*) are common in the shrub layer while the herb layer typically contains Crowberry (*Empetrum nigrum*) and Lingonberry (*Vaccinium vitis-idaea*). Lichen cover is variable throughout this zone.

Table 1: Number and type of plots completed in each study area per session.

Session	Study Area	Completed Plot Type	
		Seasonal Habitat	Mortality
Session 14	Akie/Ospika	0	0
	Chase/Sustut	11	0
	Wolverine	12	1
Session 15	Akie/Ospika	0	0
	Chase/Sustut	5	2
	Wolverine	25	0
Session 16	Akie/Ospika	27	0
	Chase/Sustut	1	0
	Wolverine	0	0
Session 17	Akie/Ospika	13	0
	Chase/Sustut	30	0
	Wolverine	12	0
Totals		136	3

In the Chase/Sustut area, 20 percent of plots occurred in the moist-cool Sub-Boreal Spruce (SBSmk2) zone (Table 2), which occurs around the flat shores of Williston Reservoir and therefore takes in those sites at Lorimer Creek. The sites visited at Lorimer Creek were typically level with a relatively open canopy of Lodgepole pine (*Pinus contorta* var. *latifolia*) and an understory of White spruce. Common to all sites were Prince's Pine (*Chimaphila umbellata*) and Huckleberry (*Vaccinium membranaceum*) while Bastard Toad-Flax (*Geocaulon lividum*) was supported only on wetter sites. Lichens were assessed as Class 4 on all but three sites indicating greater than 50 percent total coverage of lichen as well as greater than 25% coverage by preferred (*Cladina*, *Stereocaulin*, *Cetraria*) species.

Thirty-two percent of the plots in the Wolverine study area occurred in the moist-very cold Engelmann Spruce-Subalpine-fir (ESSFmv3) zone (Table 2), which replaces the SWBb as the subalpine zone south of the Mesilinka River. The ESSFmv3 encompasses all subalpine plots in the Wolverine area except for those located along the Omineca River/Blue Lake and Germansen Lake Valleys: these plots are associated with the dry-cool Boreal White and Black Spruce (BWBSdk1) zone. Plots inventoried just off of the Germansen Lake airstrip were located on Pine-lichen flats with lichen carpets characteristic of the BWBSdk1/02 PI-Lingonberry-Feathermoss association. These plots contained 40-75% lichen coverage.

The completion of 139 plots required 23 days of fieldwork, 6 camp nights and 42.7 hours of helicopter time (Table 3). While this indicates an average of 6 plots per day and an

overall average of 18.5 minutes of helicopter time per plot, the completion of the Akie/Ospika plots required more helicopter time due to the extensive ferry time required to reach the study area.

Calculating the average helicopter time required per plot by session (Table 3) and factoring in the number of plots completed per session by study area, indicated that plots in the Wolverine area needed 15.6 minutes; plots in the Chase/Sustut required 19.4 minutes; and plots in the Akie/Ospika required 20.7 minutes of helicopter time to complete. *(15.6 minutes for the Wolverine area and 20.7 for the Akie/Ospika are likely over/underestimates respectively as ferry time was not included as a factor in the calculation.)*

Table 2: Number of plots completed in each biogeoclimatic zone and their percentage of the total plots completed per study area.

BGC Zone	Akie/Ospika		Chase/Sustut		Wolverine		Totals	
	# Plots	% of Total	# Plots	% of Total	# Plots	% of Total	# Plots	% of Total
ATn	21	0.525	25	0.510	26	0.52	72	0.518
BWBSdk1	2	0.05	4	0.082	6	0.12	12	0.086
ESSFmv3	5	0.125	3	0.061	16	0.32	24	0.173
SBSmk1	0	0	0	0.000	2	0.04	2	0.014
SBSmk2	0	0	10	0.204	0	0	10	0.072
SBSwk2	0	0	2	0.041	0	0	2	0.014
SWBb	12	0.3	5	0.102	0	0	17	0.122
Totals	40	1	49	1	50	1	139	1

Table 3: Number of field days, camp nights and helicopter hours used per session and per plot.

	# Camp Nights	# Heli Hours	# Field Days	# Plots Completed	Heli Time per Plot (Hrs)
Session 14	0	11	9	24	.4583
Session 15	4	5	8	32	.1563
Session 16	0	10.3	3	28	.3678
Session 17	2	16.4	7	55	.2982
Totals	6	42.7	23	139	Average: 0.3202

The total cost per plot ranged from \$327.71 in the Wolverine study area to \$429.64 in the Akie/Ospika study area (Table 4), however the total cost per study area was greatest in the Chase/Sustut (Table 4) due partly to the large number of plots there (Table 1). The cost per study area was similar for the Akie/Ospika and Wolverine study area (Table 4) due to the fewer number of plots in the Akie/Ospika (Table 1).

The completion of 139 seasonal habitat comparison and mortality plots cost on average \$383.26 per plot for a total cost of \$52,000.25 across the entire TSA (Table 4).

Table 4: Total cost per study area and per plot based on camp, salary, truck and helicopter costs.

Study Area	Camp Costs¹	Salary Costs²	Truck Costs³	Heli Costs⁴	Total Cost per Area	Total Cost per Plot
Akie/Ospika	480.00	2838.97	66.67	13800.00	17185.64	429.64
Chase/Sustut	480.00	2838.97	66.67	15843.33	19228.97	392.43
Wolverine	480.00	2838.97	66.67	13000.00	16385.64	327.71
TSA	1440.00	8516.90	200.00	42643.33	52800.25	Average: 383.26

¹ Six nights of camp at \$120.00/night for 2 people

² Two Field Ecologists at \$185.15/day for 23 field days

³ Truck rental at \$1200.00/month for 1 week

⁴ Based on a rate of \$1000.00/hour

DISCUSSION

Analysis has yet to begin on these data, and comparisons yet to be made on summer habitat data between the years.

LITERATURE CITED

- B. C. Government. 1995. Field manual for describing terrestrial ecosystems. Land Management Handbook Number 25. Research Branch. B.C. Ministry of Forests and B.C. Ministry of Environment, Lands and Parks.
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APPENDIX A. 2002 SUMMER HABITAT SAMPLING ITINERARY