WOLVERINE PROJECT

WILDLIFE PROTECTION PLAN

2010 ANNUAL MONITORING REPORT

QML - 0006

Prepared for:

Wolverine Project Wildlife Technical Committee

Yukon Energy, Mines and Resources

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1 Introduction

Yukon Zinc Corporation's (YZC) Wolverine Mine is located in the southeast Yukon within the Kaska Traditional Territory (Figure 1-1). Commencing in spring 2009, YZC actively implemented wildlife protection measures and monitoring programs as per *Wildlife Protection Plan V2009-01* (WPP). The WPP was approved in April 2009 by Yukon Energy, Mines and Resources under Quartz Mining License QML-0006 Section 12.3. The WPP describes YZC's commitments for minimizing and managing impacts from routine mine activities, presents a framework for the wildlife monitoring programs, provides the process of improving mitigation and management measures through the process of adaptive management, and outlines reporting requirements.

The purpose of the 2009 monitoring programs was to characterize baseline conditions against which subsequent monitoring programs during the operations phase will be compared. Some programs undertaken in 2010 supplemented this work (i.e., vegetation sampling), while others were compared to the baseline conditions established in 2009. This report provides an overview of the Wolverine Project site activities undertaken as per the WPP in 2010, as well as a detailed summary of the activities and wildlife monitoring programs that were completed.

Figure 1-1: Wolverine Project Location, Yukon

1.1 Project Development

The focus of YZC's activities in 2010 was the development of the Wolverine Project for operation.

Mine surface infrastructure construction and underground mine development continued into 2010, and included the following activities:

- Access road improvements (i.e., widening, grading, ditching, defining shoulders and culvert installation, slope stabilization and progressive reclamation);
- Operation of quarry area (i.e., blasting and crushing activities at KM 19) and concrete batch plant (operation of batch plant ceased in May 2010);
- Completed construction of crusher, mill, and concentrate load out buildings and installation of mechanical, piping, and electrical services;
- Installation of reclaim pump/barge within the tailings facility, connection of reclaim and tailings pipelines and construction of seepage collection pond; and,
- Underground mine ramp and stope rehabilitation and development.

2 Summary of 2010 WPP Programs

Provided below are summaries of the activities completed in 2010 that fulfill YZC's commitments outlined under *WPP Section 4: Wildlife Protection Procedures,* including wildlife safety training and consultation with the local outfitting concession holder. A summary of Wildlife Technical Committee (WTC) involvement is also provided.

2.1 Wildlife Safety Training

Under WPP Section 4.1: Protection Procedure 1, YZC committed to providing mine personnel and contractors with wildlife safety training. During site orientation training for all employees, contractors and visitors, wildlife protection measures and reporting requirements were outlined. Specific wildlife safety training sessions (total of four) were delivered to all on-site personnel (including contractors) by the YZC Environmental Department at the Wolverine Mine throughout September 2010.

The training sessions focused on the importance of wildlife protection, both for the wildlife and the safety for those working/living in camp, and emphasized the need to follow the wildlife protection policies that are implemented on site.

Questions and open discussion during the training programs centered on the increased presence of 'nuisance wildlife' (e.g., foxes, coyotes, and ravens) on site, and approaches to minimize the attraction of wildlife, including:

- Maintaining a tidy work area and keeping pick-up trucks free of miscellaneous garbage and debris;
- Following the 'No Littering' and 'No Feeding of Wildlife' policies, with discussions surrounding the rationale behind them (note: a number of signs were also posted around site reminding personnel of these policies);
- Being an active participant in the garbage separation and disposal (i.e., waste management) system on site;

- Ensuring spill kits are adequately replenished so that spills of hydrocarbons and antifreeze (which, if ingested, is fatal for animals) are collected and disposed of in a timely manner; and,
- The importance of reporting wildlife observations and locations where wildlife are most frequently seen at the mine site.

2.2 Consultation with Local Outfitting Concession Holder

As per *WPP Section 4.2: Protection Measure 3*, the local outfitting concession holder, Teslin Oufitters, was contacted by YZC on July 16, 2010 and a message was left indicating that YZC's operational activities were outside of Teslin Outfitters active outfitting areas for 2010, and therefore their activities would not be compromised. No response was received from Teslin Outfitters so it was assumed there was no conflict.

2.3 Summary of Wildlife Technical Committee Activities

In 2010, the Wildlife Technical Committee was contacted in March to review the draft 2009 Annual Report. Comments were not received from the Ross River Dena Council wildlife technical committee members. Yukon Environment reviewed the report and had no specific concerns with the report layout or content, and made some general comments on the results with respect to the spatial distribution of animal and metal concentration variation between the small mammal species. Keyeh Nejeh Golder (KNG) was contracted by YZC on behalf of the Laird First Nation Development Corporation, and they provided comments subsequent to the submission of the report to Energy, Mines and Resources. Nevertheless, the KNG review comments were beneficial in directing revisions in data presentation that have been incorporated into this 2010 Annual Report.

Due to delays in mine operation, the 2010 sampling program was conducted as prescribed in the Wildlife Protection Plan, and this information adds to the baseline information collected in 2009. The Wildlife Technical Committee will receive a copy of this report, and dialogue prior to the 2011 field program will be initiated.

3 Wildlife Monitoring Programs

The wildlife monitoring programs that continued or were initiated in 2010 as outlined in *WPP Section 5* include:

- Wildlife Records;
- Winter Wildlife Monitoring;
- Vegetation Metals;
- Tailings Facility Monitoring; and
- Regional Wildlife Monitoring.

The description for each program includes the Study Area, sampling locations and methods are provided in the appendices of the WPP. Section 3.1 summarized the required wildlife research permits; Sections 3.2 through 3.6 outline the results of the above programs for studies undertaken in 2010; and recommendations for program modifications are summarized in Section 3.7.

3.1 Wildlife Research Permits

The Small Mammal Metals program was not required during 2010, and therefore, acquisition of a *Wildlife Research Permit* was not necessary.

3.2 Wildlife Records Program

The Wildlife Records Program consists of reporting of wildlife observations and incidents within the mine site area and along the access road. The information collected from this program provides incidental data on wildlife occurrences to identify existing and/or potential issues and/or areas of concern in relation to project components.

3.2.1 2010 Wildlife Observations

Wildlife observations were reported to site management, crew supervisors, and/or recorded in the wildlife log posted in various locations around site. Between January and December 2010, 26 wildlife species (Table 3-1) were documented in proximity to the exploration camp, mine site, camp complex, tailings facility, landfill, and access road. Table 3-2 provides a summary by month of all wildlife observations reported in 2010. The 2010 wildlife log for the incidental wildlife observation program is provided in Appendix A. In addition to site data, six reports of wildlife on the Robert Campbell Highway were made to site management, and while not summarized in Table 3-2 (as YZC is not responsible for activities on the Robert Campbell Highway), are included in Appendix A. While there are no reports of wildlife observations in September, October and December 2010 (Appendix A), this is likely due to a lack of reporting, and not due to a lack of wildlife.

Table 3-1: Wildlife Species List from 2010 Reported Wildlife Observations

Common Name	Scientific Name	Common Name	Scientific Name
Woodland Caribou	*Rangifer tarandus caribou*	Porcupine	*Erethizon dorsatum*
Moose	*Alces alces*	Snowshoe Hare	*Lepus americanus*
Red fox	*Vulpes vulpes*	Ptarmigan	*Lagopus* sp.
Grey Wolf	*Canis lupus*	Bald Eagle	*Haliaeetus leucocephalus*
Marten	*Martes americanus*	Crane sp.	*Grus sp.*
River Otter	*Lontra canadensis*	Eagle sp.	Unspecified species
Lynx	*Lynx canadensis*	Piper sp.	Unspecified species
Black Bear	*Ursus americanus*	Wolverine	*Gulo gulo*
Red Squirrel	*Tamiasciurus hudsonicus*	Weasel sp.	*Mustela sp.*
Chipmunk	*Tamias* sp.	Swan sp.	Unspecified species
Coyote	*Canis latrans*	Duck so.	Unspecified species
Grizzly Bear	*Ursus arctos*	Raven	*Corvus corax*
Sandpiper sp.	Unspecified species	Mouse sp.	Unspecified species

Table 3-2: Summary of Reported Wildlife Observations within the Wolverine Mine Area in 2010

Species	Access Rd (KM 1-24)	Tailings Pond/Airstrip/Landfill (KM 24-27)	Camp & Industrial Complex (KM 27-29)	Exploration Road/Camp (KM 29–32)	Species	Access Rd (KM 1-24)	Tailings Pond/Airstrip/Landfill (KM 24-27)	Camp & Industrial Complex (KM 27-29)	Exploration Road/Camp (KM 29–32)	Species	Access Rd (KM 1-24)	Tailings Pond/Airstrip/Landfill (KM 24-27)	Camp & Industrial Complex (KM 27-29)	Exploration Road/Camp (KM 29–32)
January					***June***					***September***				
Coyote					Caribou	1	7	3		Moose	2			
Squirrel					Fox		5	1		Otter				2
Caribou					Porcupine	3	5			Fox	2	2		
February					Weasel	1				Wolverine			1	
Moose	2				Grizzly Bear	1	1	2		Porcupine			2	
Coyote		1	2		Black Bear	6				Eagle sp.		3		
Fox			2		Bald Eagle				1	Crane		25+ "lots"		"lots"
Raven		16			Marten	1				***October***				
Wolf					***July***					Moose		1		
March					Moose	4	3		1	Fox		10		
Coyote		1	1		Caribou	1	2	1		Porcupine	1			
Fox			2		Fox		7	1		Mouse sp.		1		
Lynx	2				Wolf	8				Cranes		30		
April					Porcupine	1	5	1		Swans		20		
Moose	2				Duck sp.		6			***November***				
Coyote		1	1		Piper sp.		1			Moose	2			
Fox		1	1		Bald Eagle				1	Fox		13		
Bald Eagle			2		Grizzly Bear	1				Caribou	24			
Chipmunk	1				***August***					Mouse sp.			1	
Wolverine		1			Moose	1				Wolf	2			
Porcupine	1				Caribou	5	1			Ptarmigan		7		
Ptarmigan	1				Fox		2	2		***December***				
Caribou		1			Porcupine		1	1		Moose	7	2		
Grizzly Bear	1				Wolverine		1			Caribou				40
Black Bear										Fox			2	
May														
Moose	2													
Caribou	5	4	4	3										
Fox		1												
Wolf		1												
Porcupine	11	1	1											
Grizzly Bear	2													
Black Bear	1													
Chipmunk			1											
Piper sp.		3												
Duck sp.		3												
Crane sp.		~150												

3.2.2 2010 Wildlife Incidents

Wildlife incidents were reported to Site Management as soon as they occurred, and reports were completed for all of the seven wildlife incidents that occurred in 2010. Table 3-3 provides incident date, the wildlife involved, and the nature of each incident. Apart from the sparrow fatality, there were no incidents that caused harm to wildlife or a major safety concern.

Table 3-3: 2010 Wildlife Incidents

Date	Wildlife Involved	Nature of Incident
23-Jan-10	1 Red Fox	Tracks seen near sewage that was temporarily being dumped into the Tailings Facility during the construction phase of the project.
29-Jan-10	1 Raven	Raven seen eating sewage in Tailings Facility (see above)
13-Sep-10	1 Sparrow sp.	Found dead in parking lot; cause of death unknown
23-Oct-10	1 Red Fox	Live-trapped at Landfill and relocated
25-Oct-10	1 Red Fox	Live-trapped at Procon shop (AM), and relocated
25-Oct-10	1 Red Fox	Live-trapped at KM 27 (PM), and relocated
27-Oct-10	1 Red Fox	Live trapped at Procon shop and relocated
01-Nov-10	1 Red Fox; 3 Ravens	Found rummaging through garbage bin left open

Of the eight wildlife incidents, four involved live-trapping and relocating of foxes that were frequently observed around the general mine site and deemed a safety concern. The first relocation was assisted by the Yukon Environment Conservation Officer from Ross River, and the remaining three were conducted by personnel from YZC's Environmental Department. All relocations failed, in that each of the relocated foxes returned to site within two days. However, the number of foxes observed around the mine site declined as the year progressed, in part due to the constant enforcement of the 'No Littering' and 'No Feeding of Wildlife' policies implemented on site and the delivery of 'Wildlife Safety Training' sessions (refer to Section 2.1 for further details).

3.3 Winter Wildlife Monitoring

The Study Areas for the Winter Wildlife Monitoring Program include the Mine Site Study Area (MSSA), Putt Creek Study Area (PCSA), and Money Creek Study Area (MCSA). The MSSA encompasses the Wolverine Project mine site, including mine portal, tailings facility, camp complex, industrial complex, airstrip, and landfill. The PCSA encompasses the access road that connects the mine site to the Robert Campbell Highway. The MCSA (referred to in the WPP as the Money Creek Reference Area or MCRA) is the reference control site for the program and encompasses the Money Creek watershed, located south of the main mine site area.

3.3.1 2010 Summary and Monitoring Schedule

Winter Wildlife Monitoring is scheduled to occur from October to April annually, as snow conditions permit, and at least once every four weeks within that period. The 2009 Winter

Wildlife Monitoring Program continued in 2010 from January to April, and recommenced from October to December. All monitoring was carried out by trained YZC personnel. In 2010, an additional winter wildlife monitoring transect was established in April (as recommended in the *Wildlife Protection Plan 2009 Annual Monitoring Report*) to bisect the valley bottom within the PCSA to monitor wildlife that migrate across the valley, perpendicular to the other transects that parallel the road (labelled "PCSA-WT04 in the tables and figures below). Table 3-4 provides details on each of the monitoring transects (including NAD83 easting and northing co-ordinates for points of commencement (POC) and points of termination (POT), transect length, Study Area and transect ID) as well as the dates the transects were monitored in 2010.

Table 3-4: 2010 Winter Monitoring Transects Summary and Monitoring Schedule

Study Area	Transect ID	POC Coordinates		POT Coordinates		Transect Length (m)	Monitoring Schedule
		Easting	Northing	Easting	Northing		
MCSA	MCSA-WT01	444059	6805764	442561	6807991	1400	09-Jan, 19 Feb, 14-Mar, 12-Apr, 28-Nov
MCSA	MCSA-WT02	443582	6804151	442561	6807991	3500	09-Jan, 19 Feb, 14-Mar, 12-Apr, 06-Dec
MSSA	MSSA-WT01	439000	6811459	437381	6812665	2000	10-Jan, 06-Feb, 29-Mar, 12-Oct, 22-Nov, 18-Dec
MSSA	MSSA-WT02	438474	6812355	439661	6811320	1100	14-Jan, 04-Feb, 29-Mar, 31-Oct, 22-Nov, 31-Dec
MSSA	MSSA-WT03	441972	6809022	442606	6808088	800	14-Jan, 26-Feb, 31-Mar, 08-Apr, 19-Oct, 26-Nov, 31-Dec
MSSA	MSSA-WT04	440513	6810504	441041	6809862	800	25-Jan, 18-Feb, 29-Mar, 08-Apr, 19-Oct, 25-Nov-, 25-Dec
MSSA	MSSA-WT05	440222	6810352	442661	6807797	3100	09-Jan, 19-Feb, 14-Mar, 12-Apr, 06-Dec
PCSA	PCSA-WT01	452486	6816714	452914	6818695	2020	02-Jan, 08-Feb, 22-Mar, 16-Apr, 07-Nov, 03-Dec
PCSA	PCSA-WT02	450450	6812277	450600	6814375	2100	04-Jan, 18-Feb, 22-Mar, 11-Apr, 05-Nov, 08-Dec
PCSA	PCSA-WT03	450673	6811319	450450	6812277	1000	04-Jan, 18-Feb, 22-Mar, 11-Apr, 07-Nov, 08-Dec
PCSA	PCSA-WT04	450554	6814048	450967	6813940	430	18-Nov, 31-Dec

* MSSA = Mine Site Study Area; PCSA = Putt Creek Study Area; MCSA = Money Creek Study Area; POC = Point Of Commencement; POT = Point Of Termination

Attempts were made to sample each transect at least once a month from October to April during the winter sampling periods. However, sampling could not be carried out during some of the months due to the following reasons:

- Lack of sufficient amount of snow to accurately identify wildlife tracks (i.e., in October and April, temperatures during the day would melt the snow and dissolve track characteristics);
- Lack of sufficient amount of snow to allow YZC personnel to safely traverse transects (e.g., in October and November, transects MSCA-WT02 and MSSA-WT05 were extremely

difficult to traverse without causing undue damage to both snow mobiles and YZC personnel); and,

- Damage to snow mobiles requiring repairs (e.g., MCSA-WT01 could not be sampled during December due to damage suffered during sampling of other transects in the same month).

Due to these difficulties in sampling transect MSCA-WT02, it is recommended that the transect be replaced with an alternative trail (see Section 3.7 for justification).

3.3.2 2010 Winter Transect Results

The 2010 field program documented wildlife sign observed along the monitoring transects. A summary of these observations (i.e., location and count) is presented in Figure 3-1 through Figure 3-13 for each species, including American Mink, Marten, American Red Squirrel, Short-tailed Weasel, Vole Sp. (species unknown), Snowshoe Hare, Lynx, Wolf, Coyote, Red Fox, Moose, Woodland Caribou, and Rock Ptarmigan (raw data is provided in Appendix B). For comparative purposes, the observations made in 2009 are also provided in the figures below.

Other observations (e.g., temperature, wind, snow depth, time of last snow fall) were also recorded for all transects monitored, as prescribed in the WPP, and are provided in Appendix B.

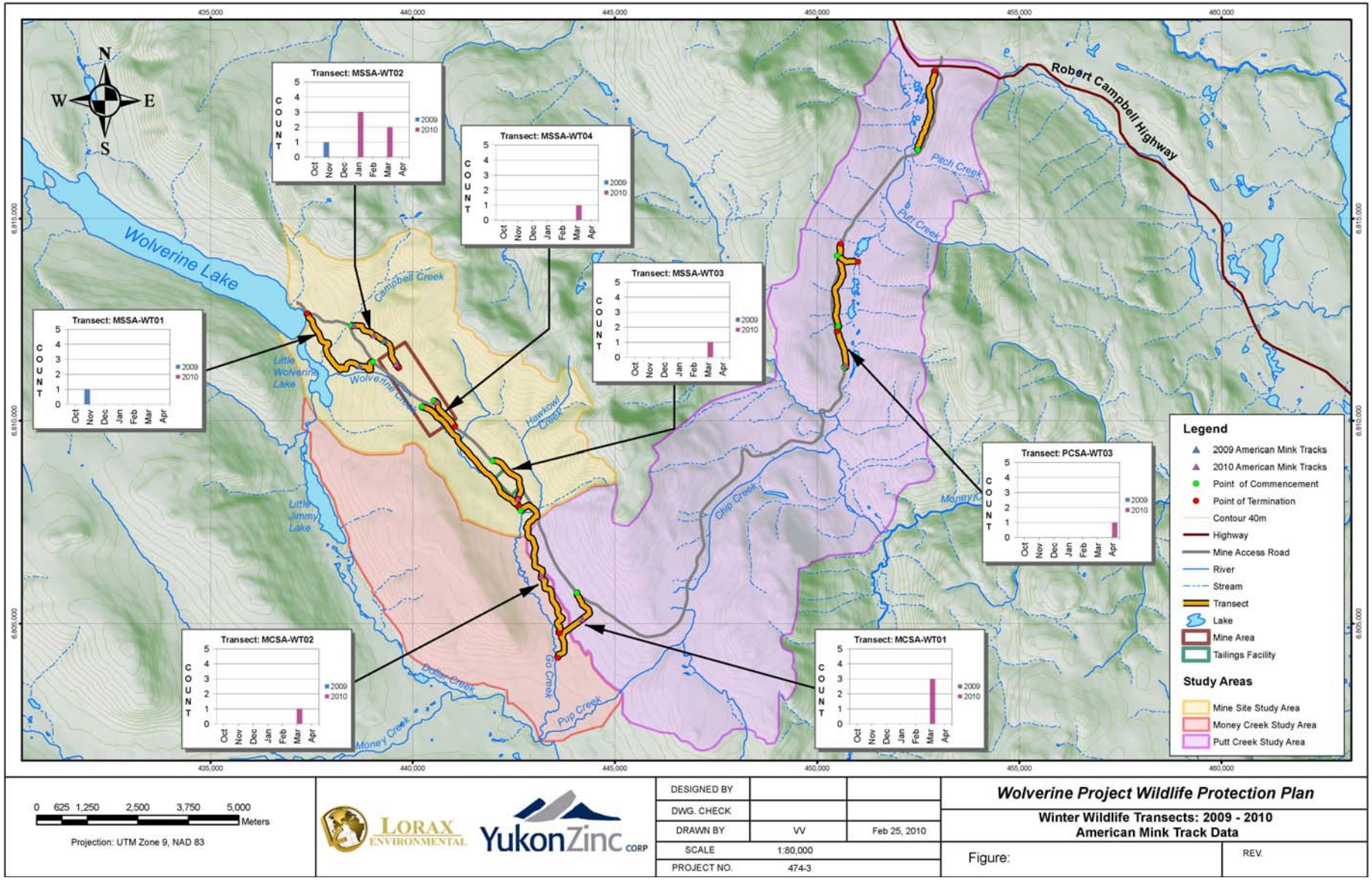

Figure 3-1: American Mink: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

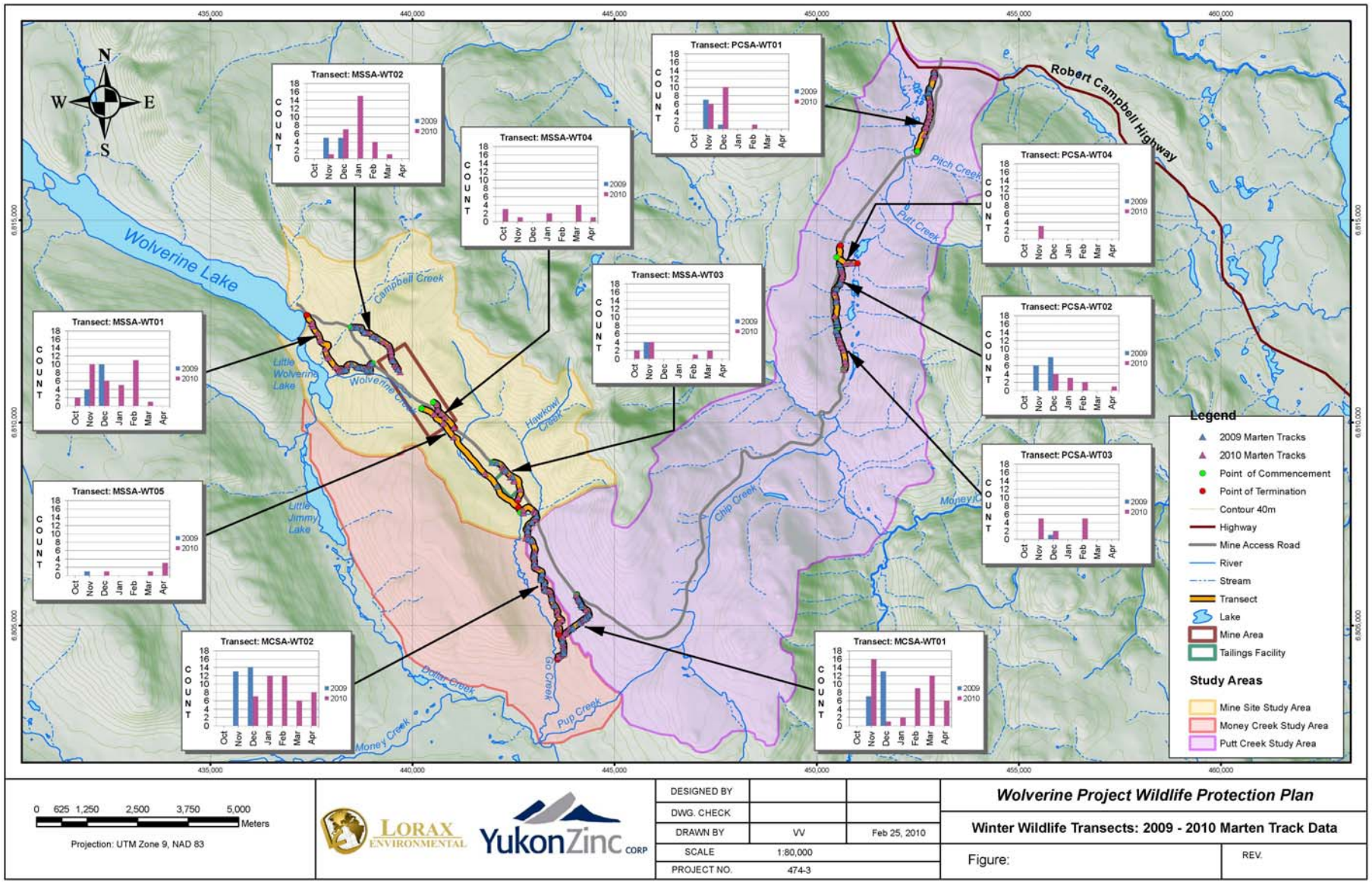

Figure 3-2: Marten: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

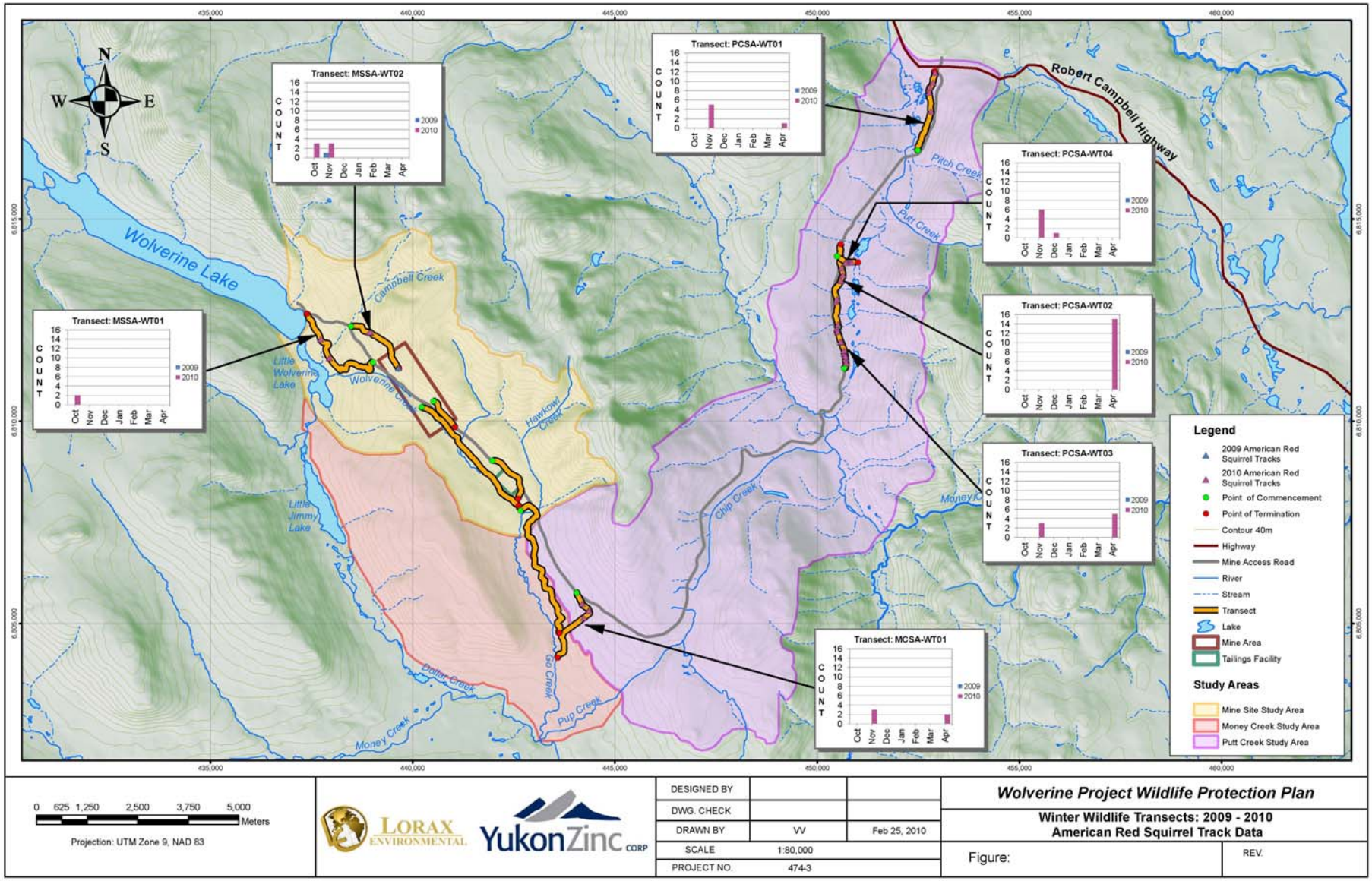

Figure 3-3: American Red Squirrel: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

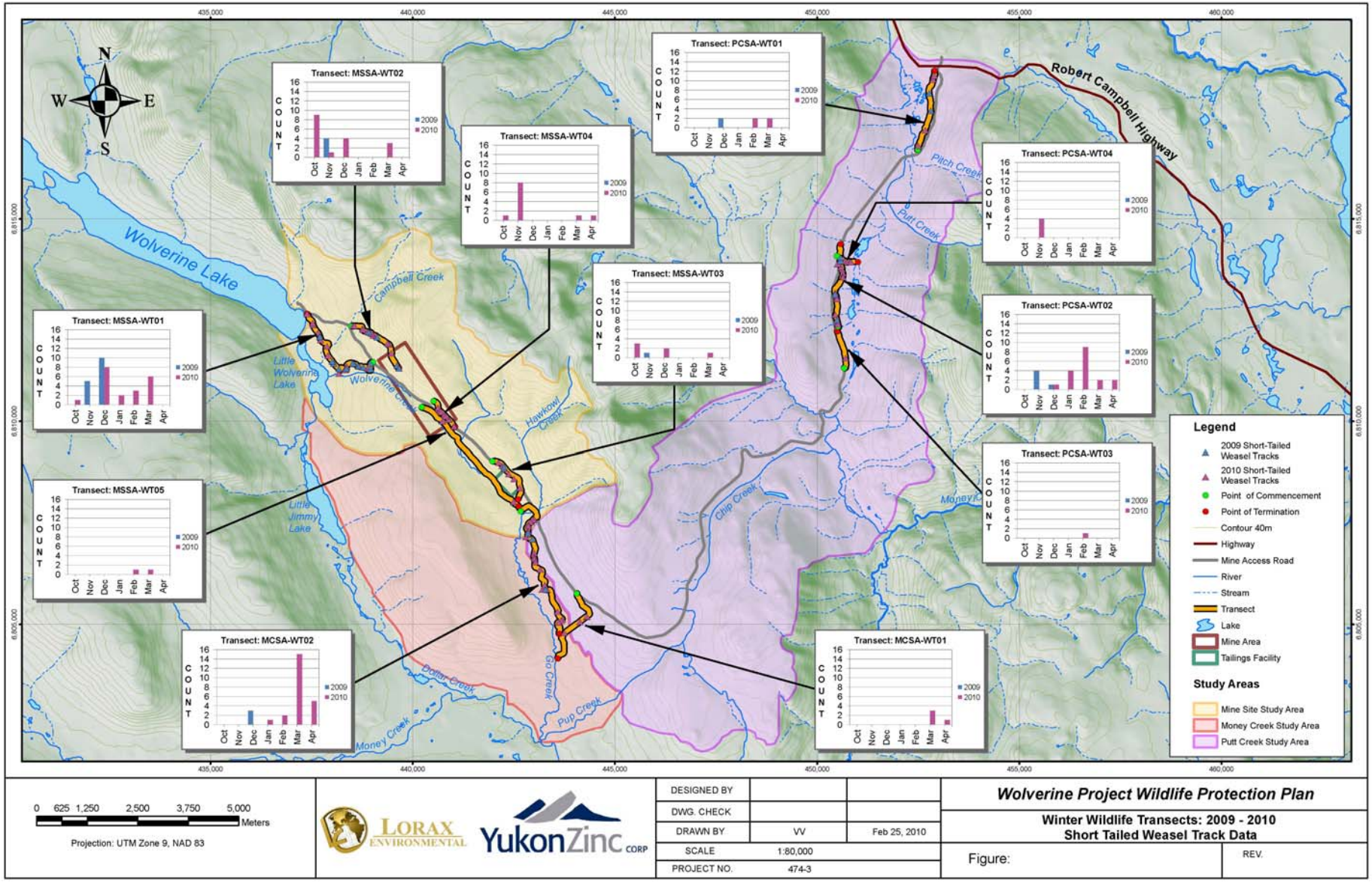

Figure 3-4: Short-Tailed Weasel: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

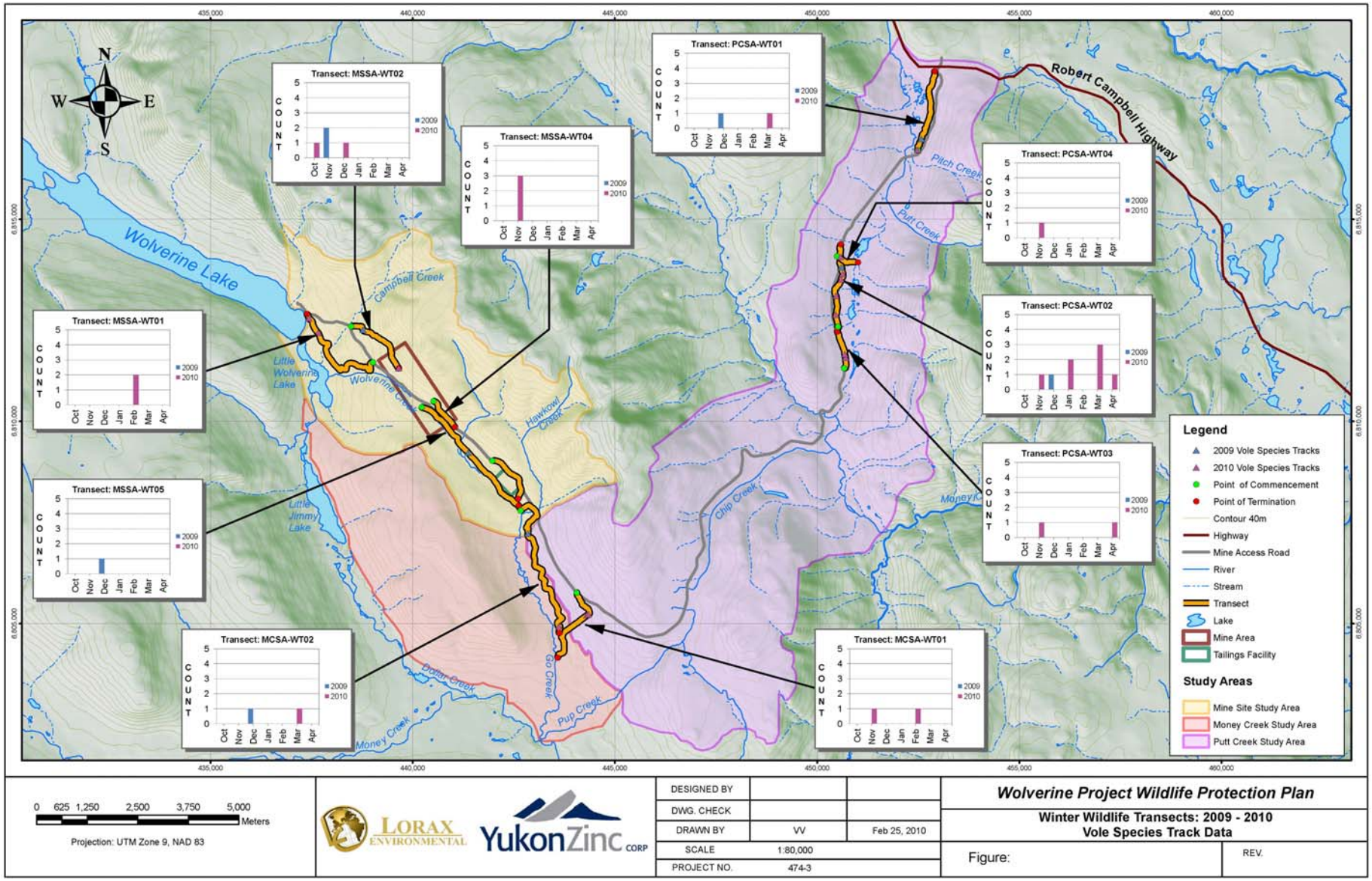

Figure 3-5: Vole Species: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

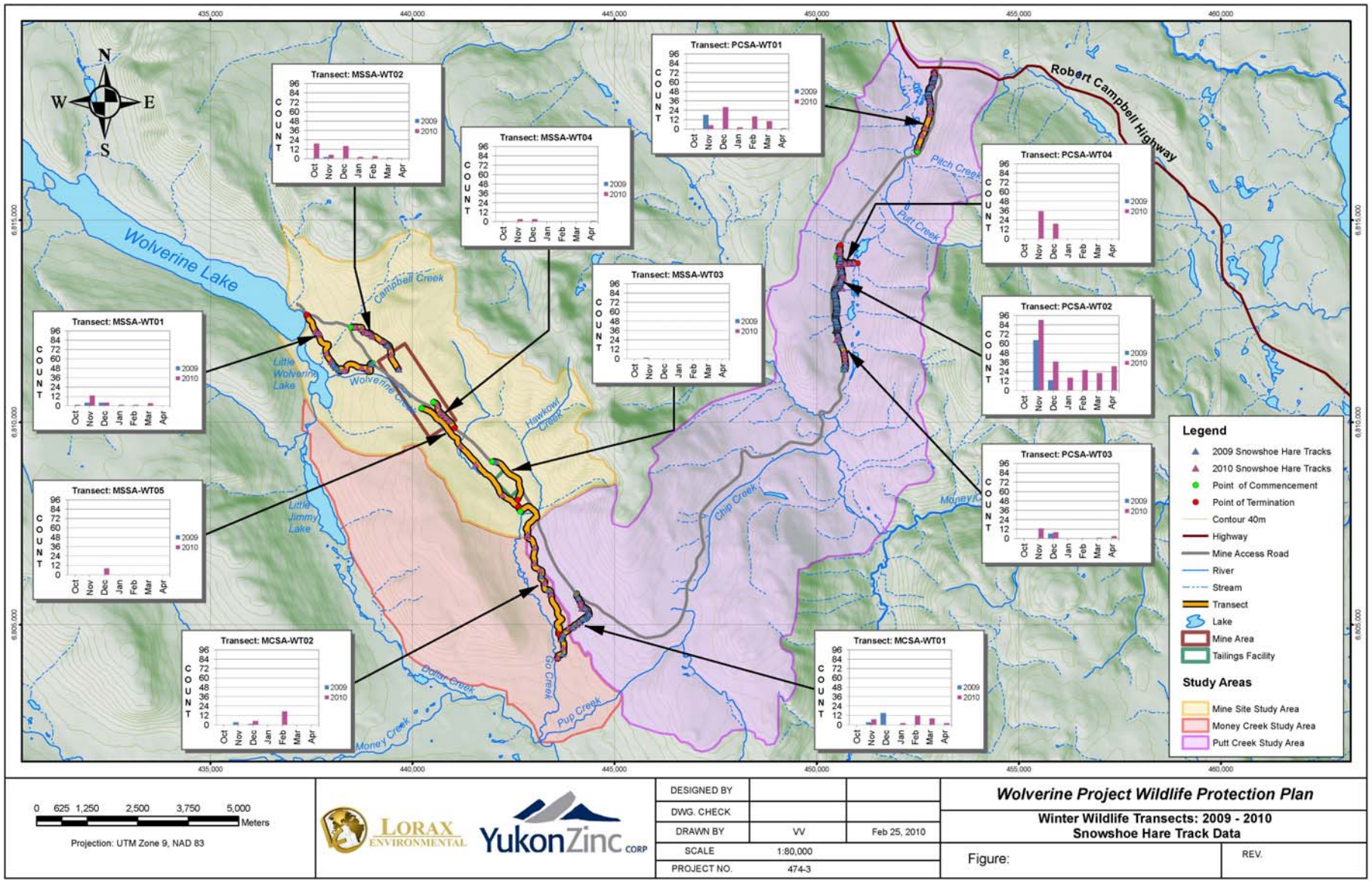

Figure 3-6: Snowshoe Hare: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

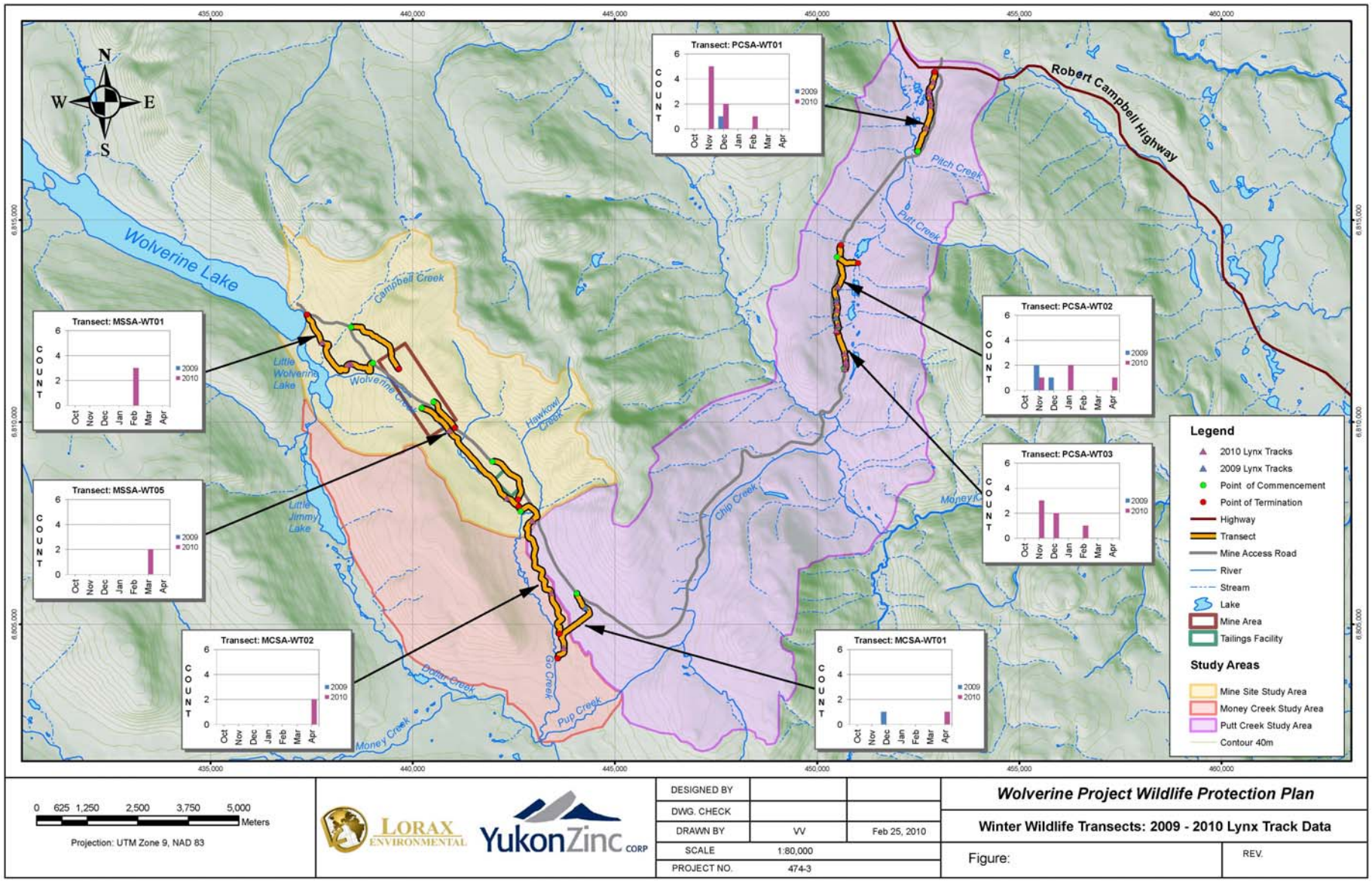

Figure 3-7: Lynx: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

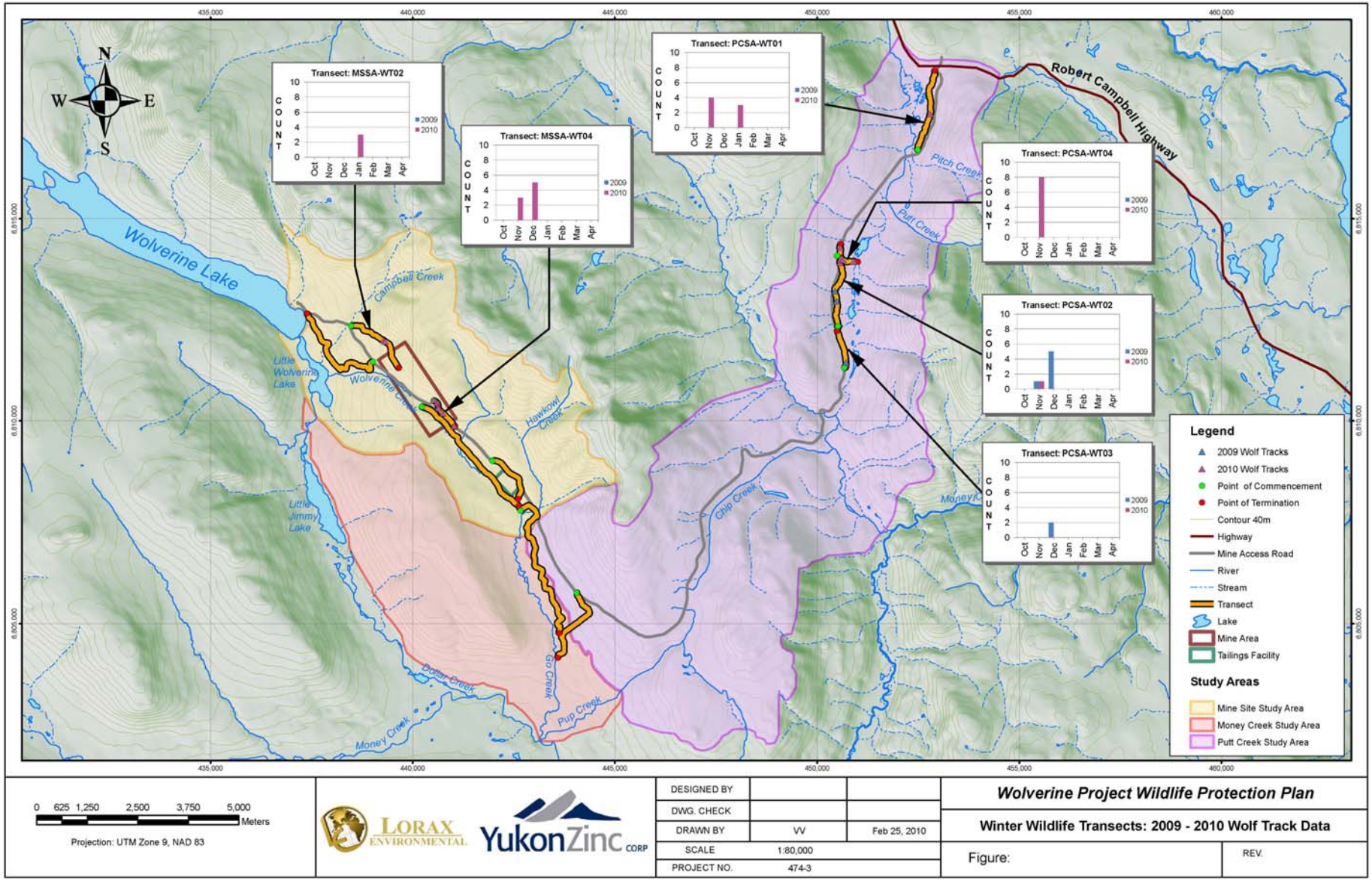

Figure 3-8: Wolf: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

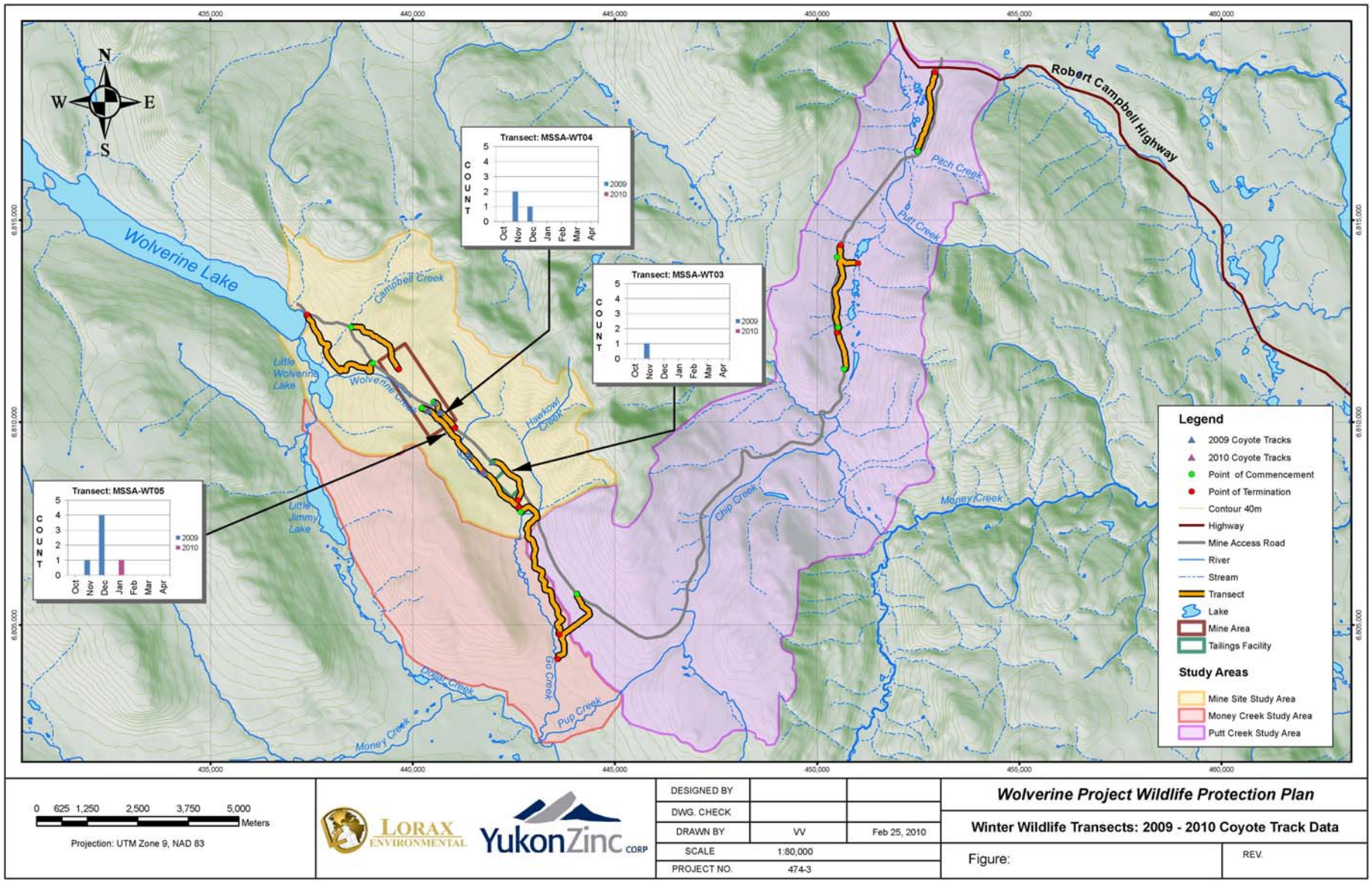

Figure 3-9: Coyote: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

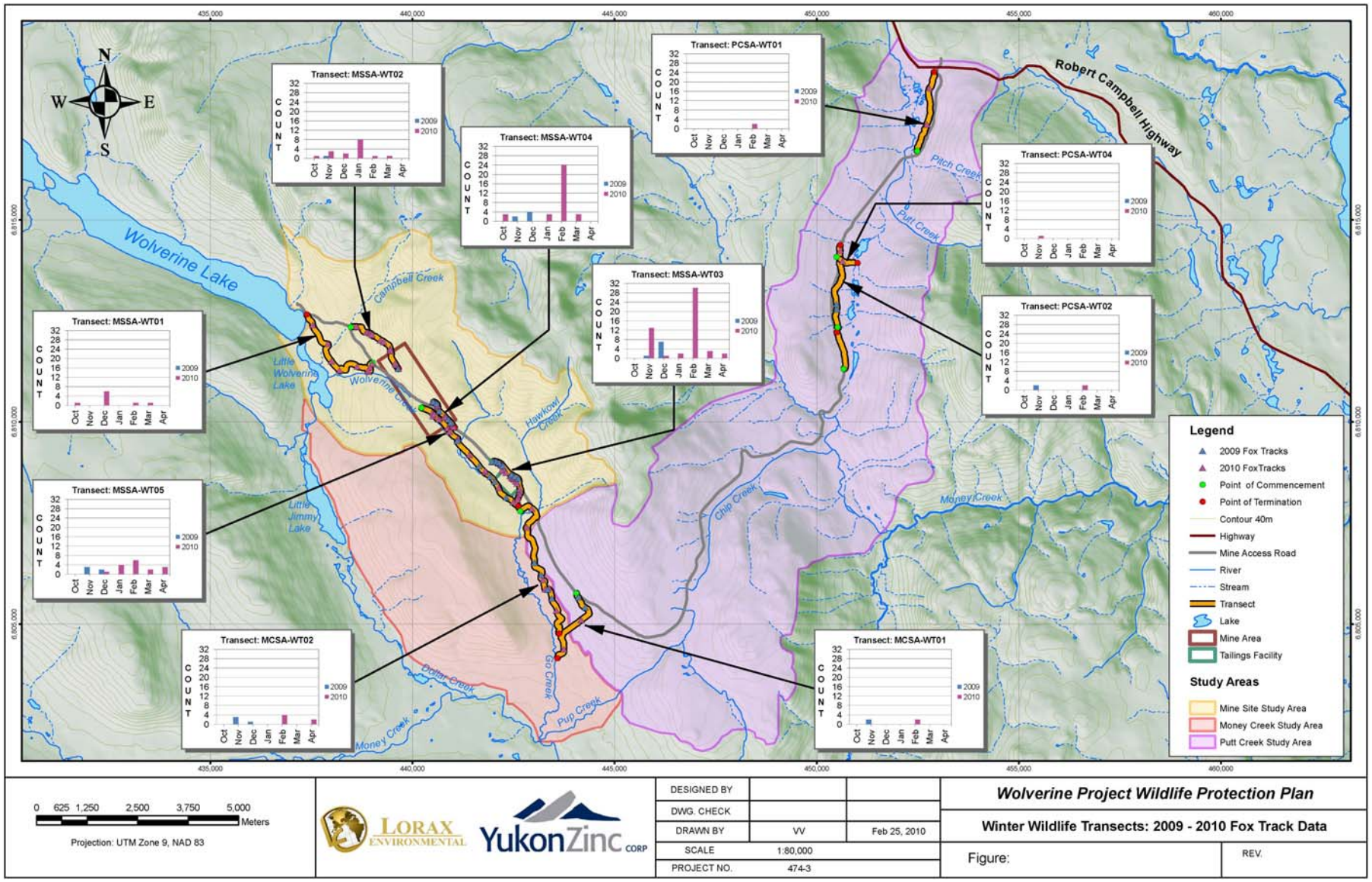

Figure 3-10: Red Fox: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

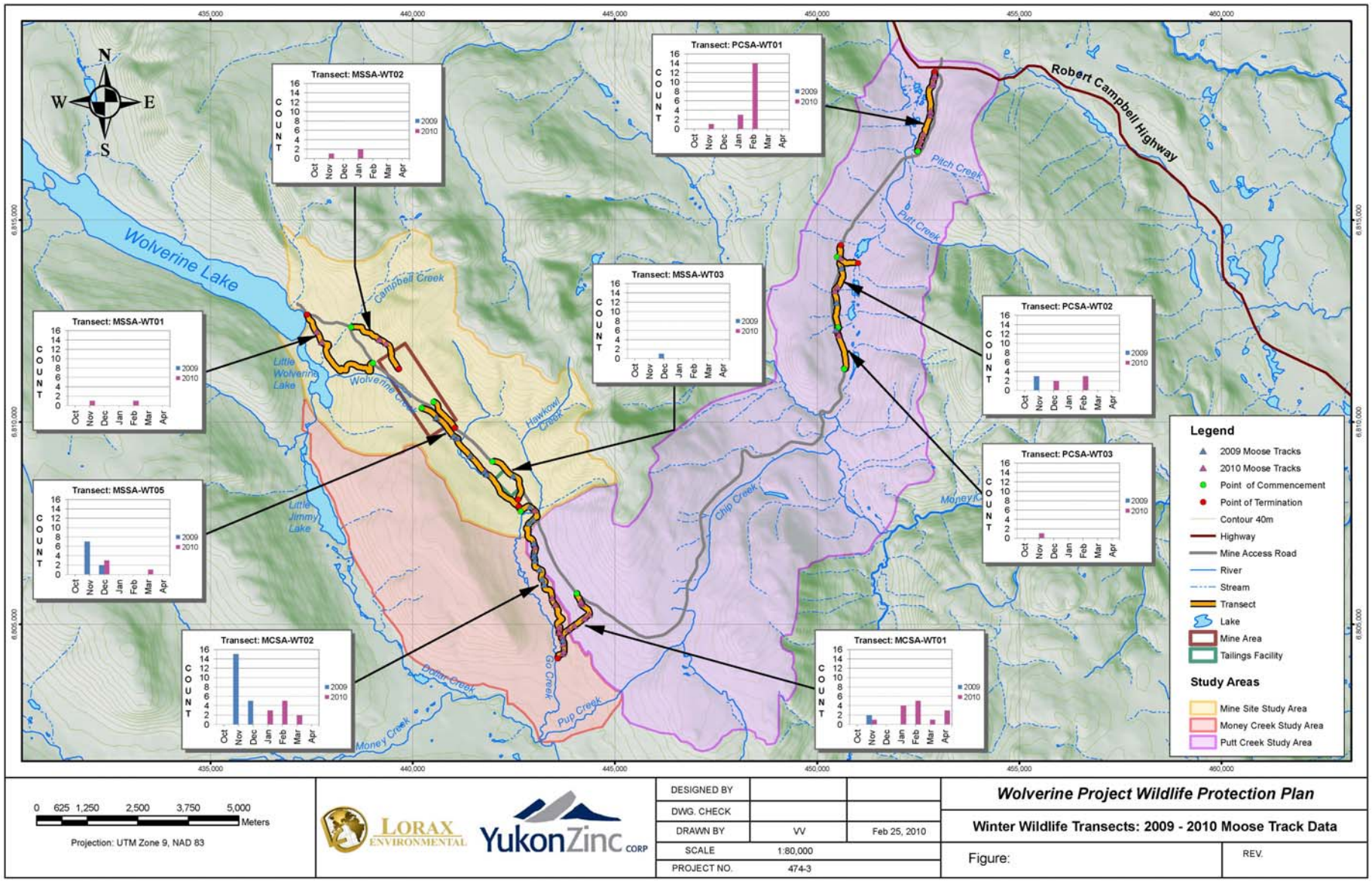

Figure 3-11: Moose: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

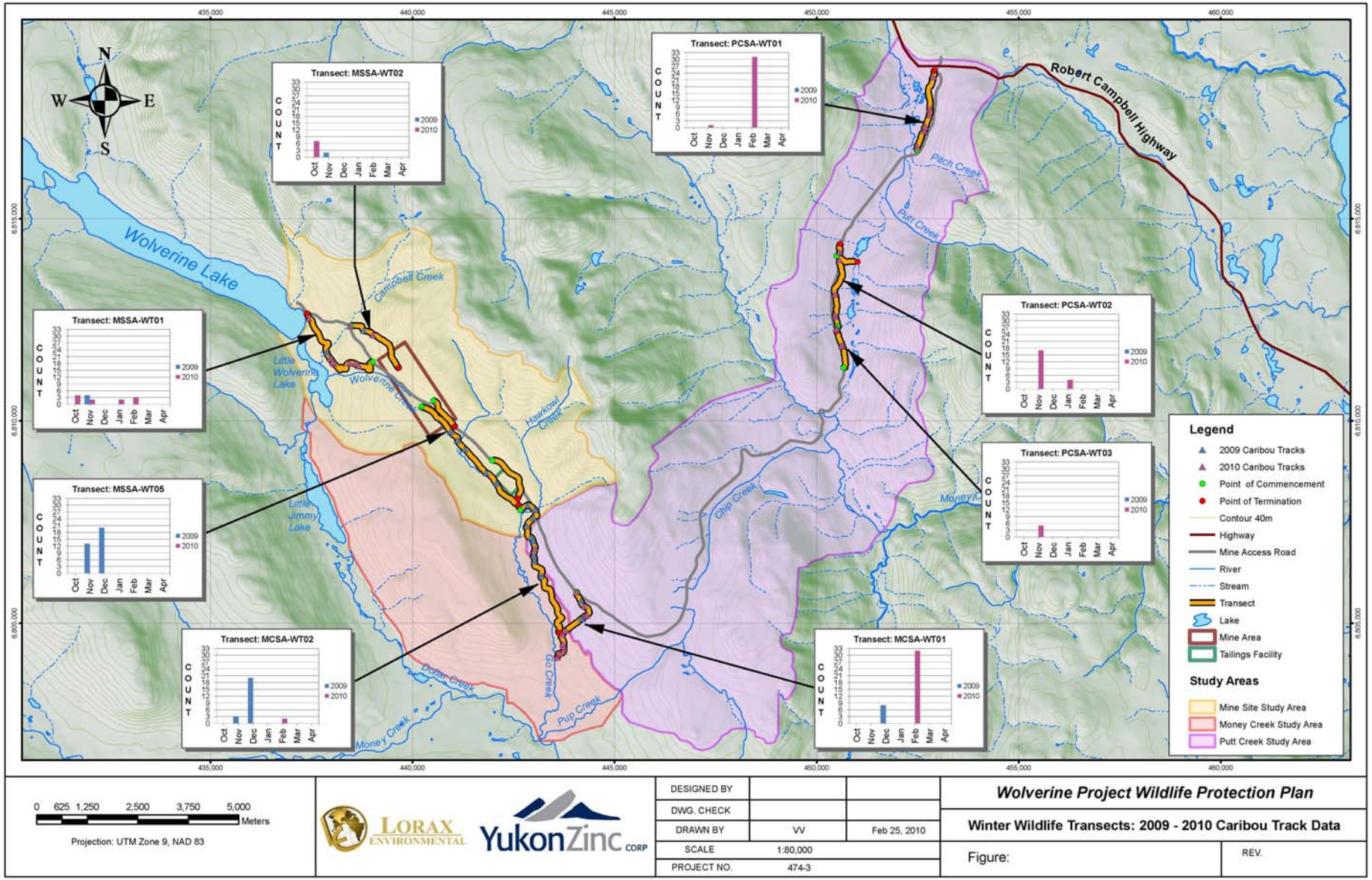

Figure 3-12: Woodland Caribou: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

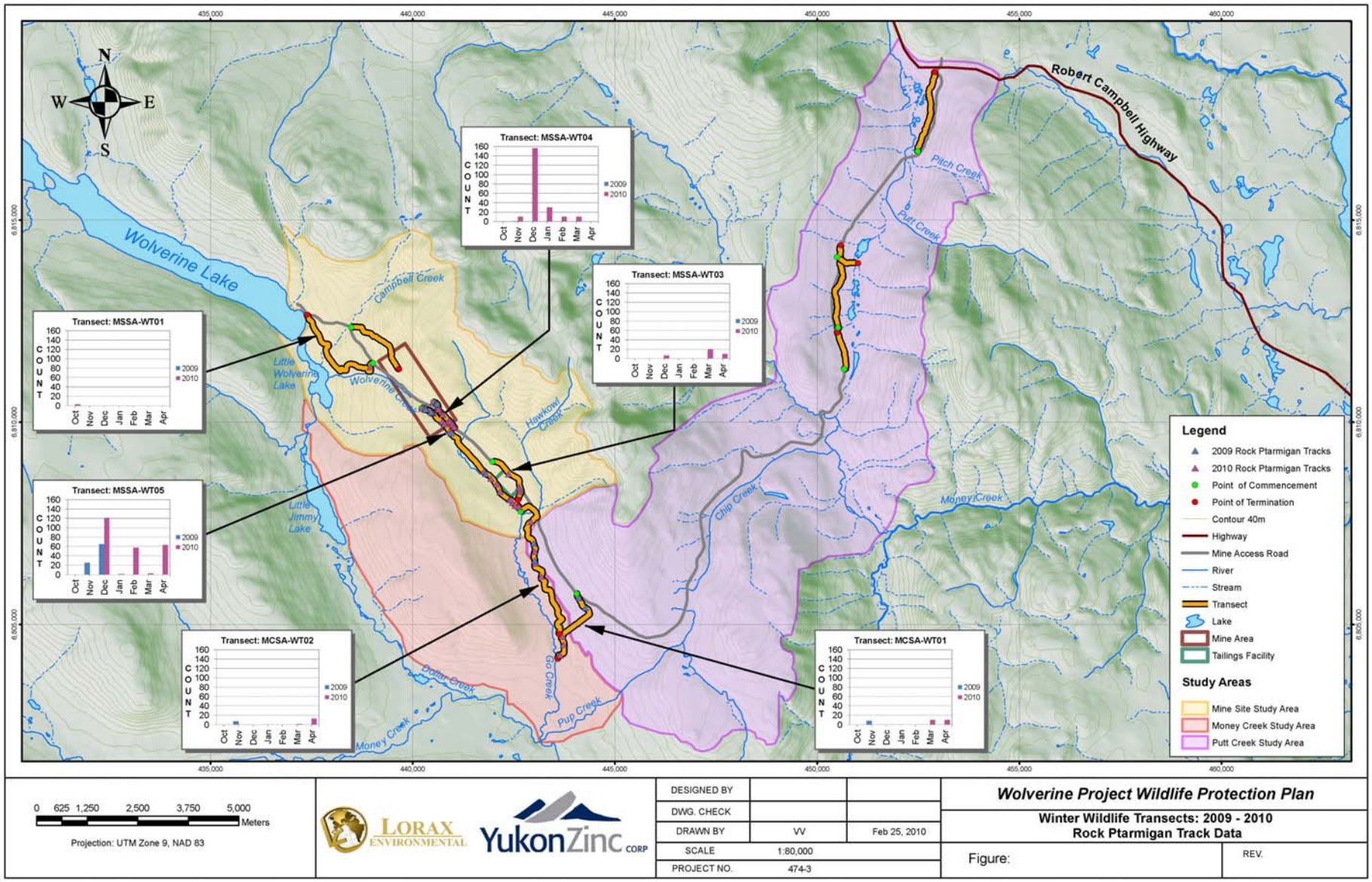

Figure 3-13: Rock Ptarmigan: 2010 Summary of Location and Count Along Established Winter Wildlife Transects

3.4 Metals Levels in Vegetation

The baseline data collection for the vegetation metals levels monitoring program was completed in August 2010, to supplement the baseline data set collected in 2009. Vegetation samples were collected according to the methods outlined in *WPP Appendix F*. The species collected included lichen (*Cladina stellaris*), horsetail (*Equisetum arvense*), and willow (*Salix planifolia*) from the MSSA, PCSA and the MCSA as shown on Figure 3-14.

Laboratory procedures were completed by Maxxam Analytics Inc, an accredited laboratory based in Burnaby, BC. Procedures included dissection of samples, compositing of samples (as required), digestion and metals analysis. Vegetation samples were digested with a nitric-hydrochloric acid mixture to solubilize the solid matter and remove the organic material by oxidation and volatilization. The samples were then analyzed for total metals by inductively coupled plasma mass spectrometry (ICP-MS). Vegetation samples were measured for the 30 elements at the specified laboratory reportable detection limits (RDL) as outlined in Table 3-5.

Table 3-5: Total Metal Analysis Parameters with Reportable Detection Limits

Element	Symbol	RDL (mg/kg)	Element	Symbol	RDL (mg/kg)	Element	Symbol	RDL (mg/kg)
Aluminum	Al	1	**Copper**	Cu	0.5	**Silver**	Ag	0.05
Antimony	Sb	0.1	**Iron**	Fe	10	**Sodium**	Na	10
Arsenic	As	0.01	**Lead**	Pb	0.01	**Strontium**	Sr	0.1
Barium	Ba	0.1	**Magnesium**	Mg	10	**Thallium**	Tl	0.05
Beryillium	Be	0.1	**Manganese**	Mn	0.1	**Tin**	Sn	0.1
Bismuth	Bi	0.1	**Mercury**	Hg	0.01	**Titanium**	Ti	1
Boron	B	5	**Molybdenum**	Mo	0.1	**Uranium**	U	0.05
Cadmium	Cd	0.01	**Nickel**	Ni	0.1	**Vanadium**	V	2
Calcium	Ca	10	**Phosphorus**	P	10	**Zinc**	Zn	0.1
Chromium	Cr	0.5	**Potassium**	K	10			
Cobalt	Co	0.1	**Selenium**	Se	0.01			

RDL = Reportable Detection Limit

3.4.1 2009/2010 Sampling Distribution and Locations

A total of 101 vegetation samples were collected during the 2010 sampling program, which was used to supplement the 37 samples collected in 2009. Table 3-6 outlines the sampling distribution of the three species collected within the Study Areas for each year (2009 and 2010). The sampling locations for each species within the three Study Areas are provided in Figure 3-14, compared to the sampling locations specified in the WPP.

Table 3-6: Distribution of Vegetation Samples Taken In 2009/2010

Vegetation Species	MSSA (2009/2010)	PCSA (2009/2010)	MCSA (2009/2010)
Lichen	4/10	11/10	0/10
Horsetail	3/11	5/12	0/12
Willow	3/12	11/12	0/12
Total samples	43	61	34

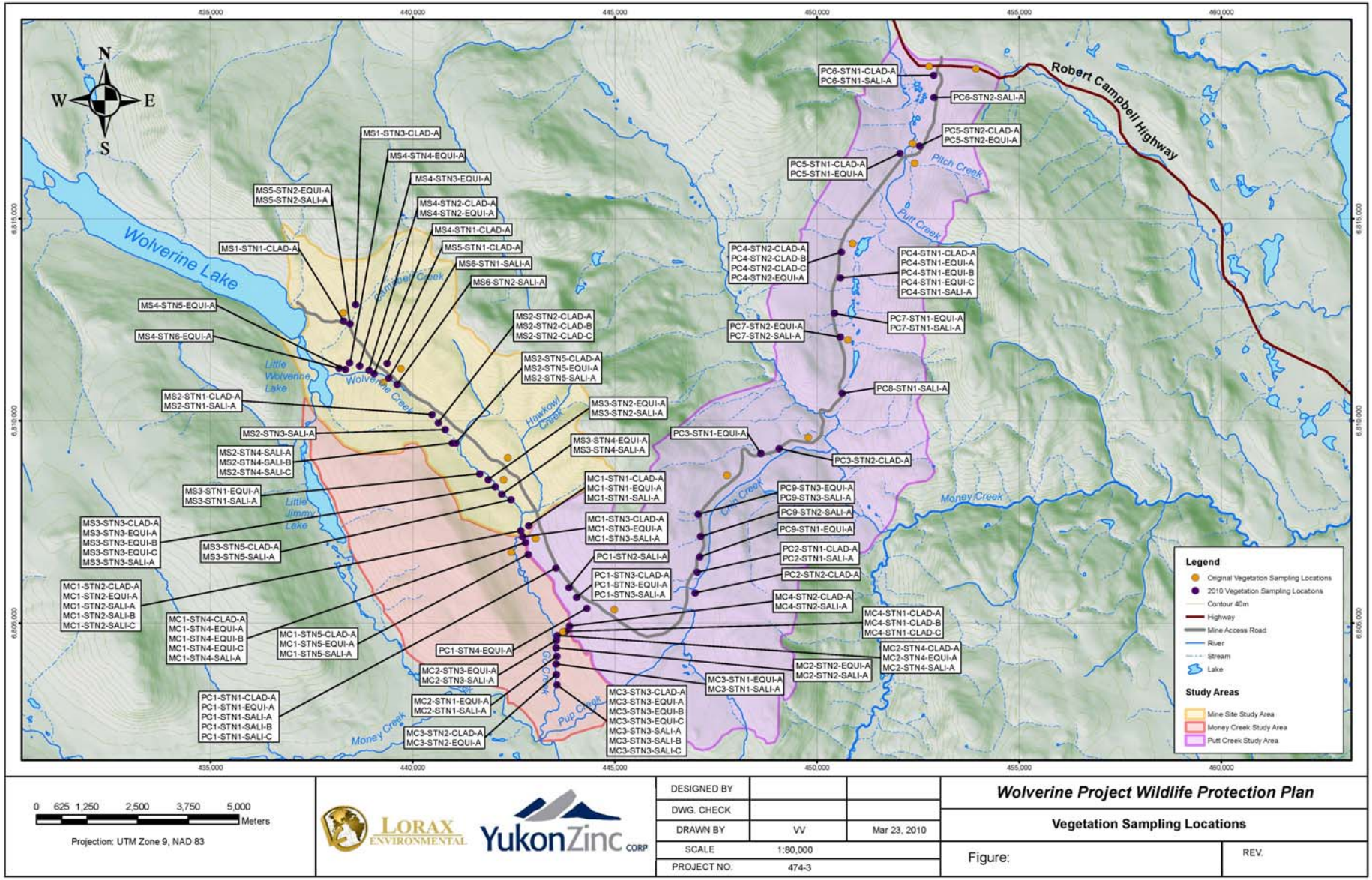

Figure 3-14: Vegetation Sampling Locations 2010

3.4.2 2010 Sampling Analysis and Results

Potential parameters of concern (arsenic, copper, lead, nickel, selenium, cadmium, and zinc) are examined in detail in sections 3.4.2.1 to 3.4.2.7, respectively (original 2010 laboratory reports are available in Appendix C). The 2009 data was combined with the 2010 data when conducted the analysis contained herein to provide baseline (i.e., prior to mining impacts) values (2009 data was provided in the *Wolverine Project Wildlife Protection Plan 2009 Annual Monitoring Report – Appendix D*).

Statistical comparisons using Analysis of Variance (ANOVA) were made to determine if significant differences exist between the mean total metals from each vegetation species of the active operating Study Areas (PCSA and MSSA) and the reference Study Area (MCSA). When making comparisons, a 95% confidence value ($\alpha = 0.05$) was used. The results of these comparisons are summarized in a table for each parameter in Appendix D and support the graphs generated for each parameter. For statistical and graphing purposes, parameters that were below the detection limit were taken as equal to the detection limit.

Overall, the metals examined resulted in naturally high baseline concentrations; although certain metals were found to be significantly higher when compared between Study Areas for given vegetation species (see following sections). If not discussed below, it can be assumed that there was no statistical difference between vegetation types and between the three Study Areas.

Of the seven metals examined, zinc showed comparably higher mean concentrations for all three vegetation species, and was in some instances at least an order of magnitude higher than the next highest metal concentration within the same Study Area. For example, Willow resulted in zinc values of 206.3 mg/kg, 163.1 mg/kg, and 138.8 mg/kg in the MSSA, PCSA, and MSSA, respectively, compared to copper values of 4.2 mg/kg, 4.7 mg/kg, and 3.2 mg/kg in the same Study Areas.

3.4.2.1 Arsenic Results

The mean total arsenic concentrations for Lichen, Horsetail and Willow within each Study Area are presented in Figure 3-15. Statistical comparisons revealed that the mean total arsenic concentration for both Lichen and Willow were significantly lower in the MCSA than both the MSSA and PCSA. Mean total arsenic concentration for Willow was also significantly lower in the MCSA than PCSA.

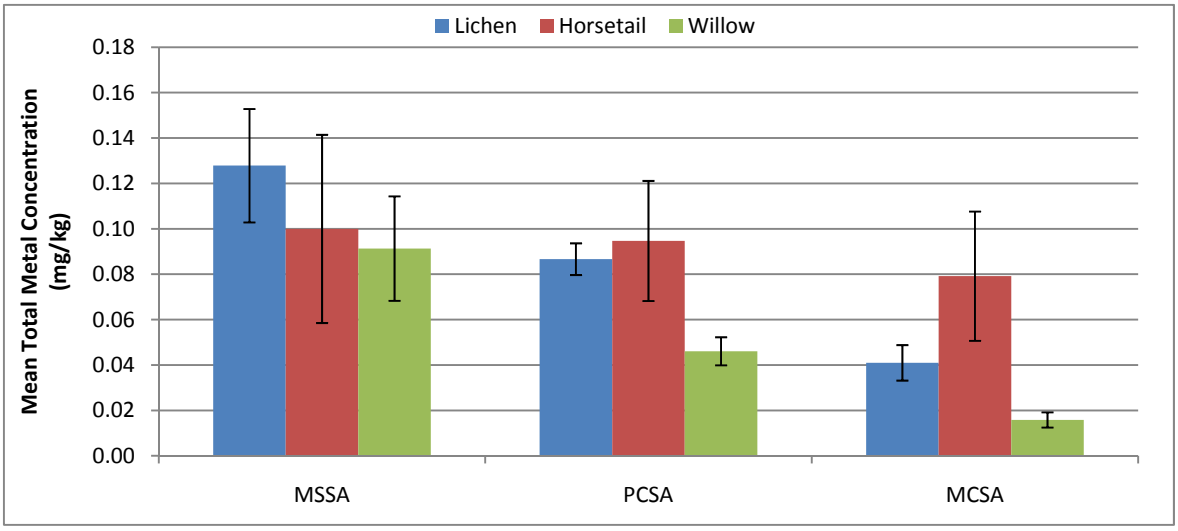

Figure 3-15: Mean Total Arsenic Concentrations (With Standard Error Bars) For Lichen, Horsetail and Willow Species.

3.4.2.2 Cadmium Results

The mean total cadmium concentrations for Lichen, Horsetail and Willow within each area are presented in Figure 3-16. Statistical comparisons revealed that the mean total cadmium concentration for Willow was significantly lower in the MSSA than the PCSA, but was significantly higher in the MSSA than both the PCSA and MCSA for Horsetail.

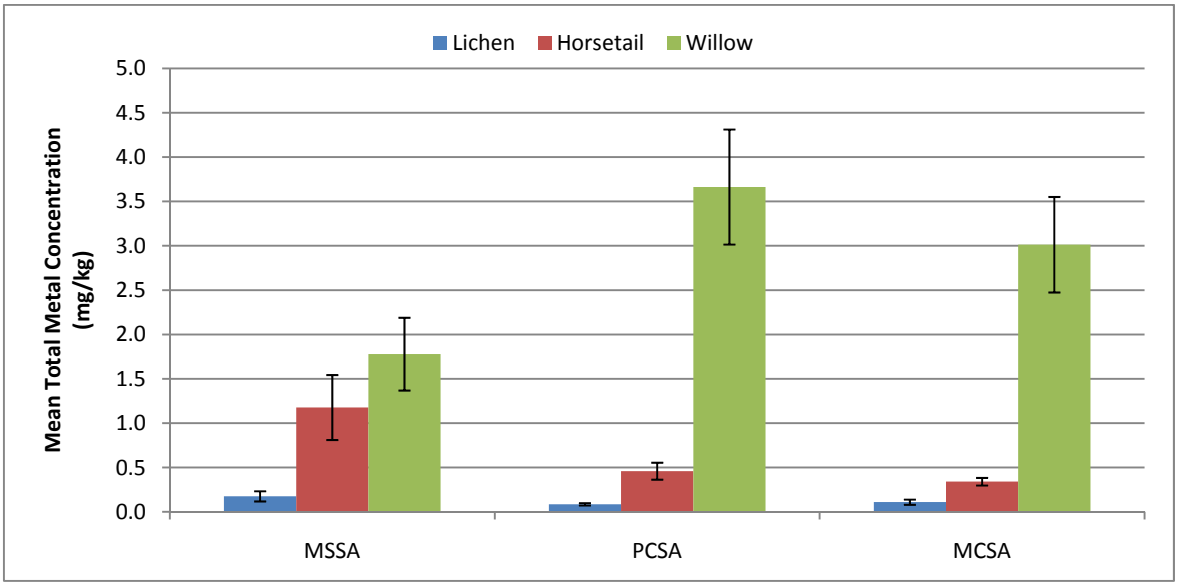

Figure 3-16: Mean Total Cadmium Concentrations (With Standard Error Bars) For Lichen, Horsetail and Willow Species.

3.4.2.3 Copper Results

The mean total copper concentrations for Lichen, Horsetail and Willow within each area are presented in Figure 3-17. Statistical comparisons revealed that the mean total copper concentration for Lichen was significantly higher in the MSSA than both the PCSA and MCSA.

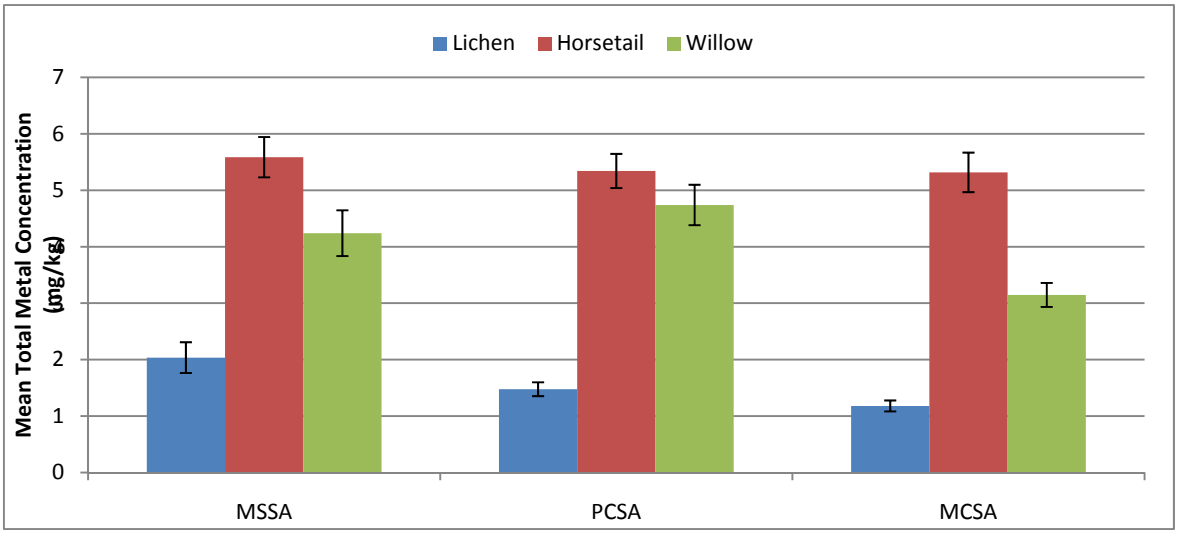

Figure 3-17: Mean Total Copper Concentrations (With Standard Error Bars) For Lichen, Horsetail and Willow Species.

3.4.2.4 Lead Results

The mean total lead concentrations for Lichen, Horsetail and Willow within each area are presented in Figure 3-18. Statistical comparisons revealed that the mean total lead concentration for Lichen was significantly higher in the MSSA than both the PCSA and MCSA, and was significantly higher in the PCSA than the MCSA. Also, mean total lead concentration for willow was significantly higher in the MSSA than the PCSA and MCSA.

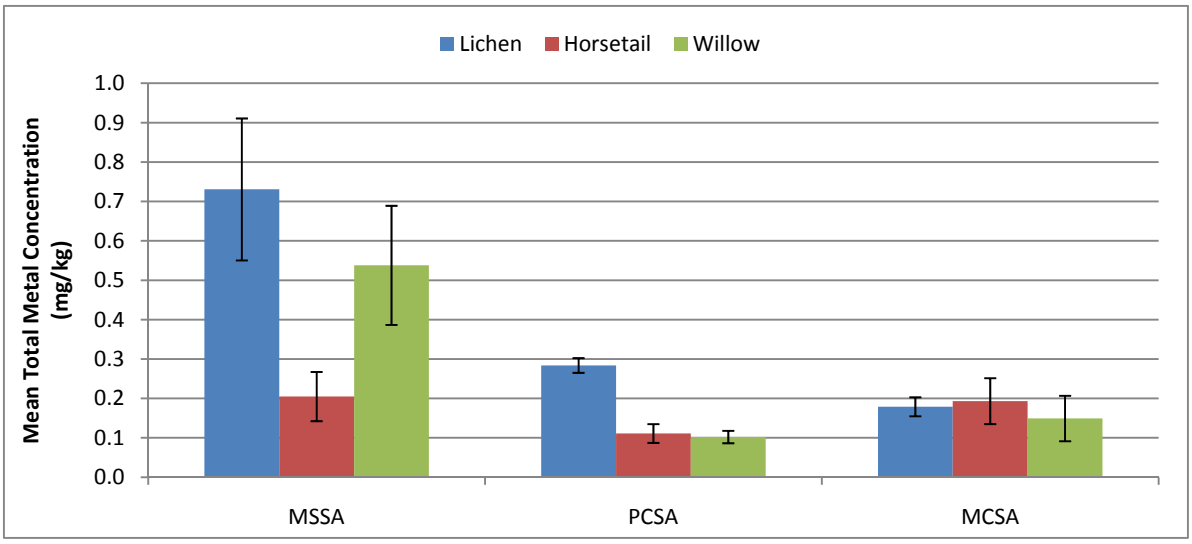

Figure 3-18: Mean Total Lead Concentrations (With Standard Error Bars) For Lichen, Horsetail and Willow Species.

3.4.2.5 Nickel Results

The mean total nickel concentrations for Lichen, Horsetail and Willow within each area are presented in Figure 3-19. Statistical comparisons showed that the mean total nickel concentration for Lichen was significantly lower in the MCSA than the PCSA. Also, mean total nickel concentration for willow was significantly lower in the MSSA than the PCSA.

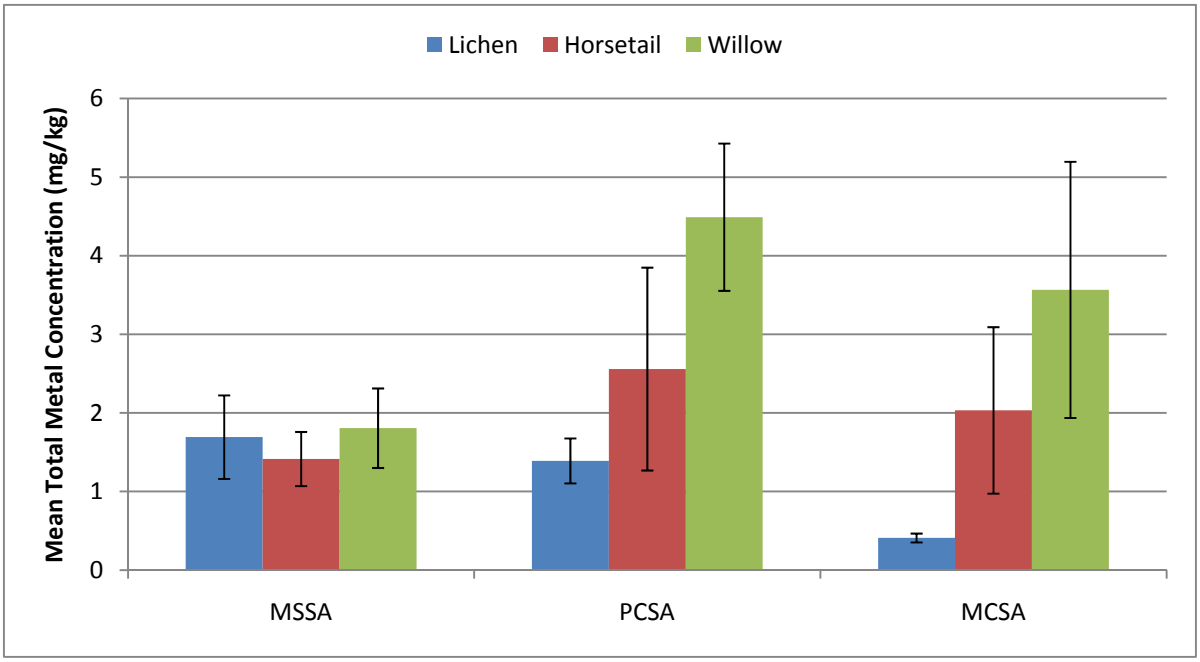

Figure 3-19: Mean Total Nickel Concentrations (With Standard Error Bars) For Lichen, Horsetail and Willow Species.

3.4.2.6 Selenium Results

The mean total selenium concentrations for Lichen, Horsetail and Willow within each area are presented in Figure 3-20. Statistical comparisons revealed that the mean total selenium concentration for Lichen was significantly higher in the MSSA than the MCSA. Also, the mean total selenium concentration for Horsetail was significantly lower in the PCSA than the MCSA. It should also be noted that the mean total selenium concentration in horsetail samples taken from the MSSA were much higher than the other two Study Areas but were not deemed to be significantly different due to the large difference in variances. This was due to results from three stations within the MSSA that had values of 45.3 mg/kg, 29.0 mg/kg, and 8.71 mg/kg, which are much higher than any of the other sites within the MSSA resulting in such a high standard error.

Also, the mean concentrations of selenium in horsetail in the MSSA (6.5 mg/kg) and the MCSA (1.5 mg/kg) were an order of magnitude greater than the concentration of selenium in horsetail in the PCSA (0.4 mg/kg) and than in willow (average concentration for all three areas = 0.3 mg/kg) and two orders of magnitude greater than the concentration of selenium in the lichen (average concentration for all three areas = 0.05 mg/kg).

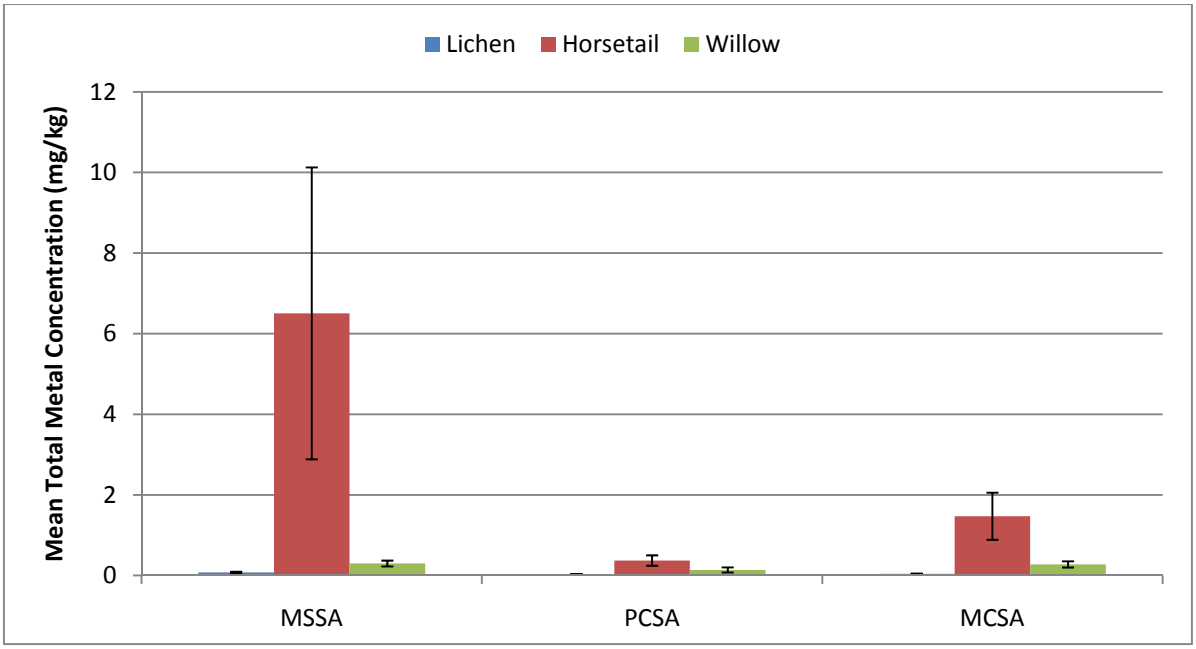

Figure 3-20: Mean Total Selenium Concentrations (With Standard Error Bars) For Lichen, Horsetail and Willow Species.

3.4.2.7 Zinc Results

The mean total zinc concentrations for Lichen, Horsetail and Willow within each area are presented in Figure 3-21. Statistical comparisons revealed that the mean total zinc concentration in Horsetail was significantly lower in the PCSA than both MSSA and MCSA. Mean total zinc concentration was also significantly higher in the MSSA than both the PCSA and MCSA for Horsetail.

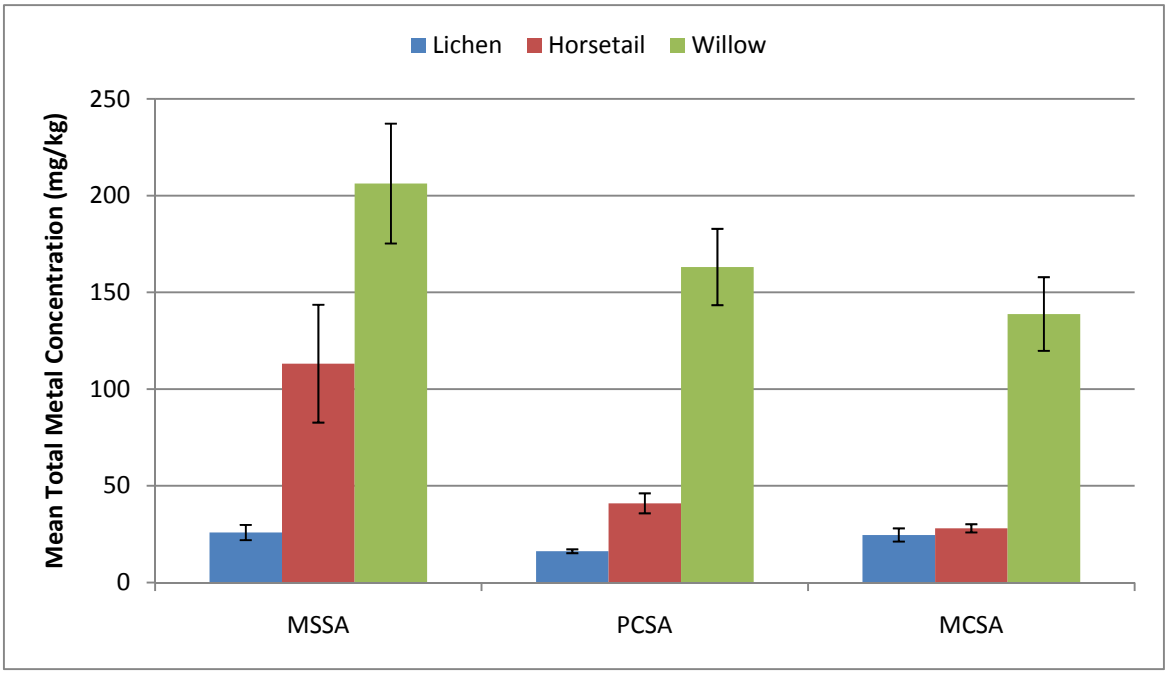

Figure 3-21: Mean Total Zinc Concentrations (With Standard Error Bars) For Lichen, Horsetail and Willow Species.

3.4.3 Quality Assurance / Quality Control Results

Triplicate samples were collected for 11 of the 101 (> 10%) vegetation sampling locations during the 2010 sampling program for quality assurance, quality control (QA/QC) purposes. A stratified-random sampling approach was employed, where at least one triplicate was collected within each Study Area for a given vegetation type (representing a strata grouping) but was also randomly selected within each strata grouping (see Table 3-7 for sample distribution in 2010). This ensured an even distribution of triplicates across the various Study Areas and vegetation types, while avoiding bias toward sampling at a more desirable and/or convenient sampling location within a given Study Area.

Table 3-7: QA/QC Sample Distribution for Samples Taken In 2010

	MSSA	PCSA	MCSA
Lichen	1/10	1/10	1/10
Horsetail	1/11	1/12	2/12
Willow	1/12	1/12	2/12

This data was used to supplement the QA/QC samples taken during the 2009 program, where triplicate samples were collected for seven of the 37 (> 10%) sampling locations (see Table 3-8 for sample distribution in 2009).

Table 3-8: QA/QC Sample Distribution for Samples Taken In 2009

	MSSA	PCSA	MCSA
Lichen	4/4	0/11	0/0
Horsetail	0/3	0/5	0/0
Willow	3/3	0/11	0/0

A summary of standard deviations calculated from triplicate samples for Willow, Horsetail and Lichen collected in 2010 is provided in Table 3-9, Table 3-10, and Table 3-11 respectively. The same summary of standard deviations calculated from triplicate samples for Willow and Lichen collected in 2009 is provided in Table 3-12 and 3-13, respectively. Values less than detection were taken to be at the detection limit when calculating the standard deviation.

The results for five out of seven of the parameters of concern (i.e., arsenic, cadmium, copper, lead, and selenium) indicate a high consistency for the sampling technique and analysis replicability (i.e., values are less than 1.0 and close to the mean). The two exceptions were nickel and zinc; the former showing values just above 1.0 in the 2009 samples only (see Table 3-12 and Table 3-13). Similar values resulted for zinc in Lichen samples taken during both years (see Table 3-11 and Table 3-13). Zinc standard deviation values for Willow, however, were well above 1.0 (see Table 3-9 and Table 3-12). This could be due to the comparatively larger size of the Willow species and its ability to sequester and store zinc in certain parts of the plant (e.g., stem, bud, leaf, etc.) more than others. While triplicate samples were taken from the same plant and with as much uniformity as possible (i.e., same mass and same ratio of stem to leaf), it is possible that some samples had higher zinc concentrations based on storage or need requirements. Zinc was also the metal that resulted in the highest concentrations among all three vegetation types, as mentioned in Section 3.4.23.4.2, making it prone to greater variability.

Table 3-9: QA/QC Results For Willow (Salix Planifolia) for the Potential Parameters of Concern 2010

Sample ID	Sample Date	Arsenic	Cadmium	Copper	Lead	Nickel	Selenium	Zinc
2010-PC1-STN1-SALI-A,B, & C	08/08/2010	0.02	0.09	0.31	0.06	0.26	0.01	11.62
2010-MS2-STN4-SALI-A,B, & C	11/08/2010	0.01	0.00	0.10	0.01	0.10	0.04	37.31
2010-MC1-STN2-SALI-A,B, & C	15/08/2010	0.01	0.20	0.12	0.03	0.06	0.01	20.03
2010-MC3-STN3-SALI-A,B, & C	16/08/2010	0.00	0.15	0.25	0.01	0.44	0.01	3.56
Average Standard Deviation		**0.01**	**0.11**	**0.19**	**0.03**	**0.21**	**0.02**	**18.13**
No. of Samples		**4**	**4**	**4**	**4**	**4**	**4**	**4**

Table 3-10: QA/QC Results For Horsetail (Equisetum Arvense) for the Potential Parameters of Concern 2010

Sample ID's	Sample Date	Arsenic	Cadmium	Copper	Lead	Nickel	Selenium	Zinc
2010-PC4-STN1-EQUI-A,B, & C	08/08/2010	0.02	0.13	0.35	0.01	0.06	0.06	0.71
2010-MS3-STN3-EQUI-A,B, & C	11/08/2010	0.02	0.14	0.21	0.01	0.00	0.07	0.59
2010-MC1-STN4-EQUI-A,B, & C	15/08/2010	0.00	0.02	0.17	0.01	0.12	0.04	0.15
2010-MC3-STN3-EQUI-A,B, & C	16/08/2010	0.05	0.03	0.20	0.02	0.20	0.49	1.04
Average Standard Deviation		**0.02**	**0.08**	**0.23**	**0.01**	**0.09**	**0.17**	**0.62**
No. of Samples		**4**	**4**	**4**	**4**	**4**	**4**	**4**

Table 3-11: QA/QC Results For Lichen (*Cladina Stellaris*) for the Potential Parameters of Concern 2010

Sample ID's	Sample Date	Arsenic	Cadmium	Copper	Lead	Nickel	Selenium	Zinc
2010-PC4-STN2-CLAD-A,B, & C	08/08/2010	0.02	0.02	0.10	0.03	0.06	0.01	0.70
2010-MS2-STN2-CLAD-A,B, & C	11/08/2010	0.01	0.02	0.17	0.01	0.06	0.01	1.63
2010-MC4-STN1-CLAD-A,B, & C	16/08/2010	0.01	0.01	0.06	0.02	0.06	0.01	6.43
Average Standard Deviation		**0.01**	**0.02**	**0.11**	**0.02**	**0.06**	**0.01**	**2.92**
No. of Samples		**3**	**3**	**3**	**3**	**3**	**3**	**3**

Table 3-12: QA/QC Results For Willow (*Salix Planifolia*) for the Potential Parameters of Concern 2009

Sample ID's	Sample Date	Arsenic	Cadmium	Copper	Lead	Nickel	Selenium	Zinc
2009-Salix-MSSA01-02-A, B, & C	20/08/2009	0.01	0.40	0.35	0.01	2.86	0.01	4.76
2009-Salix-MSSA02-01-A, B, & C	20/08/2009	0.00	0.35	0.58	0.01	0.10	0.25	63.88
2009-Salix-MSSA05-01-A, B, & C	20/08/2009	0.01	0.77	0.25	0.07	2.34	0.03	54.25
Average Standard Deviation		**0.01**	**0.51**	**0.39**	**0.03**	**1.77**	**0.09**	**40.96**
No. of Samples		**3**	**3**	**3**	**3**	**3**	**3**	**3**

Table 3-13: QA/QC Results For Lichen (*Cladina Stellaris*) for the Potential Parameters of Concern 2009

Sample ID's	Sample Date	Arsenic	Cadmium	Copper	Lead	Nickel	Selenium	Zinc
2009-Lichen-MSSA01-01A, B, & C	20/08/2009	0.01	0.01	0.15	0.07	5.05	0.01	4.40
2009-Lichen-MSSA03-01A, B, & C	20/08/2009	0.01	0.12	0.36	0.10	1.53	0.01	0.38
2009-Lichen-MSSA01-04A, B, & C	20/08/2009	0.02	0.01	0.15	0.05	2.52	0.01	9.95
2009-Lichen-MSSA01-06A, B, & C	20/08/2009	0.01	0.01	0.44	0.18	0.49	0.02	4.02
Average Standard Deviation		**0.01**	**0.04**	**0.28**	**0.1**	**2.4**	**0.01**	**4.69**
No. of Samples		**4**	**4**	**4**	**4**	**4**	**4**	**4**

3.5 Tailings Facility Monitoring

The two reference stations, Piper Lake (located at KM 9.5 along the Mine Access Road) and the confluence of Little Wolverine Lake and Wolverine Lake (labelled "Little Wolverine Lake" station), were selected during a site visit with Wildlife Technical Committee members in July 2009. The selection of the reference stations was based on their respective similarities to the Tailings Facility, using the following criteria as a guide during discussions with the Committee:

- Size and shape of wetland area;
- Vegetation characteristics;
- Accessibility to the site (i.e., within ~500 m from the Access Road); and,
- Availability of an adequate observation vantage point.

Figure 3-22 provides a map of the Study Area locations, including a newly proposed Study Area: Johnson Jules Lake (see Section 3.7 for more details). Table 3-14 describes the location and vegetation characteristics of the Tailings Facility Monitoring Station and the two Reference Stations. The total vegetative cover for Piper and Little Wolverine Lake stations (30% and 20%, respectively), are higher than the tailings facility station (5%), as the tailings facility is newly constructed, with very little native vegetation remaining.

Bird surveys were conducted at the Tailings Facility and the two reference sites during the 2010 fall migration period (August – September). The results of these surveys are summarized in Table 3-15 (Tailings Facility), Table 3-16 (Piper Lake), and Table 3-17 (Little Wolverine Lake). No waterfowl or migratory bird species were observed occupying the tailings facility during the 2010 fall surveys (see Table 3-15); however, on October 26th, about 20 swans were incidentally observed in the Tailings Facility.

In comparison, both reference stations occupied a number of waterfowl species, including: Greater Yellowlegs (*Tringa melanoleuca*), Common Sandpiper (*Actitus hypoleucos*), Blue-winged Teal (*Anas discors*), Mallard Duck (*Anas platyrhynchos*), Common Loon (*Gavia immer*), and Tufted Duck (*Aythya fuligula*). The two reference stations also hosted a few other, non-waterfowl, bird species that were not observed around the Tailings Facility; Bald Eagle (*Haliaeetus leucocephalus*), White-throated Sparrow (*Zonotrichia leucophrys*), and American Three-toed Woodpecker (*Picoides dorsalis*). The frequency of bird sightings per survey was also considerably lower for the Tailings Facility (1.14 birds/survey), when compared to Piper Lake (8.6 birds/survey) and Little wolverine Lake (9 birds/survey).

Both dawn and dusk surveys were conducted at each survey station so that the surveys would capture those birds that varied in their temporal activity traits (i.e., the surveys would not be biased towards those birds that are only active during the morning).

In addition to the formal surveys described above, the Tailings Facility was also monitored on a daily basis for any signs of wildlife throughout the year. A total of 38 signs of wildlife were observed throughout the 2011 period (refer to the 2010 Tailings Monitoring spreadsheet in Appendix A). These signs consisted mainly of raven and fox tracks observed around the edge of the Tailings Pond; however, on October 26th 2010, a flock of approximately 20 swans landed in the open water of the Tailings Facility. Upon recognition of this incident, bear bangers and an air horn were immediately used to deter them away from the facility. No other observations of migrating waterfowl were made through the year.

Table 3-14: Location Description and Vegetation Characteristics of the Tailings Facility Monitoring Station and 2 Reference Stations (Piper Lake and Little Wolverine Lake)

Station	Stn. No.	Station Vegetation Characteristics											Comments
		Location Coordinates		Total Vegetation % Cover	Tree Layer		Shrub Layer		Forb Layer		Ground % Cover	Water % Cover	
		Easting	Northing		% Cover	Species	% Cover	Species	% Cover	Species			
Tailings Facility	TRP-1	442737	6808318	5	35	Spruce dominated	35	Willow dominated	30	Horsetail dominated	**15**	**80**	TRP-1 = Tailings Reference Point, where a photo will be taken every season moving forward
	BSS-1	442565	6808482	5	35	Spruce dominated	35	Willow dominated	30	Horsetail dominated	**15**	**80**	BSS-1 = Bird Survey Station #1
	BSS-2	442270	6808414	5	35	Spruce dominated	35	Willow dominated	30	Horsetail dominated	**15**	**80**	BSS-2 = Bird Survey Station #2
Piper Lake	BRS-1	450595	6810685	30	20	Spruce dominated	40	Willow dominated	40	Lichen dominated on slopes, Horsetail dominated near water's edge	**0**	**70**	BRS-1 = Bird Reference Station #1
Little Wolverine Lake	BRS-1	437422	6812159	20	30	Spruce dominated with some stands of Poplar	40	Buckbrush and Willow dominated	10	Even distribution of Hudson Bay, Blueberry, Lichen, and horsetail	**5**	**75**	BRS-1 = Bird Reference Station #1

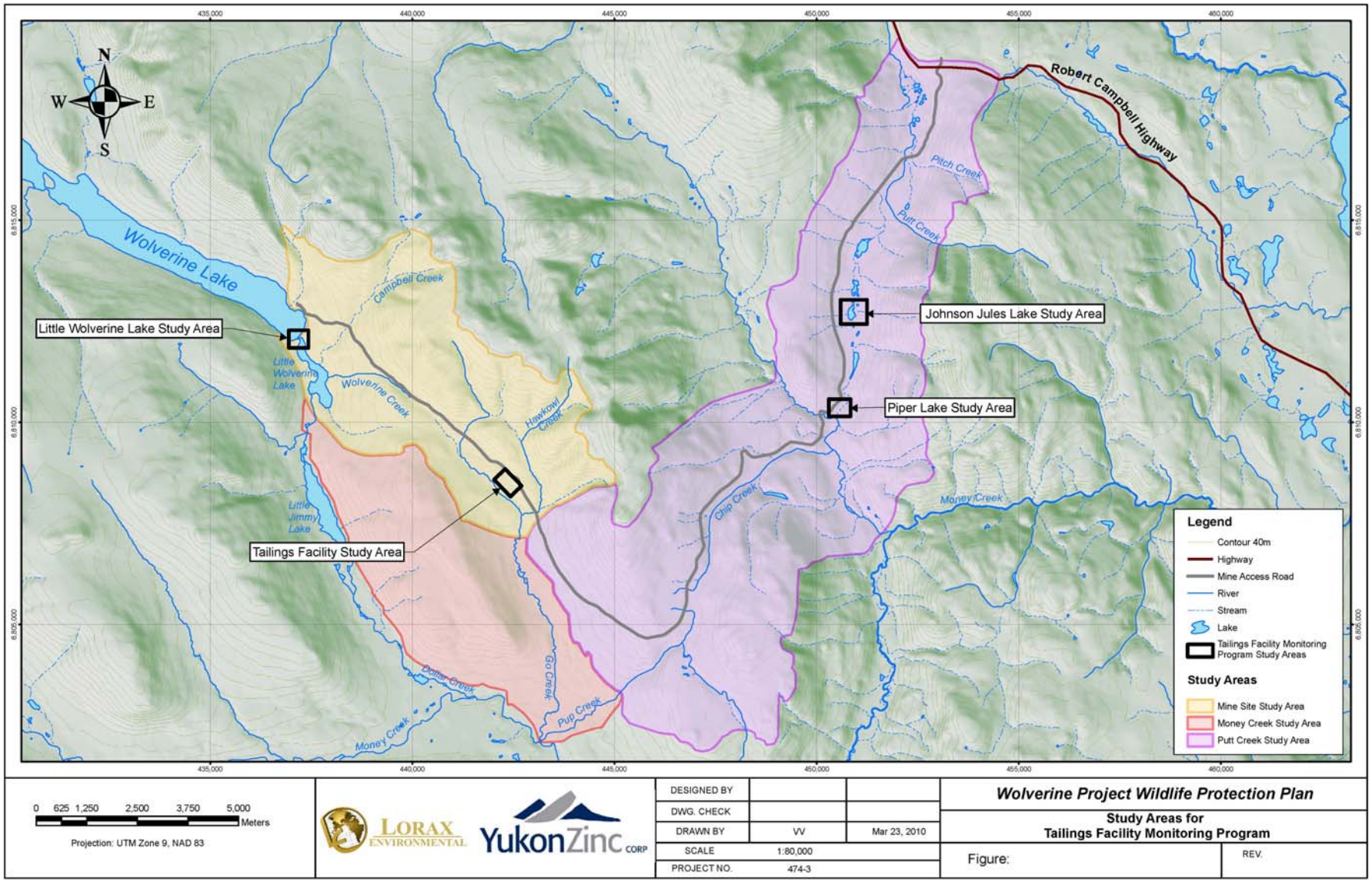

Figure 3-22: Location of Tailings Study Area, Piper Lake Study Area, Little Wolverine Lake Study Area and the proposed Johnson Jules Lake Study Area

Table 3-15: Summary of 2010 Results from the Bird Surveys Conducted at The Tailings Facility Monitoring Station

				Number of birds				
	Station	Time (24 hour)	Species	Adult Female	Adult Male	Unclassified Adult	Juvenile	Comments
Aug. 9 (Dawn)	BSS-2	615	*Picoides dorsalis*			1		
	BSS-2	703	*Picoides dorsalis*	1	1			Observed in trees near pond
Aug. 11 (Dawn)	BSS-2	820	*Corvus corax*			2		Observed in trees near pond
Aug. 29 (Dawn)	BSS-2	734	unknown			1		Small bird flew over pond did not land
Aug. 29 (Dusk)	BSS-2							No birds observed
Sept. 5 (Dawn)	BSS-2							No birds observed
Sept. 15 (Dusk)	BSS-2							No birds observed
Sept. 22 (Dawn)	BSS-2	827	*Corvus corax*			2		Sitting on tailings pipeline
Total				**1**	**1**	**6**	**0**	**8**

Table 3-16: Summary of 2010 Results from the Bird Surveys Conducted at the Piper Lake Reference Station

				Number of birds				
	Station	Time (24 hour)	Species	Adult Female	Adult Male	Unclassified Adult	Juvenile	Comments
Aug. 11 (Dawn)	BRS-1	630	unknown			1		Small bird bathing in water
	BRS-1	650	unknown			5		Small birds foraging at water's edge
	BRS-1	745	*Picoides dorsalis*		1			Observed in trees calling
Aug. 30 (Dawn)	BRS-1	725	*Anas discors*	1	1		2	Blue winged-eating and grooming
	BRS-1	745	*unknown*			1		Small bird flew by
	BRS-1	758	*unknown*			1		Small bird flew by
	BRS-1	801	*unknown*			12		Little black birds flew over fed at waters edge
Aug. 30 (Dusk)	BRS-1	1845	*Aythya fuligula*				11	Tufted Duck
Sept. 6 (Dusk)	BRS-1	2025	*Tringa Sp.*				4	Could be tringa incana (wandering tattler)
Sept. 12 (Dawn)	BRS-1	810	*Tringa melanoleuca*			1		Chirping and making a fuss when I get to close to nest
	BRS-1	845	*Corvus corax*			2		Flying around construction area
Total				**1**	**2**	**23**	**17**	**43**

Table 3-17: Summary of 2010 Results from the Bird Surveys Conducted at the Little Wolverine Lake Reference Station

				Number of birds				
	Station	Time (24 hour)	Species	Adult Female	Adult Male	Unclassified Adult	Juvenile	Comments
Aug. 18 (Dawn)	BSS-1	815	*Gavia immer*	1	1			Loons observed fishing
	BSS-1	835	*Anas platyrhynchos*			1		Mallard-observed 1 but can hear many more
	BSS-1	930	*Actitis hypoleucos*			1		observed flying over heard call
Aug. 18 (Dusk)	BSS-1	1930	*Gavia immer*	1	1			
	BSS-1	1945	*Haliaeetus leucocephalus*		1			Bald Eagle-very large
	BSS-1	2000	*Anas platyrhynchos*			3		Mallards
	BSS-1	2020	*Actitus hypolevcos*			1		Sandpiper
Sept. 8 (Dawn)	BSS-1	810	*Anas platyrhynchos*		1			observed flying over head
	BSS-1	815	*Gavia immer*			1		could hear the call but not see
	BSS-1	818	*Perisoreus canadensis*			3		heard call and observed in tree tops
	BSS-1	825	*Haliaeetus leucocephalus*				1	heard call and observed in tree tops
	BSS-1	835	*Zonotrichia leucophrys*			5		Flew nearby survey station
	BSS-1	855	*Haliaeetus leucocephalus*			1		perched on tree top
Sept. 12 (Dawn)	BSS-1	845	*Gavia immer*	1	1			forging, diving and calling
	BSS-1	900	*Anas platyrhynchos*			11		flying over water
	BSS-1	905	*Haliaeetus leucocephalus*			1		perched on snag
	BSS-1	915	*Zonotrichia leucophrys*			1		rested in tree next to survey station
	BSS-1	915	*Tringa sp.*			1		flying low at waters edge
Total				**3**	**5**	**27**	**1**	

3.6 Regional Wildlife Monitoring Programs

In 2010, YZC contributed $10,000 to the Finlayson Caribou herd fall composition survey in the Ross River region conducted by Yukon Environment; reporting of the survey results are conducted by Yukon Environment and are not contained herein.

3.7 Monitoring Program Recommendations for 2011

The following two changes are recommended for the 2011 WPP program:

1) An additional Tailings Facility Reference site be established at Johnson Jules Lake, which is located east of the Access Road at KM 7. Unlike the other two reference sites, Johnson Jules closely resembles the size and shape of the Tailings Facility (see Figure 3-22), and has been known to host migratory bird species.
2) A section of transect MCSA-WT02 be replaced by an alternative trail that extends from the end of MCSA-WT01. The justification and reasons for this recommendation are as follows:
   - The alternative trail is an established trail that is used to access water quality sampling sites and is driven via snowmobile on a monthly basis;
   - MCSA-WT02 does not have an established trail and has proven difficult to access, causing safety issues to personnel and damage to the snow mobiles;
   - MCSA-WT02 is located down an open valley that regularly receives high winds causing tracks to be wiped out, whereas the alternative trail is more sheltered;
   - The alternative trail is located further away from the mine site within the MCSA, and therefore may serve as a more accurate reference area.

   The alternative trail is approximately the same length as the section of the transect that is proposed to be replaced.

4 Summary

In 2010 Yukon Zinc completed the following activities required by the *Wolverine Project Wildlife Protection Plan V2009-01*:

- Conducted incidental monitoring of wildlife in and around the Mine site;
- Conducted monitoring of winter wildlife transects from January – April, and from October – December;
- Conducted metals levels in vegetation sampling for Willow, Horsetail and Lichen in the three Study Areas to supplement the 2009 data set;
- Established bird survey stations at the Tailings Facility and two reference sites for the tailings monitoring program, and conducted bird surveys during the fall migration period; and
- Contributed towards the Yukon Environment Finlayson Caribou herd fall composition survey.

Programs to be completed in 2011 include: incidental monitoring, winter wildlife monitoring, metals levels in vegetation, metals levels in small mammals, and migratory bird monitoring, the results of which will be summarized in the 2011 WPP Annual Monitoring Report.

Appendix A Wildlife Records Program Log

2010 Wildlife Monitoring Log

Date	Time	Location	Species	# of Animals	Activity
5-Jan-10	1200	12km	coyote	1	standing by road
6-Jan-10	1403	0km	squirrel	1	climbing trees
25-Jan-10	1613	.5km	caribou	6	on the road
2-Feb-10	950	km 24	moose	2	strolling
3-Feb-10	600	mill pad	coyote	2	running
5-Feb-10	1300	YZC camp	fox	1	between bunks 5 and 6
5-Feb-10	1045	Arctic	coyote	1	hanging around camp
5-Feb-10	1000	landfill	ravens	~15	hanging around woodpile
5-Feb-10	1100	tailings	ravens	1	hanging around effluent
24-Feb-10	1100	Finlayson lake area	wolves	5	family running on road
20-Feb-10	600	yuck offices	fox	1	black fox
7-Mar-10		in camp	fox	1	tracks seen
13-Mar-10	750	YZC Camp	Coyote	1	walking around camp
25-Mar-10	1528	0km	lynx	1	walking on road
27-Mar-10	1800	6km	lynx	1	crossing the road
28-Mar-10	1200	YZC camp	Fox	1	walking around
28-Mar-10	1815	Arctic	coyote	1	walking around
15-Apr-10	1130	landfill	wolverine	1	walking by
18-Apr-10	1235	Campbell south of gate	moose	2	standing on road then into the woods
18-Apr-10	1900	above camp	bald eagles	2	flying together in circles
14-Apr-10	1300	YZC Camp	fox	1	wondering around the parking lot
20-Aprl-10	700	Arctic	Coyote	1	walking around camp
21-Apr-10	1345	YZC Camp	Coyote	1	In camp…tried to chase away
21-Apr-10		km 18	Moose	1	
21-Apr-10		km 17.5	moose	1	
23-Apr-10	900	28.8	Chipmunks	1	ran across road
23-Apr-10	1130	15	Porcupine	1	ran across road
23-Apr-10	930	Landfill	Fox	1	walking around
4-Apr-10	1100	23.1	ptarmigan	1	on road
28-Apr-10	1030	Airstrip	caribou	1	female running down strip
29-Apr-10	1530	km 24	Grizzly	1	on the road
27-Apr-10	1500	km 189 Camp. Highway	black bear	1	1 km from gate
3-May-10		km 8.5	Grizzly	2	sighted by trucker
7-May-10	1315	km 9	caribou	1	going west
8-May-10	1430	km 22-25	Crane	~ 50	Flying in unison
9-May-10	1730		Crane	2 flocks of ~50	Flying by
10-May-10	300	Landfill	wolf	1	snooping around
10-May-10	700	Kitchen deck	chipmunk	1	Looking for food!
11-May-10	600	km 23-25	fox	1	walking on road
11-May-10	700	landfill	wolf	1	snooping around
12-May-10	1300	27.3	duck/piper	1/1	playing in pond
13-May-10	1000	24.5	duck/piper	2	playing in pond
14-May-10		vent raise	Porcupine	1	walking around
15-May-10	1600		duck	1	WQ site W15
15-May-10	1400	26.1	chipmunk	1	ran across road
15-May-10	1200	Campbell south of gate	black bear	1	crossing road
16-May-10	1730	22.5	Porcupine	1	ran across road
21-May-10	730	19km	caribou	4	browsing
23-May-10	1817	6.5km	moose	1	crossing road
22-May-10	2100	powder megs	caribou	3	grazing
24-May-10	1430	23	Porcupine	1	eating
24-May-10	1510	1	Porcupine	1	waddling away
24-May-10	1600	14	Porcupine	1	waddling
24-May-10	1610	21.5	moose	1	cow crossing road
27-May-10	2300	various sites along road	Porcupine	8	forging along road
27-May-10	1500	km 4	black bear	1	3 year old
29-May-10	1100	km 25	caribou	4	crossing road
30-May-10	1130	above camp	caribou	4	moving north
30-May-10	2100	km 25	Porcupine	1	walking in circles

2010 Wildlife Monitoring Log

Date	Time	Location	Species	# of Animals	Activity
31-May-10	1120	km 4	caribou	1	walked into trees
2-Jun-10	800	km 8.5	black bear	1	on road
2-Jun-10	521	Warehouse	fox	1	crossing through
3-Jun-10	500	km 20	Grizzly	1	walking in the ditch
3-Jun-20	217	26.1	fox	1	crossing road
3-Jun-10	1100	km 5	Marten	1	ran across road
5-Jun-10	800	km 18	caribou	1	on road
5-Jun-10	900	km 27.2	caribou	3	below road grazing
5-Jun-10	2028	20.5	Porcupine	1	walking on road
9-Jun-10	117	Airstrip	Porcupine	1	running into bush
9-Jun-10	1800	26km	caribou	1	crossing road
9-Jun-10	2150	29km	Porcupine	1	in bushes
9-Jun-10	2250	airstrip	Porcupine	1	sitting behind building
10-Jun-10	38	yuck	fox	1	running around
10-Jun-10	2130	1km	Porcupine	1	on road
11-Jun-10	2130	27km	weasel	1	crossing road
13-Jun-10	1330	bunker creek	Porcupine	1	waddling
14-Jun-10		tailings	Grizzly	1	walking
14-Jun-10	1500	waste rock pad	Grizzly	1	walking
14-Jun-10	1600	yuck camp	Grizzly	1	walked into camp
16-Jun-10	535	tailing pond	fox	1	walking along bank
16-Jun-10	2213	Arctic camp	fox	1	ran into camp
14-Jun-10	1330	below tailings dam	caribou	2	cow and calf
19-Jun-10	1940	26.2	caribou	4	standing in field
19-Jun-10	1955	26	fox	1	on side of the road
20--jun-10	1340	23	black bear	1	crossing road
20--jun-11	1411	21	black bear	1	on road
21-Jun-10	739	2	black bear	1	on road
21-Jun-10	810	2	black bear	1	side of road
21-Jun-10	831	2	caribou	1	side of road
23-Jun-10	2100	behind kitchen	fox	1	hiding under the deck
25-Jun-10	355	ACL	fox	1	crossing road
27-Jun-10	330	26.2	Porcupine	2	crossing road
4-Jul-10	235	26.2	fox	1	crossing road
7-Jul-10	2300	yuck	Porcupine	1	in camp at night
8-Jul-10	140	tailings pond	bull moose	1	hanging out
9-Jul-10	155	lay down	Porcupine	1	crossing road
11-Jul-10	320	4km	wolf	1	ran off road
11-Jul-10	556	26km	Porcupine	1	going up bank
12-Jul-20	400	yuck	fox	1	running up bank
14-Jul-10	230	27km	Porcupine	1	on bank
15-Jul-10	2210	26.1km	fox	2	pup and mother crossing road
16-Jul-10	130	25km	fox	1	running up bank
17-Jul-10	536	lay down	Porcupine	1	walk through lay down
19-Jul-10	1933	24km	wolf	1	walking up road
19-Jul-10		26.2	fox	3	cubs playing with each other
4-Aug-10	1920	tailing pond	caribou	1	standing around
4-Aug-10	2200	portal	Porcupine	1	crossing road
4-Aug-10	2310	airstrip	wolverine	1	crossing strip
5-Aug-10	0334	lay down	fox	1	running for his life
8-Aug-10	0047	26.5	Porcupine	1	going up bank
11-Aug-10	530	23	moose	1	running down road
6-Nov-10	16:30	20	Moose	1	Crossing road from South - North

Appendix B Winter Wildlife Monitoring - Transect Data

Instructions for completing the datasheet are provided below.
The information provided below is specific to the Track Survey Data portion of the datasheet.

1. Distance: record the distance sign was encountered along the transect.

2. Species code: for mammals are based, in general, on the first two letters in the genus and species. Species codes for animals that some species that may be encountered during the program are provided in Table 1. It is possible other species that are not in this list may also be encountered during survey, and should be added to the list.

Wildlife Species Names and Codes
Common Name / Scientific Name / Species code

Lynx (*Lynx canadensis*) = LYCA
Coyote (*Canis latrans*) = CALA
Wolf (*Canis lupus*) = CALU
Fox (*Vulpes vulpes*) = VUVU
Wolverine (*Gulo gulo*) = GUGU
Fisher (*Martes pennanti*) = MAPE
Marten (*Martes americana*) = MAAM
Moose (*Alces alces*) = ALAL
Caribou (*Rangifer tarandus*) = RATA
Short-tailed Weasel (*Mustela erminea*) = MUER
Snowshoe hare (*Lepus americanus*) = LEAM
Rock ptarmigan (*Lagopus muta*) = LAMU
American mink (*Mustela vison*) = MUVI
American red squirrel (*Tamiasciurus hudsanicus*) = TAHU
Vole species (*Microtus spp.*) = MICR

3. Sign Type: The most likely sign types that will be encountered include visual observations of animals (V), scat (SC), pellets (P), tracks (TR), trail (TL), digging (DG), hair (H), bed (B), den (D), mineral lick (ML). If other sign is seen and is not included then be sure to record the new code and its definition on the datasheet.

4. Number of Sign: refers to the number of a type of sign seen. For example, a linear set of tracks are typically considered a trail, or the number of animal seen, sets of tracks, piles of scat, beds, etc.

5. Habitat: record the general habitat characteristics in the vicinity of where wildlife or wildlife sign were encountered. For example, were there any unique habitat features (e.g., coarse woody debris, wildlife trees, dense forest stand) or provide a general description of the structural characteristics.

The information provided below applies to the Snow Depth Data portion of the datasheet.

1. Distance: refers to the distance along the transect that snow depth data was measured and recorded.

2. Snow Depth (cm): refers to the snow depth measurements taken at each location. Three measurements of snow depth will be taken at a distance of about 1 m from each other. Measurements will be recorded to the nearest 0.5 cm.
3. Average Snow Depth (cm): The three snow depth measurements will be averaged to obtain this value. This measurement can be calculated at the mine site office after returning from the field.

4. Comments: provide any general comments on snow conditions that may affect the survey.

Transect MSSA-WT01

WINTER WILDLIFE MONITORING SURVEY

JANUARY

Samplers	RM/C	Precip.	Nil
Date m/d/y	10/01/2010	Precip.	snow last 30 min
Start Time (24hr)	10:00		
End Time (24hr)	11:30		
Weather day before count: Temp(°C)	-14		
Weather day of count: Temp(°C)	-21		
Wind before count	5-10 km/hr		
Wind day of count	5-10 km/hr		
Time since last snow fall (hrs)	~48		
Comments			

Distance	Species Code	Sign Type	# of sign	Comments
320	MAAM	TR	1	Fresh in the morning
510	MAAM	TR	1	1+ days old
715	RATA	TR	2 OR 3	2+ days old
720	MUER	TR	1	1+ days old
755	MUER	TR	1	1+ days old
995	MAAM	TR	1	1+ days old
1150	MAAM	TR	1	2 + days old
1270	MAAM	TR	1	2 + days old
1400	LEAM	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**
0 (POC)	39	40	57	45.3
500	62	55	48	55.0
1000	47	48	48	47.7
1500	62	65	58	61.7
2000 (POT)	48	51.5	50	49.8

February

Samplers	RM/MK	Precip.	Nil
Date m/d/y	06/02/2010	Precip.	Nil
Start Time (24hr)	12:00		
End Time (24hr)	14:10		
Weather day before count: Temp(°C)	-12		
Weather day of count: Temp(°C)	-15		
Wind before count	5-10 km/hr		
Wind day of count	15-20 km/hr		
Time since last snow fall (hrs)	~48		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
5	438888	6811301	LEAM	TR	1	Fresh but wind blew snow over
6	438874	6811311	MAAM	TR	1	
7	438673	6811360	MAAM	TR	1	
	438515	6811437	LYCA	TR	1	GPS mustn't have registered the waypoint
8	438475	6811443	MAAM	TR	1	
9	438440	6811439	RATA	TR	1	Mother and Calf
12	438410	6811428	LYCA	TR		Very fresh - this morning
13	438367	6811364	MUER	TR	1	
14	438227	6811293	MAAM	TR	1	
15	438177	6811297	MAAM	TR	1	
16	438046	6811425	RATA	TR	2	
17	437899	6811641	MAAM	TR	1	
18	437904	6811628	MUER	TR	1	
19	437762	6811979	LYCA	TR	1	Fresh - Photo 31 & 32
20	437728	6812028	MAAM	TR	1	
21	437663	6812194	MICR	TR	1	
22	437645	6812211	MAAM	TR	1	
23	437619	6812242	ALAL	TR	1	Bull Moose
24	437538	6812387	MAAM	TR	1	
25	437533	6812404	VUVU	TR	1	
26	437498	6812455	MAAM	TR	1	
27	437528	6812447	MAAM	TR	1	
28	437432	6812557	MICR	TR	1	
29	437381	6812656	MUER	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	Comments
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	
0 (POC)	62	58	74	64.7	
500	64	66	62	64.0	
1000	60	64	66	63.3	
1500	52	58	48	52.7	
2000 (POT)	47	51	43	47.0	Waypoint 29

Transect MSSA-WT01

March

Samplers	JS/JG	Precip.	Medium
Date m/d/y	29/03/2010	Precip.	Nil
Start Time (24hr)	14:35		
End Time (24hr)	15:45		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	5		
Wind before count	0-25		
Wind day of count	0-5		
Time since last snow fall (hrs)	24		
Comments	**Used GPS 76 to mark points**		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
295	438372	6811391	MAAM	TR	1	
296	438340	6811315	MUER	TR	1	
	438340	6811315	LEAM	TR	1	
297	438306	6811286	LEAM	TR	1	
299	437996	6811503	VUVU	TR	1	
300	437964	6811546	BIRD	TR	1	
301	437873	6811712	LEAM	TR	1	
302	437725	6812012	MUER	TR	1	
303	437674	6812178	MUER	TR	1	
304	437664	6812194	MUER	TR	1	
306	437537	6812385	MUER	TR	1	
307	437526	6812431	MUER	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
POC	78	89	71	79	
WP-294	81	84	102	89	
WP-295	71	70	62	68	
WP-299	62	57	62	60	
WP-302	66	63	52	60	
WP-305	57	70	68	65	
POT	71	64	73	69	

October

Samplers	RM/BL	Precip.	some during morning
Date m/d/y	12/10/2010	Precip.	0
Start Time (24hr)	1425		
End Time (24hr)	1605		
Weather day before count: Temp(°C)	0		
Weather day of count: Temp(°C)	-2		
Wind before count	-5		
Wind day of count	-10		
Time since last snow fall (hrs)	~40		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
997	438979	6811452	Chipmunk	Observed	1	
998	438950	6811368	LAMU	TR	3	
999	438883	6811306	MUER	TR	1	
	438931	6811435	MAAM	TR	2	
806	437963	6811545	RATA	TR	2	
807	437939	6811570	TAHU	TR	1	
808	437904	6811936	VUVU	TR	1	
809	437725	6812036	TAUH	TR	1	
810	437696	6812217	LEAM	TR	1	
811	437435	6812539	RATA	TR	2	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
POC 0m	20	22	14	19	
500	31	24	24	26	
1000	28	20	21	23	
1500	16	22	24	21	
2000	19	18	31	23	
POT 2500	33	34	30	32	

Transect MSSA-WT01

November

Samplers	JS/BL	Precip.	medium
Date m/d/y	22/11/2010	Precip.	0
Start Time (24hr)	1334		
End Time (24hr)	1416		
Weather day before count: Temp(°C)	-17		
Weather day of count: Temp(°C)	-20		
Wind before count			
Wind day of count			
Time since last snow fall (hrs)	12		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
553	437601	6812260	LEAM	TR	1	
554	437635	6812224	LEAM	TL	2	
555	677	2168	LEAM	TL	2	fresh
556	748	1985	Moose	TR	1	fresh
557	980	1520	LEAM	TR	2	
558	438022	1464	**Caribou**	TR	**1**	fresh
559	112	1366	LEAM	TL	3	fresh
560	480	1448	MAAM	TR	1	
561	626	1386	MAAM	TR	1	
562	671	1361	Caribou	TR	1	
563	737	1354	LEAM	TR	3	
564	831	1336	MAAM	TR	1	
565	955	1261	MAAM	TR	4	
566	956	1426	MAAM	TR	3	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
POT 0m	31.5	29	33	31	
515m	38	28	34	33	
990m	36	24	29	30	
1600m	36	36	37	36	
POC 2500m	28	29	32	30	

December

Samplers	BL/JG	Precip.	light
Date m/d/y	18/12/2010	Precip.	nil
Start Time (24hr)	1050		
End Time (24hr)	1315		
Weather day before count: Temp(°C)	-22		
Weather day of count: Temp(°C)	-23		
Wind before count	0		
Wind day of count	0		
Time since last snow fall (hrs)	20		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
694	439007	6811446	VUVU	TR	1	1 day
695	438950	1351	VUVU	TR	1	1 day
696	438914	1250	VUVU	TR	1	fresh
697	438900	1280	VUVU	TR	1	1 day
698	438675	1360	MUER	TR	4	holes in the snow
699	438632	1375	VUVU	TR	1	1 day
700	438347	1278	MUER	TR	1	fresh
701	438322	1277	MUER	TR	1	fresh
702	438226	1277	MAAM	TR	1	1 day
703	438197	1281	VUVU	TR	1	2 days
704	438120	1360	LEAM	TR	1	2 days
705	438110	1370	LEAM	TR	1	1 day
706	438093	1382	MAAM	TR	1	1 day
707	438007	1490	LEAM	TR	1	fresh
709	437920	1601	MAAM	TR	1	fresh
710	437836	1820	MAAM	TR	1	fresh
711	437884	1186	MUER	TR	1	fresh
712	437884	1860	MUER	TR	1	fresh
713	437728	2027	MAAM	TR	1	fresh
714	437717	2061	MAAM	TR	1	fresh
715	437650	2208	LEAM	TR	1	fresh

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
0m	40	47	49	45	POC
500m	60	50	40	50	
1000m	30	40	40	37	
1500m	38	42	40	40	
2000m	40	43	44	42	POT

Transect MSSA-WT02

WINTER WILDLIFE MONITORING SURVEY

January

Samplers	JG & BM	Precip. 2 cm overnight
Date m/d/y	14/01/2009	Precip. 2 cm overnight
Start Time (24hr)	13:50	
End Time (24hr)	15:15	
Weather day before count: Temp(°C)	-20	
Weather day of count: Temp(°C)	-10	
Wind before count	0 - 5 km/hr	
Wind day of count	0 - 5 km/hr	
Time since last snow fall (hrs)	~9	
Comments	Started track at GPS point: 0439757 E; 6811163 N	

Distance	Species Code	Sign Type	# of sign	Habitat	Comments
117	LEAM	TR	1	Sub-alpine	1 day old
142	LEAM	TR	1	Sub-alpine	1 day old
142	MAAM	TR	1	Sub-alpine	1 day old
166	VUVU	TR	1		today
263	MAAM	TR	1		1 day old
430	MAAM	TR	1		1 day old
459	VUVU	TR	1		1 day old
481	MAAM	TR	1		today
493	VUVU	TR	1		1 day old
549	VUVU	TR	1		1 day old
568	VUVU	TR	2		1 day old
615	VUVU	TR	1		2 days old
642	MAAM	TR	1		today
679	MUVI	TR	1		today
733	MAAM	TR	1		1 day old
818	ALAL	TR	1		3+ days old
860	ALAL	TR	1		3+ days old
875	VUVU	TR	1		3+ days old
945	CALU	TR	1		2 days old
971	MUVI	TR	1		today
988	CALU	UR/TR	2		on side of road
1110	MAAM	TR	1		2 days old
1240	MAAM	TR	1		2 days old
1380	MAAM	TR	1		3+ days old
1480	MAAM	TR	1		2 days old
1530	MAAM	TR	1		2 days old
1610	MAAM	TR	1		1 day old
1630	MAAM	TR	1		2 days old
1670	MUVI	TR	1		today
1680	MAAM	TR	1		2 days old
1700	MAAM	TR	1		2 days old

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
0 (POC)	5	11.5	6	7.5	High wind area
500	55	58	38	50.3	
1050	32	30	32	31.3	
1500	32	21	28	27.0	
POT	54	59	62	58.3	

February

Samplers	RM/MK	Precip. Nil
Date m/d/y	04/02/2010	Precip. Nil
Start Time (24hr)	14:40	
End Time (24hr)	15:15	
Weather day before count: Temp(°C)	-12	
Weather day of count: Temp(°C)	-5	
Wind before count	5-10 km/hr	
Wind day of count	15-20 km/hr	
Time since last snow fall (hrs)	~48	
Comments		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
30	438564	6812364	MAAM	TR	1	Sub-alpine	
31	438609	6812363	VUVU	TR	1	Sub-alpine	
32	438629	6812357	MAAM	TR	1	Sub-alpine	
33	439694	6811255	MAAM	TR	1	Sub-alpine	
34	439487	6811676	MAAM	TR	1	Sub-alpine	
35	439407	6811912	LEAM	TR	2	Sub-alpine	
36	438850	6812223	LEAM	TR	1	Sub-alpine	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**
POC	63	65	62	63
500	61	63	61	62
POT	65	53	49	56

March

Samplers	JS/JG	Precip.	Medium
Date m/d/y	29/03/2010	Precip.	Nil
Start Time (24hr)	13:45		
End Time (24hr)	14:30		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	5		
Wind before count	0-25		
Wind day of count	0-5		
Time since last snow fall (hrs)	24		
Comments	Started At POT		

	043...	681...					
Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Habitat**	**Comments**
287	9468	1689	MUER	TR	1		
288	9460	1754	VUVU	TR	1		
289	9449	1846	MAAM	TR	1		
290	9412	1908	MUER	TR	1		
291	9270	2004	LEAM	TR	1		
292	8559	2364	MUVI	TR	2		
293	8525	2359	MUER	TR	1		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**
POT-WP 286	69	72	85	75
546m-WP 289	51	52	54	52
1530m-WP 292	82	80	77	80
POC	55	60	69	61

October

Samplers	JS/BL	Precip.	little
Date m/d/y	31/10/2010	Precip.	none
Start Time (24hr)	1320		
End Time (24hr)	1420		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-7		
Wind before count	5-15		
Wind day of count	0-5		
Time since last snow fall (hrs)	24		
Comments			

Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Comments**
889			RATA	TR	4	2-3 days
890			LEAM	TR	1	today's tracks
891			LEAM	TR	1	today's tracks
892			MUER	TR	1	today's tracks
893			MUER	TR	3	today's tracks
894			LEAM	TR	1	today's tracks
895			LEAM	TR	5	today's tracks
896			MUER	TR	1	today's tracks
897			LEAM	TR	1	today's tracks
897			SOAR	TR	1	today's tracks
898			TAHU	TR	3	today's tracks
899			LEAM	TR	3	today's tracks
899			MUER	TR	1	today's tracks
900			RATA	TR	3	2-3 days
900			LEAM	TR	3	2-3 days
900			MUER	TR	3	2-3 days
901			VUVU	TR	1	3-4 days
902			LEAM	TR	3	3-4 days
903			LEAM	TR	1	today's tracks

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
POC 0m				14cm	WP888
500m				16cm	WP896
1000m				20cm	WP902
POT 1500m				15cm	WP904

November

Samplers	JS/BL	Precip.	medium
Date m/d/y	22/11/2010	Precip.	none
Start Time (24hr)	1439		
End Time (24hr)	1500		
Weather day before count: Temp(°C)	-17		
Weather day of count: Temp(°C)	-20		
Wind before count	5-15		
Wind day of count	0		
Time since last snow fall (hrs)	12		
Comments			

Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Comments**
568	439592	6811415	CALU	TR	2	fresh
569	474	1678	LEAM	TL	1	
570	454	1825	CALU	TR	multiple	
571	342	1953	MOOSE	TR	1	
572	254	2011	LEAM	TL	1	
573	438994	2165	LEAM	TL	1	
574	939	2207	TAHU	TR	3	
574	939	2207	LEAM	TR	1	
575	841	2229	LEAM	TL	1	
576	562	2363	MAAM	TR	1	
576	562	2363	MUER	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	
POC 0m	40	40	42	41	WP 567
500m	31	35	36	34	WP570
1000m	35	34	32	34	WP573
POT 1700m	39	39	36	38	

WINTER WILDLIFE MONITORING SURVEY

January

Samplers	JG & BM	Precip.	2 cm over night
Date m/d/y	14/01/2010	Precip.	2 cm over night
Start Time (24hr)	11:15		
End Time (24hr)	11:58		
Weather day before count: Temp(°C)	-20		
Weather day of count: Temp(°C)	-10		
Wind before count	0-5 km/hr		
Wind day of count	0-5 km/hr		
Time since last snow fall (hrs)	23 hrs since last major snow fall		
Comments			

Distance	Species Code	Sign Type	# of sign	Habitat	Comments
225	VUVU	TR	1	sloping hill/cover to left - tailings to right	
682	VUVU	TR	1	sloping hill/cover to left - tailings to right	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
0 (POC)	59	58	67.5	61.5	
500	55	54	59	56.0	
800 (POT)	59	65	70	64.7	

February

Samplers	JS/JG	Precip.	Nil
Date m/d/y	02/26/10	Precip.	Nil
Start Time (24hr)	16:10		
End Time (24hr)	16:50		
Weather day before count: Temp(°C)	-5		
Weather day of count: Temp(°C)	-7		
Wind before count	0		
Wind day of count	0		
Time since last snow fall (hrs)	24hrs		
Comments	**Waypoints not recorded in either GPS unit**		

	680….	0442….					
Waypoint	**Northing**	**Easting**	**Species Code**	**Sign Type**	**# of sign**	**Habitat**	**Comments**
	6809026	442008	VUVU	TR	1		2-4days
	9024	40	VUVU	TR	3		2-4days
	9024	60	VUVU	TR	4		2-4days
	9011	98	VUVU	TR	4		2-4days
	8986	143	VUVU	TR	1		2-4days
	8934	204	VUVU	TR	1		2-4days
	8827	279	VUVU	TR	1		2-4days
	8801	211	VUVU	TR	1		2-4days
	8750	317	VUVU	TR	1		2-4days
	8672	426	VUVU	TR	1		2-4days
	8613	475	VUVU	TR	1		2-4days
	8595	507	MAAM	TR	1		2-4days
	8587	514	VUVU	TR	1		2-4days
	8491	594	VUVU	TR	1		2-4days
	8270	644	VUVU	TR	5		2-4days
	8221	639	VUVU	TR	1		2-4days
	8145	617	VUVU	TR	2		2-4days
	8087	604	VUVU	TR	1		2-4days

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	Comments
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	
POC	65	65	67	66	
500m	82	45	67	65	
POT	72	71	68	70	
POC N=0442005	E=6809028				
POT N=0442604	E=6808087				

March

Samplers	JS/JG	Precip.	2-4cm in the am
Date m/d/y	03/31/10	Precip.	1-2cm only in am
Start Time (24hr)	14:31		
End Time (24hr)	18:30	Addition time due to snow pack measurements	
Weather day before count: Temp(°C)	0		
Weather day of count: Temp(°C)	0-3		
Wind before count	negligible		
Wind day of count	negligible		
Time since last snow fall (hrs)	30hrs		
Comments	**Used GPS72 to mark points**		

680....

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
787	442002	9030	VUVU	TR	1		Start Point
788	442214	8916	MUER	TR	1		
789	442219	8914	MAAM	TR	1		
790	442253	8874	MAAM	TR	1		
792	442420	8665	VUVU	TR	1		
793	442460	8621	VUVU	TR	1		
794	442628	8406	LAMU	TR	multiple		
795	442648	8285	LAMU	TR	multiple		
796	4422604	8093	MUVI	TR	1		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	Comments
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	
POC (WP 786)	73	83	87	81	
500 m	78	80	89	82	
POT	86	80	83	83	

April

Samplers	RM	Precip.	1-2 cm over night
Date m/d/y	04/08/2010	Precip.	nil
Start Time (24hr)	8:20		
End Time (24hr)	8:40		
Weather day before count: Temp(°C)	-5		
Weather day of count: Temp(°C)	-6		
Wind before count	nil		
Wind day of count	5		
Time since last snow fall (hrs)	30hrs		
Comments	**Used GPS 76 to mark points**		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
316	440632	6810422	LEAM	TR	1		
317	440642	6810298	MAAM	TR	1		
318	440901	6810049	MUER	TR	1		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	Comments
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	
POC	35	52	31	39	
500m	62	55	58	58	
POT	77	72	81	77	

October

Samplers	JS/MP	Precip.	
Date m/d/y	19/10/2010	Precip.	nil
Start Time (24hr)	1331		
End Time (24hr)	1420		
Weather day before count: Temp(°C)			
Weather day of count: Temp(°C)	0		
Wind before count			
Wind day of count	0		
Time since last snow fall (hrs)	24		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
430	441988	6809029				no tracks seen at POC
494	442273	6808841	MUER	TR	1	fresh
495	442379	6808712	MUER	TR	1	fresh
496	442423	6808669	MAAM	TR	1	fresh
497	442527	6808566	MAAM	TR	1	1-2 day
498	442648	6808369	MUER	TR	1	fresh
499	442605	6808085				

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
POC	26	25	26	25.7	
400	26.5	24	22.5	24.3	
POT	24.5	21	21.5	22.3	

November

Samplers	JS/BL	Precip.	little
Date m/d/y	26/11/2010	Precip.	nil
Start Time (24hr)	1333		
End Time (24hr)	1349		
Weather day before count: Temp(°C)	-5		
Weather day of count: Temp(°C)	-7		
Wind before count	0-5		
Wind day of count	0-5		
Time since last snow fall (hrs)	12		
Comments			

Waypoint		Easting	Northing	Species Code	Sign Type	# of sign	Comments
	592	441983	6809015	CALU	TR	1	
	593	442050	9023	CALU	TR	1	
	594	125	8992	CALU	TR	3	
	595	186	8952	CALU	TR	1	
	596	259	8854	MAAM	TR	1	
	597	293	8799	MAAM	TR	1	
	598	420	8668	CALU	TR	4	
	599	556	8539	CALU	TR	2	
	600	587	8484	CALU	TR	multiple	
	601	652	8363	MAAM	TR	1	
	602	621	8165	MAAM	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
poc 0m	35	33	37	35	
400m	52	36	38	42	
pot 800m	38	41	32	37	

December

Samplers	JS/RM	Precip.	2
Date m/d/y	31/12/2010	Precip.	0
Start Time (24hr)	13:30		
End Time (24hr)	14:30		
Weather day before count: Temp(°C)	-15		
Weather day of count: Temp(°C)	-12		
Wind before count	5-10		
Wind day of count	0-5		
Time since last snow fall (hrs)	24		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
	442128	6808997	MUER	TR	1	
	442505	6808592	MUER	TR	1	
	442650	6808366	LAMU	TR	1	
	442655	6808351	VUVU	TR	1	
	442647	6808279	LAMU	TR/SC	5	

WINTER WILDLIFE MONITORING SURVEY

January

Samplers	JS	Precip.	none
Date m/d/y	25/01/2010	Precip.	none
Start Time (24hr)	9:30		
End Time (24hr)	10:00		
Weather day before count: Temp(°C)	-15		
Weather day of count: Temp(°C)	-17		
Wind before count	0		
Wind day of count	0		
Time since last snow fall (hrs)	24hrs		
Comments			

Distance	Species Code	Sign Type	# of sign	Habitat	Comments
POC 0	LAMU	TR	10+		Many tracks
10	VUVU	TR	1		
40	VUVU	TR	1		
50	VUVU	TR	1		
80	LAMU	TR	5+		Many tracks
100	MAAM	TR	1		
160	LAMU	TR	5+		
200	MAAM	TR	1		
400	LAMU	TR	10+		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
0 (POC)	55	61	50	55.3	
400	73	65	78	72.0	
800 (POT)	74	79	80	77.7	

February

Samplers	JS	Precip.	Nil
Date m/d/y	18/02/2010	Precip.	Nil
Start Time (24hr)	14:26		
End Time (24hr)	14:45		
Weather day before count: Temp(°C)	-3		
Weather day of count: Temp(°C)	0		
Wind before count	0		
Wind day of count	0		
Time since last snow fall (hrs)	~48		
Comments	**Used GPS 76 to mark waypoints**		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
111	450591	6814252	VUVU	TR	2		1+ days
112	440562	6810481	VUVU	TR	3		1+ days
113	440584	6810471	VUVU	TR	1		1+ days
114	440612	6810446	VUVU	TR	2		1 fresh 1-3+days
115	440629	6810393	VUVU	TR	5		3+
116	440629	6810376	VUVU	TR	3		1+
117	440632	6810345	lamu	TR	5		1-3days
118	440639	6810313	lamu	TR	5		1-3days
119	440791	6810133	VUVU	TR	2		fresh
122	440825	6810115	VUVU	TR	2		fresh
123	440915	6810056	VUVU	TR	3		1-3days
124	440997	680992	VUVU	TR	3		1-3days

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	Comments
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	
poc Wp-111	57	51	62	57	
400m Wp-121	53	52	48	51	
pot Wp-125	85	63	61	70	

March

Samplers	JS/JG	Precip.	medium
Date m/d/y	29/03/2010	Precip.	Nil
Start Time (24hr)	16:10		
End Time (24hr)	16:30		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	5		
Wind before count	0-25		
Wind day of count	0-25		
Time since last snow fall (hrs)	24		
Comments	**Used GPS 76**		
	044….	681….	

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
308	485	497	VUVU	TR	1		
309	583	465	mink	TR	1		
310	599	458	MAAM	TR	3		
311	619	429	raven	TR	1		
312	623	415	VUVU	TR	2		
313	634	317	MAAM	TR	1		
314	633	306	MUER	TR	1		
315	919	16	Ptarmigan	TR	5+		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	Comments
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	
POC	69	100	73	81	
400m	66	64	41	57	
POT	105	88	88	94	

April

Samplers	RM	Precip.	1-2cm over night
Date m/d/y	08/04/2010	Precip.	Nil
Start Time (24hr)	8:45		
End Time (24hr)	9:45		
Weather day before count: Temp(°C)	-5		
Weather day of count: Temp(°C)	-6		
Wind before count	nil		
Wind day of count	5		
Time since last snow fall (hrs)	30		
Comments	**Used GPS 76**		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
319	442000	6809035	VUVU	TR	1		
324	442041	6809027	VUVU	TR	1		
325	442368	6808720	LAMU	TR	10		
326	442473	6808013	LAMU	TR	4		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	Comments
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	
POC	72	68	69	70	
500	92	75	71	79	
POT	71	56	72	66	

October

Samplers	JS/MP	Precip.	
Date m/d/y	19/10/2010	Precip.	nil
Start Time (24hr)	14:46		
End Time (24hr)	1508		
Weather day before count: Temp(°C)			
Weather day of count: Temp(°C)	-1		
Wind before count			
Wind day of count	0		
Time since last snow fall (hrs)	24		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
500	441023	6809877	MAAM	TR	1	fresh
500	441023	6809877	VUVU	TR	1	1-2days old
501	440955	6809969	VUVU	TR	multiple	1-2 days old
502	440897	6810048	MUER	TR	1	fresh
503	440825	6810117	VUVU	TR	1	1 day old
504	440808	6810139	MAAM	TR	1	1 day old
505-506	440636	6810314	MAAM	TR	multiple	tracks from same animal crossing trail
507	440521	6810502				

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
POT	24	29	35	29	WP500
400m	33	40	27	33	WP504
POC	18	21.5	19	20	WP507

November

Samplers	JS	Precip.	medium
Date m/d/y	25/11/2010	Precip.	nil
Start Time (24hr)	1412		
End Time (24hr)	1432		
Weather day before count: Temp(°C)	-15		
Weather day of count: Temp(°C)	-5		
Wind before count	5-10		
Wind day of count	0-5		
Time since last snow fall (hrs)	24		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
578	440609	6810448	CALU	TR	1	ALL FRESH TRACKS
579	632	340	MUER	TR	1	
580	634	325	SOAR	TR	3	
581	665	274	bird ?	TR	1	
582	678	261	MUER	TR	1	
583	703	231	MUER	TR	1	
584	710	223	MAAM	TR	1	
585	712	219	LEAM	TR	1	
586	746	189	CALU	TR	1	
586	746	189	LEAM	TR	1	
587	782	165	bird ?	TR		
587	782	**165**	MUER	TR	1	
588	818	127	LEAM	TR	1	
588	818	127	MUER	TR	multiple	
589	865	78	bird ?	TR	multiple	
590	952	9979	ptarmigan	TR	multiple	
591	441021	9882	MUER	TR	1	
			CALU	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
POC 0m	38	32	48	39	WP 577
400m	35	37	37	36	WP 587
POT 800m	38	37	36	37	WP 591

December

Samplers	JS		
Date m/d/y	22/12/2010		
Start Time (24hr)	1400		
End Time (24hr)	1420		
Weather day before count: Temp(°C)	-20		
Weather day of count: Temp(°C)	-15		
Wind before count	5-10	Precip.	nil
Wind day of count	0-5	Precip.	very little
Time since last snow fall (hrs)	48		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
716	440515	68105123	CALU	TR	2	**ALL FRESH TRACKS**
716	515	513	LAMU	TR	15	
717	583	471	LAMU	TR	10	
718	580	459	LAMU	TR	10	LAMU are everywhere
719	633	387	LAMU	TR	10	
719	633	351	CALU	TR	2	
720	633	351	LAMU	TR	10	
721	637	319	LAMU	TR	30	
721	637	319	CALU	TL	1	
722	678	259	LEAM	TL	1	
723	740	190	LAMU	TR	10	
723	740	190	LAMU	TR	10	
725	897	50	LAMU	TR	1	
726	907	44	LEAM	TL	2	
727	922	22	LAMU	TR	30	
728	987	6809938	LAMU	TR	10	
729	441024	6809883	LAMU	TR	10	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
0m	49	59	51	53	WP-716 POC
400m	43	49	56	49	WP-724
800m	47	48	49	48	WP-729 POT

WINTER WILDLIFE MONITORING SURVEY

January

Samplers	RM/MD	Precip.	snow in the morning
Date m/d/y	01/09/2010	Precip.	none
Start Time (24hr)	1030		
End Time (24hr)	1130		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-12		
Wind before count	5 to 10 km/hr		
Wind day of count	5 to 10 km/hr		
Time since last snow fall (hrs)	~24		
Comments			

Distance	Species Code	Sign Type	# of sign	Habitat	Comments
10	LAMU	TR	1		Today
850	VUVU	TR	1		Following ski doo trail
1225	VUVU	TR	2		
1750	VUVU	TR	1		
2260	CALA	TR	1		weaving down the valley

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
(POC) 0	52	48	56	52	
500	47	42	59	49.33	
1000	55	56	61	57.33	
1500	63	64	69	65.33	
2000	51	62	60	57.67	
2500	64	59	70	64.33	
3000	60	50	77	62.33	
(POT) 3500	68	54	59	60.33	

February

Samplers	RM/md	Precip.	Nil
Date m/d/y	19/02/2010	Precip.	Nil
Start Time (24hr)	8:00		
End Time (24hr)	9:00		
Weather day before count: Temp(°C)	-5		
Weather day of count: Temp(°C)	-5		
Wind before count	0-5		
Wind day of count	0-5		
Time since last snow fall (hrs)	~72		
Comments	**Used GPS 76 to mark points**		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
127	440496	6810230	VUVU	TR	1		fresh
128	440499	6810230	LAMU	TR	15-20		1
129	440509	6810149	VUVU	TR	2		2
130	440667	6810083	VUVU	TR	1		fresh
131	440339	6810011	MUFC	TR	1		fresh
132	440917	6809779	VUVU	TR	1		fresh
133	441299	9808789	VUVU	TR	1		fresh
134	441396	6808094	LAMU	TR	15-20		1
135	441540	6807944	LAMU	TR	15-30		1

SNOW DEPTH DATA	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**AVERAGE**
poc-Wp-126	70	21	72	54
500	75	80	78	78
1000	68	79	74	74
1500	72	75	72	73
2000	82	84	78	81
pot-Wp-136	81	84	82	82

March

Samplers	RM/JG	Precip.	light flurry in morn
Date m/d/y	14/03/2010	Precip.	none
Start Time (24hr)	10:30		
End Time (24hr)	11:35		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-8		
Wind before count	15		
Wind day of count	15-20		
Time since last snow fall (hrs)	~28hrs		
Comments	**Used GPS 76 to mark points**		

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Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
196	440486	237	LAMU	TR	1		Photos 7-10
197	440904	9796	LYCA	TR	1		
198	441792	8753	MAAM	TR	1		
199	441802	8792	ALAL	TR	1		
200	442140	8378	VUVU	TR	1		
201	442330	8126	LYCA	TR	1		
202	442407	8091	LAMU	TR	1		
203	442493	8022	MUER	TR	1		Photos 11-12
204	442490	8020	VUVU	UR	1		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Average**
0-POC	20	72	67	53
500	79	89	86	85
1000	70	75	82	76
1500	40	78	56	58
2000	51	63	69	61
2500	52	70	61	61
3000	70	74	65	70
3500-POT	76	70	65	70

April

Samplers	RM/JS	Precip.	none
Date m/d/y	12/04/2010	Precip.	none
Start Time (24hr)	8:45		
End Time (24hr)	9:30		
Weather day before count: Temp(°C)	0		
Weather day of count: Temp(°C)	0		
Wind before count	0-5		
Wind day of count	0-5		
Time since last snow fall (hrs)	48		
Comments	**Used GPS 76 to mark points**		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
371	440324	6810371	LAMU	TR	20-30		
372	440525	6810210	MAAM	TR	2		
373	440536	6810200	VUVU	TR	1		
374	440649	6810070	VUVU	TR	1		
375	440734	6810017	LAMU	TR	7		
376	440760	6809983	MAAM	TR	1		
377	441802	6808795	VUVU	TR	1		
378	442162	6808289	LAMU	TR	10		
379	442431	6808086	LAMU	TR	15-20		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Average**
POC	68	78	80	75
500	74	75	71	73
1000	86	84	73	81
1500	51	64	70	62
2000	62	63	66	64
2500	78	77	85	80
3000	70	81	76	76
3500 POT	40	71	66	59

Transect MSSA-WT05

December

Samplers	RM/JO	Precip.	nil
Date m/d/y	06/12/2010	Precip.	nil
Start Time (24hr)	1145		
End Time (24hr)	1230		
Weather day before count: Temp(°C)	-12		
Weather day of count: Temp(°C)	-10		
Wind before count	nil		
Wind day of count	0-5		
Time since last snow fall (hrs)	42		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
640	440590	6810109	ALAL	TR	3	
641	440783	6809961	LAMU	TR	60	
642	917	9776	LAMU	TR	15	
643	930	9762	VUVU	TR	1	
644	441022	9639	MAAM	TR	1	
645	180	9416	LEAM	TR	3	
646	564	8961	LEAM	TR	2	
647	768	8791	LAMU	TR	4	
648	938	8613	LAMU	TR	20	
649	442071	8471	LAMU	TR	10	
650	224	8206	LEAM	TR	3	
651	623	7914	LAMU	TR	12	
652	746	7778	MAAM	TR	2	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
0	51	53	54	53	POC
500	58	57	59	58	
1000	56	58	58	57	
1500	60	61	58	60	
2000	62	54	56	57	
2500	55	55	60	57	
3000	57	60	52	56	
3500	63	58	57	59	POT

WINTER WILDLIFE MONITORING SURVEY

January

Samplers	RM/MD	Precip.	Snow in the morning
Date m/d/y	01/09/2010	Precip.	None
Start Time (24hr)	13:35		
End Time (24hr)	14:15		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-12		
Wind before count	5-10 km/hr		
Wind day of count	5-10 km/hr		
Time since last snow fall (hrs)	~27		
Comments			

Distance	Species Code	Sign Type	# of sign	Habitat	Comments
300	ALAL	TR	1		Bull - fresh tracks
650	ALAL	TR	1		Bull - fresh tracks
720	MAAM	TR	1		fresh tracks
760	MAAM	TR	-1		
800	ALAL	TR	2		2+ days old
1230	LEAM	TR	2		fresh tracks

SNOW DEPTH DATA		(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Distance (rectified)**	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
(POC) 0		61	65	62	62.7	
500		54	55	58	55.7	
1000		63	54	59	58.7	
(POT)1400		61	65	48	58.0	

February

Samplers	RM/MK	Precip.	Nil
Date m/d/y	19/02/2010	Precip.	Nil
Start Time (24hr)	10:20		
End Time (24hr)	11:20		
Weather day before count: Temp(°C)	-5		
Weather day of count: Temp(°C)	-5		
Wind before count	0-5		
Wind day of count	0-5		
Time since last snow fall (hrs)	~72		
Comments	**Used GPS 76 to mark points**		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
164	443582	6804155	RATA	TR	3		2 days old
165	443649	6804248	MAAM	TR	1		2 days old
166	443656	4250	RATA	TR	5		1
167	443708	4273	ALAL	TR	1		fresh
168	443743	9352	RATA	TR	5		fresh
169	443244	9380	VUVU	TR	1		1
170	44377	4425	RATA	TL	3		1
171	443234	4431	LEAM	TR	1		2
172	443726	4484	RATA	TL	2		1
173	443707	4702	ALAL	TR	2		1
174	443714	4721	RATA	TL	1		1
175	443798	4819	RATA	TL	1		1
176	443857	4911	LEAM	TR	3		1
177	444001	4967	ALAL	TR	1		fresh
178	444145	5073	LEAM	TR	3		fresh
179	444166	5089	MAAM	TR	1		1
180	444176	5103	VUVU	TR	1		1
181	444198	5123	RATA	TR	3		1
182	444282	5180	RATA	B	1		1 day + photo#5
183	444296	5190	LEAM	TR	1		fresh
184	444306	5210	MICR	TR	1		fresh photos 6&7
185	444322	5213	RATA	TR	2		1
186	444367	5290	MAAM	TR	2		f
187	444352	5345	LEAM	TR	2		f
188	444302	5386	MAAM	TR	1		f
189	444256	5420	RATA	TL	1		f
190	444194	5401	LEAM	TL	1		f
191	444189	5502	LEAM	TL	1		f
192	444168	5539	ALAL	TR	1		f
193	444153	5602	MAAM	TR	3		f
194	444058	5740	MAAM	TR	1		f
195	444053	5768	RATA	TR	5		f

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**
POC Wp-164	72	77	75	75
500	57	73	70	67
1000	63	64	60	62
1500	67	65	61	64
2000	70	60	66	65
POT Wp-195	71	62	59	64

March

Samplers	RM/JG	Precip. early morn flurry
Date m/d/y	14/03/2010	Precip. very light flurry
Start Time (24hr)	14:05	
End Time (24hr)	15:15	
Weather day before count: Temp(°C)	-10	
Weather day of count: Temp(°C)	-8	
Wind before count	15	
Wind day of count	15	
Time since last snow fall (hrs)	~31hrs	
Comments	**Used GPS 76 to mark points**	

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Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Habitat**	**Comments**
232	443599	9193	LEAM	TR	1		
233	443624	9233	LAMU	TR	3		
235	443654	4244	LAMU	TR-SC	3		
238	443738	4424	MAAM	TR	1		
239	443729	4502	LAMU	TR-SC	4		Photos 21-22
240	443728	4506	MAAM	TR-SC	1		Photo 23
241	443728	4510	ALAL	TR	1		
242	443739	4567	MAAM	TR	1		
244	443753	4792	MAAM	TR	1		
245	443753	4790	MUER	TR	1		
246	443810	9829	MAAM	TR	1		
247	443879	4934	MAAM	TR	1		
248	443939	4922	LEAM	TL	2		
249	444062	5010	LEAM	TL	3		
250	444132	8065	MUER	TR	1		
251	444145	5075	MAAM	TR	2		
252	444191	5114	MUUI	TR	3		Photo 24-25
253	444233	5138	MAAM	TR	1		
254	444299	5186	MUER	TL	1		
255	444372	5285	MAAM	TR	1		
256	444187	5963	LEAM	TR	1		
257	444175	5515	LEAM	TR	1		
258	444121	5616	MAAM	TR	2		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**
0-POC	56	55	52	54
500	65	67	66	66
1000	72	62	65	66
1500	45	58	40	48
2000-POT	65	65	69	66

April

Samplers	RM/JS	Precip. early morn flurry
Date m/d/y	12/03/2010	Precip. very light flurry
Start Time (24hr)	10:30	
End Time (24hr)	11:00	
Weather day before count: Temp(°C)	-10	
Weather day of count: Temp(°C)	-8	
Wind before count	15	
Wind day of count	15	
Time since last snow fall (hrs)	~31hrs	
Comments	**Used GPS 76 to mark points**	

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Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Habitat**	**Comments**
399	3238	4419	LYCA	TR	1		
400	3713	4702	LAMU	TR	10		
401	3855	4872	ALAL	TR	2		
402	4228	5140	TAHU	TR	1		Red Squirrel (TAHU = Tamiasciurus hudsonicus petulans)
403	4297	5592	MAAM	TR	1		
404	4305	5196	MUER	TR	1		
405	4320	5290	MAAM	TR	2		
406	4358	5331	TAHU	TR	1		Red Squirrel (TAHU = Tamiasciurus hudsonicus petulans)
407	4297	5388	MAAM	TR	2		
408	4199	5461	LEAM	TR	1		
409	4156	5568	ALAL	TR	1		
410	4152	5574	LEAM	TR	1		
411	4056	5757	MAAM	TR	1		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**
POC	50	47	56	51
500	68	72	71	70
1000	73	63	65	67
1500	70	65	64	66
2000 POT	72	81	80	78

November

Samplers	JS/RM	Precip.	medium
Date m/d/y	28/11/2010	Precip.	none
Start Time (24hr)	1040		
End Time (24hr)	1120		
Weather day before count: Temp(°C)	-20		
Weather day of count: Temp(°C)	-20		
Wind before count	0-5		
Wind day of count	0-5		
Time since last snow fall (hrs)	12		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
603	444096	6805665	MAAM	TR	1	
604	444169	6805519	LEAM	TR	2	
604	444169		MAAM	TR	2	
605	444192	6805494	TAHU	TR	-2	
606	444300	6805386	LEAM	TR	1	
607	444360	6805320	LEAM	TR	3	
607	444360		TAHU	TR	1	
607	444360		MAAM	TR	4	
608	444348	6805230	MICR	TR	1	
609	444224	6805138	MAAM	TR	1	
610	443770	6804805	MAAM	TR	1	
611	443708	6804709	MAAM	TR	1	
612	443685	6804671	LEAM	TR	1	
613	443743	6804443	MAAM	TR	1	
614	443744	6804360	MAAM	TR	2	
615	443737	6804330	ALAL	TR	1	
616	443715	6804285	MAAM	TR	1	
617	443616	6804220	MAAM	TR	2	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
POC 0m	40	37	41	39	
500m	31	43	44	39	
1000m	57	40	42	46	
1500m	36	36	47	40	
POT 2000m	40	40	38	39	

WINTER WILDLIFE MONITORING SURVEY

January

Samplers	RM & MD	Precip.	Snow in the morning
Date m/d/y	01/09/2010	Precip.	None
Start Time (24hr)	11:35		
End Time (24hr)	13:20		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-12		
Wind before count	5 - 10 km/hr		
Wind day of count	5 - 10 km/hr		
Time since last snow fall (hrs)	~25 hrs ago		
Comments			

Distance	Species Code	Sign Type	# of sign	Habitat	Comments
100	MAAM	TR	1	Willow - Riverine	Fresh -Today
410	MAAM	TR	1	Willow - Riverine	Fresh -Today
420	ALAL	TR	1	Willow - Riverine	
425	ALAL	TR	1	Willow - Riverine	bull moose 1 day old
455	MAAM	TR	1	Willow - Riverine	bull moose 1 day old
470	MAAM	TR	1	Willow - Riverine	
560	MAAM	TR	1	Willow - Riverine	
640	MAAM	TR	1	Willow - Riverine	
670	MAAM	TR	1	Willow - Riverine	
910	MAAM	TR	1	Willow - Riverine	
1290	MAAM	TR	1	Willow - Riverine	
1300	MAAM	TR	1	Willow - Riverine	
1785	MUER	TR	1	Willow - Riverine	
2480	MAAM	TR	1	Willow - Riverine	
3205	ALAL	TR	1	Willow - Riverine	Bull
3400	MAAM	TR	1	Willow - Riverine	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
0 (POC)	68	54	59	60.3	
500	84	78	85	82.3	
1000	62	64	65	63.7	
1500	57	63	63	61.0	
2000	70	65	63	66.0	
2500	60	58	63	60.3	
3000	57	52	59	56.0	
3500 (POT)	61	65	62	62.7	

February

Samplers	RM/MK	Precip.	Nil
Date m/d/y	19/02/2010	Precip.	Nil
Start Time (24hr)	9:00		
End Time (24hr)	10:15		
Weather day before count: Temp(°C)	-5		
Weather day of count: Temp(°C)	-5		
Wind before count	0-5		
Wind day of count	0-5		
Time since last snow fall (hrs)	~72		
Comments	**Used GPS 76 to mark points**		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
137	442956	6807860	VUVU	TR	1	Willow - Riverine	fresh
138	443018	6807629	MAAM	TR	1	Willow - Riverine	1 day old
139	442834	7400	VUVU	TR	1	Willow - Riverine	2 day old
140	442849	7286	MAAM	TR	1	Willow - Riverine	fresh
141	442844	7206	MAAM	TR	1	Willow - Riverine	1
142	442852	7180	LEAM	TR	1	Willow - Riverine	fresh
143	443011	6910	LEAM	TR	2	Willow - Riverine	2
144	443030	6920	ALAL	TR	2	Willow - Riverine	1
145	443035	6841	RATA	TR	2	Willow - Riverine	2
146	443031	6833	MAAM	TR	1	Willow - Riverine	fresh
147	443005	6651	MUER	TR	1	Willow - Riverine	fresh
148	443025	6540	MUER	TR	1	Willow - Riverine	1
149	443016	6524	LEAM	TR	1	Willow - Riverine	2
150	443014	6475	MAAM	TR	1	Willow - Riverine	fresh
151	443156	6354	LEAM	TR	10	Willow - Riverine	fresh
152	443228	6096	VUVU	TR	1	Willow - Riverine	1
153	443274	6800610	LEAM	TR	1	Willow - Riverine	2
154	443383	5895	VUVU	TR	1	Willow - Riverine	1
155	443399	5836	MAAM	TR	1	Willow - Riverine	2
156	443423	5754	LEAM	TR	2	Willow - Riverine	2
157	443521	5496	ALAL	TR	2	Willow - Riverine	1
158	443583	5372	MAAM	TR	1	Willow - Riverine	1
159	443590	5281	MAAM	TR	2	Willow - Riverine	fresh
160	443702	5136	MAAM	TR	1	Willow - Riverine	fresh
161	443577	4992	MAAM	TR	2	Willow - Riverine	2
162	443620	4795	ALAL	TR	1	Willow - Riverine	1

Transect MCSA-WT02

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**
POC Wp-136	81	84	82	82
500	56	74	72	67
1000	63	70	71	68
1500	57	67	62	62
2000	61	78	74	71
2500	62	67	68	66
3500	72	77	68	72
4000	74	75	81	77
pot Wp-163	72	68	65	68

March

Samplers	RM/JG	Precip.	Flurries in morn
Date m/d/y	14/03/2010	Precip.	Nil
Start Time (24hr)	11:40		
End Time (24hr)	13:50		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-8		
Wind before count	15		
Wind day of count	15		
Time since last snow fall (hrs)	~29		
Comments	**Used GPS 76 to mark points**		

680....

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
205	443003	7603	MUER	TR	1		
206	442982	7585	MUER	TL	1		
207	442917	2525	MUER	TL	1		
208	442868	2462	MUER	TR	1		
209	442857	2424	MUER	TR	1		
210	442829	7399	MAAM	TR	1		
211	442847	7292	MUER	TR	1		
212	442859	7298	MUER	TR	1		
213	442847	7226	MUER	TR	1		
214	443154	6353	MUER	TR	1		
215	443184	6182	MUVI	TR	1		
216	443185	6185	LAMU	TR-SC	1		
217	443263	6031	MAAM	TR-SC	1		
218	443201	5861	MUER	TR	1		
219	443327	5854	MAAM	TR	1		
220	443325	5857	MUER	TR	1		
221	443447	5716	MAAM	TR	1		
222	443497	5520	MAAM	TR	1		
223	443522	5491	ALAL	TR	1		
224	443595	5275	MAAM	TR	1		
225	443702	5124	MUER	TR	1		
226	443668	5093	MUER	TR	1		
227	443610	5049	MUER	TR	1		
228	443619	4931	MICR	TR	1		
229	443615	4930	ALAL	TR	1		
230	443645	4930	MAAM	TR	1		Photos 18-19

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**
0-POC	76	70	65	70
500	89	84	66	80
1000	73	65	75	71
1500	71	82	74	76
2000	74	72	82	76
2500	71	75	76	74
3000	69	73	66	69
3500	41	57	59	52
4000-POT	67	70	60	66

April

Samplers	RM/JS	Precip. nil
Date m/d/y	12/04/2010	Precip. Nil
Start Time (24hr)	9:30	
End Time (24hr)	10:30	
Weather day before count: Temp(°C)	0	
Weather day of count: Temp(°C)	0	
Wind before count	0-5	
Wind day of count	05-Oct	
Time since last snow fall (hrs)	48	
Comments	**Used GPS 76 to mark points**	

	044....	680....					
Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Habitat**	**Comments**
380	2967	7561	LYCA	TR	1		
381	2928	7534	LAMU	TR	10		
382	2858	7253	MAAM	TR	1		
383	2800	7159	MUER	TR	1		
384	2804	7155	MAAM	TR	1		
385	2965	7090	MAAM	TR	1		
386	3024	804	LAMU	TR	2		
387	3018	6630	MUER	TR	2		
388	3022	6601	MAAM	TR	1		
389	3041	6536	MUER	TR	1		
390	3042	6512	LALU	TR	1		
391	3089	6435	MAAM	TR	1		
392	3261	5980	MAAM	TR	1		
393	3263	5972	MUER	TR	1		
394	3288	5865	VUVU	TR	1		
395	3431	5780	LYCA	TR	1		
396	3566	5337	VUVU	TR	1		
397	3632	5069	MAAM	TR	1		
398	3608	4930	MAAM	TR	1		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**
POC	78	85	82	82
500	69	67	78	71
1000	48	75	78	67
1500	88	82	87	86
2000	78	80	73	77
2500	81	68	77	75
3000	48	59	58	55
3500	68	79	77	75
POT	82	74	74	77

December

Samplers	RM/JO	Precip. nil
Date m/d/y	06/12/2010	Precip. nil
Start Time (24hr)	1230	
End Time (24hr)	1345	
Weather day before count: Temp(°C)	-12	
Weather day of count: Temp(°C)	-10	
Wind before count	nil	
Wind day of count	nil	
Time since last snow fall (hrs)	43	
Comments		

Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Comments**
653	442689	6807240	LEAM	TR	1	
654	442814	6807075	MAAM	TR	1	
655	4430253	6770	MAAM	TR	1	
656	86	6434	MAAM	TR	2	
657	177	6244	MAAM	TR	1	
658	285	6033	LEAM	TR	2	
659	425	5782	LEAM	TR	2	
660	731	4705	MAAM	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	
0m	60	66	61	62	POC
500m	57	56	58	57	
1000m	58	52	60	57	
1500m	44	48	55	49	
2000m	60	61	55	59	
2500m	57	57	63	59	
3000m	51	61	58	57	
3500m	68	62	56	62	POT

WINTER WILDLIFE MONITORING SURVEY

January

Samplers	RM & JS	Precip.	None
Date m/d/y	01/02/2010	Precip.	None
Start Time (24hr)	10:50		
End Time (24hr)	12:30		
Weather day before count: Temp(°C)	-34		
Weather day of count: Temp(°C)	-35		
Wind before count	0-5 km/hr		
Wind day of count	0-5 km/hr		
Time since last snow fall (hrs)	~96		
Comments			

Distance	Species Code	Sign Type	# of sign	Habitat	Comments
160	ALAL	TL	1	Boreal lowland / covered habitat (spruce dom.)	Recent track
1000	ALAL	TR	1	Boreal lowland / covered habitat (spruce dom.)	
1000	CALU	TR	3 or 4	Boreal lowland / covered habitat (spruce dom.)	Wolves following
1850	ALAL	TR	1	Boreal lowland / covered habitat (spruce dom.)	Young moose
1850	LEAM	TR	1+	Boreal lowland / covered habitat (spruce dom.)	Trail
1870	LEAM	TR	1	Boreal lowland / covered habitat (spruce dom.)	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
0 (POC)	38	40	50	42.7	
500	44	43	44	43.7	
1000	50	46	38	44.7	
1510	56	49	32	45.7	
2000 (POT)	62	52	26	46.7	

February

Samplers	RM & MK	Precip.	None
Date m/d/y	08/02/2010	Precip.	None
Start Time (24hr)	15:00		
End Time (24hr)	17:15		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-5		
Wind before count	5-10 km/hr		
Wind day of count	Nil		
Time since last snow fall (hrs)	~100		
Comments	**Used GPS 76 to mark points**		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
38	452498	6816782	RATA	TR	1	Boreal lowland / covered habitat (spruce dom.)	3+ days old
39	452539	6816848	ALAL	TR	1	Boreal lowland / covered habitat (spruce dom.)	Bull
40	452588	6916988	ALAL	TR	3	Boreal lowland / covered habitat (spruce dom.)	Mother and 2 calves
44	452639	6817129	ALAL	TR	3	Boreal lowland / covered habitat (spruce dom.)	Could be same as above
46	452675	6817173	RATA	TR and B	15-20	Boreal lowland / covered habitat (spruce dom.)	Herd stopped here for a while
47	452699	6817280	RATA	B	3	Boreal lowland / covered habitat (spruce dom.)	Part of above herd
48	452727	6817368	VUVU	TR	1	Boreal lowland / covered habitat (spruce dom.)	Short gate, small print but 3+ days old
49	452798	6817578	RATA	TR	3	Boreal lowland / covered habitat (spruce dom.)	
50	452817	6817678	ALAL	TR	1	Boreal lowland / covered habitat (spruce dom.)	Bull ~2 days old
51	452813	6817689	LEAM	TR	2	Boreal lowland / covered habitat (spruce dom.)	
52	452812	6817711	ALAL	TR	2	Boreal lowland / covered habitat (spruce dom.)	
53	452809	6817726	RATA	TR	3	Boreal lowland / covered habitat (spruce dom.)	
54	452817	6817877	LEAM	TR	1	Boreal lowland / covered habitat (spruce dom.)	
55	452819	6817902	LEAM	TL	4	Boreal lowland / covered habitat (spruce dom.)	Several tracks in general area with distinct trails
56	452806	6818003	MAAM	TR	1	Boreal lowland / covered habitat (spruce dom.)	
57	452763	6818165	LEAM	TL	1	Boreal lowland / covered habitat (spruce dom.)	
58	452776	6818226	LEAM	TL	3	Boreal lowland / covered habitat (spruce dom.)	
59	452788	6818266	VUVU & LEAM	TR	1 & 1	Boreal lowland / covered habitat (spruce dom.)	Photo 23
60	452834	6818322	LEAM	TR	1	Boreal lowland / covered habitat (spruce dom.)	
61	452850	6818345	LEAM	TL	2	Boreal lowland / covered habitat (spruce dom.)	
62	452851	6818345	ALAL	TR	2	Boreal lowland / covered habitat (spruce dom.)	Mother and a calf
63	452874	6818432	LYCA	TR	1	Boreal lowland / covered habitat (spruce dom.)	Photo 25
64	452871	6818447	MUER	TR	1	Boreal lowland / covered habitat (spruce dom.)	
65	452882	6818479	LEAM	TR	1	Boreal lowland / covered habitat (spruce dom.)	
66	452901	6818507	RATA	TR	1	Boreal lowland / covered habitat (spruce dom.)	
68	452907	6818547	ALAL & MUER	TR	1 & 1	Boreal lowland / covered habitat (spruce dom.)	
70	452921	6818590	ALAL	TR	1	Boreal lowland / covered habitat (spruce dom.)	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
0 (POC)	48	45	49	47.3	
500	50	50	49	49.7	
1000	48	40	57	48.3	
1500	48	59	53	53.3	
2000 (POT)	45	52	51	49.3	

March

Samplers	RM & JS	Precip.	None
Date m/d/y	22/03/2010	Precip.	very light
Start Time (24hr)	9:05		
End Time (24hr)	10:08		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-15		
Wind before count	0-10		
Wind day of count	0		
Time since last snow fall (hrs)	~36		
Comments	**Used GPS 76 to mark points**		
	452...	681....	

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
259	488	6723	MICR	TR	1		All tracks found were fresh
260	504	6810	MUER	TR	1		
261	679	7194	MUER	TR	1		
262	813	7936	LEAM	TR	2		
263	774	8224	LEAM	TR	1		
264	785	8245	LEAM	TR	1		
265	873	8458	LEAM	TR	1		
266	884	8472	LEAM	TR	1		
267	917	8589	LEAM	TR	2		
268	910	8671	LEAM	TR	2		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
0 (POC)	57	64	58	60	
500	65	63	50	59	
1000	52	49	72	58	
1500	72	56	75	68	
2000 (POT)	61	51	61	58	

April

Samplers	RM & JS	Precip.	None
Date m/d/y	16/04/2010	Precip.	none
Start Time (24hr)	10:15		
End Time (24hr)	11:20		
Weather day before count: Temp(°C)	6		
Weather day of count: Temp(°C)	4		
Wind before count	0		
Wind day of count	0		
Time since last snow fall (hrs)	114		
Comments	**Used GPS 76 to mark points**		
	452…	681….	

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
412	452926	6818569	LEAM	SC	1	picture
413	452918	6818625	Squirrel	Food	1	Red Squirrel (TAHU = Tamiasciurus hudsonicus petulans) - evidence of foraging

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
POC	67	60	63	63	
450	49	52	56	52	
1000	36	44	39	40	
1500	52	57	40	50	
POT	50	42	38	43	

November

Samplers	RM/MP	Precip.	nil
Date m/d/y	07/11/2010	Precip.	nil
Start Time (24hr)	1500		
End Time (24hr)	1030		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-9		
Wind before count	0-5		
Wind day of count	nil		
Time since last snow fall (hrs)	41hrs		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
529	450499	6812312	RATA/LEAM	TR	3	
530	511	2416	LEAM	TR	4	
531	507	2464	LEAM	TR	6	
532	493	2510	LEAM	TR	5	
533	471	2583	RATA	TR	3	
534	490	2704	LEAM	TR	2	
535	493	2786	LYCA/LEAM	TR/TL	1/2	
536	505	2800	LEAM	TL	4	
537	494	2912	LEAM	TL	5	
538	491	2954	LEAM	TL	6	
539	490	3023	LEAM	TL	5	
540	453	3139	LEAM/RATA	TR/TR	8/10	
541	446	3242	LEAM	TL	4	
542	559	3390	LEAM	TR	4	
543	559	3496	LEAM	TR	3	
544	670	3579	LEAM/?	TR/TL	10/1	
545	628	3686	LEAM	TL	10	
546	580	3906	LEAM	TL	5	
547	569	3917	CALU	TR	1	
548	568	3989	RATA	TR	3	old kill site of a LEAM
549	582	4070	LEAM/MICR	TR	5/1	
550	523	9179	RATA	TL	1	
551	585	9290	CALU	TR	4	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
POC	20	23	13	19	
500	17	18	16	17	
1000	18	17	26	20	
1500	15	23	19	19	
POT	22	21	15	19	

December

Samplers	RM/CS	Precip.	nil
Date m/d/y	03/12/2010	Precip.	nil
Start Time (24hr)	1300		
End Time (24hr)	1500		
Weather day before count: Temp(°C)	-22		
Weather day of count: Temp(°C)	-23		
Wind before count	nil		
Wind day of count	nil		
Time since last snow fall (hrs)	34		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
618	452699	6817275	LEAM	TR	1	
619	699	7277	MAAM	TR	1	
620	707	7281	LYCA	TR	1	
621	707	7281	LEAM	TL	2	
622	707	7281	LEAM	TL	3	
623	717	7318	MAAM	TR	2	
624	785	7506	MAAM	TR	1	
625	809	7629	LEAM	TR	3	
626	815	7697	LEAM	TL	2	
627	814	7927	LEAM	TL	3	
628	811	7946	MAAM	TR	2	
629	813	7950	LEAM	TR	5	
630	787	8022	LEAM	TR	1	
631	765	8153	MAAM	TR	1	
632	771	8236	LYCA	TR	1	
633	789	8256	LEAM	TR	3	
634	851	8330	LEAM	TL	1	
635	884	8453	LEAM	TL	2	
636	873	8495	LEAM	TL	1	
637	903	8533	MAAM	TL	1	
638	922	8594	MAAM	TR	2	
639	909	8663	LEAM	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	Snow Depth #1	Snow Depth #2	Snow Depth#3	Avg. Snow depth	Comments
0m	16	18	25	20	POC
500m	28	22	25	25	
1000m	31	25	26	27	
1500m	24	23	24	24	
2000m	30	32	32	31	POT

WINTER WILDLIFE MONITORING SURVEY

February

Samplers	RM/JS	Precip. Nil
Date m/d/y	18/02/2010	Precip. Nil
Start Time (24hr)	14:00	
End Time (24hr)	15:40	
Weather day before count: Temp(°C)	-5	
Weather day of count: Temp(°C)	-3	
Wind before count	0-5	
Wind day of count	0-15	
Time since last snow fall (hrs)	~24	
Comments	**Used GPS 76 to mark points**	

	450….	681….				
Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Comments**
80	531	2371	LEAM	TR	3	
81	524	2405	MUER	TR	1	
82	508	2452	LEAM	TL	2	
83	504	2810	LEAM	TR	fresh	
84	489	3026	LEAM	TR	1	
85	496	3041	LEAM	TL	1	
86	493	3052	MAAM	TR	2	
87	491	3057	MUER	TR	1	
88	484	3082	LEAM	TL	3	
89	475	3111	MUER	TR	1	
90	452	3180	MUER	TR	1	
91	445	3255	ALAL	TR	2	
92	441	3267	LEAM	TR	1	
93	514	3346	ALAL	TR	1	
94	623	3558	LEAM	TR	2	
95	629	3562	MUER	TR	1	
96	638	3320	LEAM	TL	1	
97	643	3657	LEAM	TL	fresh	
98	618	3758	LEAM	TL	fresh	
99	620	3767	MUER	TR	fresh	
100	617	3712	LEAM	TR	fresh	
101	595	3816	MUER	TR	1	
102	593	3825	LEAM	TR	1	
103	600	3854	LEAM	TR	1	
104	507	3890	MUER	TR	1	
105	562	3933	LEAM	TR	1	
106	577	3974	LEAM	TR	1	
107	589	4017	MUER	TR	1	
108	572	4058	LEAM	TL	1	
109	576	4176	LEAM	TL	1	
110	519	4245	LEAM	TL	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Average**
poc Wp-79	56	63	57	59
500m	59	53	51	54
1000m	64	68	72	68
1500m	72	55	54	60

March

Samplers	RM/JS	Precip. Nil
Date m/d/y	22/03/2010	Precip. very light in morn
Start Time (24hr)	11:15	
End Time (24hr)	12:20	
Weather day before count: Temp(°C)	-10	
Weather day of count: Temp(°C)	-10	
Wind before count	0-5	
Wind day of count	0-5	
Time since last snow fall (hrs)	~39	
Comments	**Used GPS 76 to mark points**	

	450….	681….				
Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Comments**
269	494	3028	MUER	TR	1	
270	494	3040	LEAM	TL	1	
271	498	2048	LEAM	TR	1	
272	477	3094	LEAM	TR	1	
273	472	3110	MICR	TR	3	
274	439	3275	LEAM	TR	1	
275	496	2323	LEAM	TR	1	
276	634	3563	MUER	TR	1	
277	639	3632	LEAM	TR	1	
278	606	3736	LEAM	TR	1	
279	598	3852	LEAM	TL	1	
280	583	3891	LEAM	TR	1	
281	569	3911	LEAM	TL	1	
282	583	3932	LEAM	TR	3	
283	581	4032	LEAM	TR	5+	
284	584	4112	LEAM	TL	1	
285	584	4213	LEAM	TL	4	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Average**
POC	55	72	66	64
500	64	60	69	64
1000	52	56	77	62
1500	60	58	64	61
POT	67	67	59	64

April

Samplers	RM/JS	Precip. Nil	
Date m/d/y	11/04/2010	Precip.	
Start Time (24hr)	12:50		
End Time (24hr)	?		
Weather day before count: Temp(°C)	-3		
Weather day of count: Temp(°C)	-3		
Wind before count	0-5		
Wind day of count	0-5		
Time since last snow fall (hrs)	31		
Comments	**Used GPS 76 to mark points**		

	450….	681….				
Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Comments**
348	492	2303	TAHU	TR	1	Red Squirrel (TAHU = Tamiasciurus hudsonicus petulans)
350	520	2408	TAHU	TR	1	
351	519	2407	LEAM	TR	1	
352	519	2408	LYCA	TR	1	
353	500	2898	LEAM	TR	1	
354	481	2966	TAHU	TR	1	
355	491	3030	TAHU	TL	3	
356	498	3040	LEAM	TR	5	
357	453	3153	LEAM	TR	4	
358	446	3214	MAAM	TR	1	
359	456	3303	LEAM	TR	4	
360	506	3341	LEAM	TL	1	
361	558	3421	LEAM	TL	1	
362	598	3482	TAHU	TR	2	
363	641	3567	MUER	TR	2	
364	644	3623	TAHU	TR	3	
365	636	3650	MICR	TR	1	
366	606	3801	TAHU	TR	4	
367	565	3954	LEAM	TL	2	
368	573	4054	LEAM	TR	2	
369	585	4118	LEAM	TR	6	
370	578	4185	LEAM	TR	4	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Average**
POC	49	48	54	50
500	53	42	48	48
1000	52	56	49	52
1500	48	55	68	57
POT	53	60	52	55

November

Samplers	RM/MP	Precip. light	
Date m/d/y	05/11/2010	Precip. nil	
Start Time (24hr)	1430		
End Time (24hr)	1015		
Weather day before count: Temp(°C)	-5		
Weather day of count: Temp(°C)	-3		
Wind before count	5-10		
Wind day of count	0-5		
Time since last snow fall (hrs)	20hrs		
Comments			

Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**
906	452507	6816814	LEAM	TR	1
907	615	7107	LEAM	TR	1
908	677	7109	MAAM	TR	1
909	757	7425	MAAM	TR	1
910	798	7576	MAAM	TR	2
911	819	7699	MAAM	TR	1
912	815	7672	TAHU	TR	2
913	814	7838	MAAM/LYCA	TR	1/1
914	808	7963	LYCA/LEAM	TR	1/1/1/1
915	771	8137	LYCA/TAHU	TR	1/1/1
916	791	8269	TAHU	TR	1
917	871	8387	TAHU	TR	1
918	878	8400	ALAL	TR	1
919	911	8645	LEAM	TR	1

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
POC	10	14	12	12	
500m	14	17	11	14	
1000m	13	16	15	15	
1500m	28	20	18	22	
POT	23	19	26	23	

Transect PCSA-WT02

December		
Samplers	RM/JS	Precip. light
Date m/d/y	08/12/2010	Precip. nil
Start Time (24hr)	1205	
End Time (24hr)	1400	
Weather day before count: Temp(°C)	-22	
Weather day of count: Temp(°C)	-20	
Wind before count	5-10	
Wind day of count	5-10	
Time since last snow fall (hrs)	42	
Comments		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign
669	450514	6812394	LEAM	TR	2
670	507	3457	LEAM	TR	3
671	496	2488	LEAM	TL	1
672	459	2601	LEAM	TL	1
673	448	2638	MAAM	TR	1
674	452	2637	MUER	TR	1
675	491	2769	LEAM	TL	1
676	506	2882	LEAM	TL	2
677	488	2967	LEAM	TL	1
678	476	3316	LEAM	TR	3
679	485	3341	LEAM	TL	1
680	594	3481	LEAM	TR	1
681	613	3552	LEAM	TR	1
682	636	3627	MAAM	TR	1
683	622	3753	MAAM	TL	1
684	620	3776	LEAM	TL	2
685	607	3800	MAAM	TL	1
686	582	3898	LEAM	TL	3
687	555	3932	LEAM	TL	1
688	587	4067	LEAM	TL	3
689	584	4070	ALAL	TR	2
690	577	4088	LEAM	TR	4
691	574	4129	LEAM	TL	2
692	575	4185	LEAM	TL	4
693	572	4261	LEAM	TL	1

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**
0m	30	25	28	28
500m	25	36	35	32
1000m	33	33	37	34
1500m	29	31	30	30
2000m	33	30	34	32

Transect PCSA-WT03

WINTER WILDLIFE MONITORING SURVEY

January

Samplers	RM & JS	Precip.	None
Date m/d/y	01/04/2010	Precip.	None
Start Time (24hr)	10:45		
End Time (24hr)	13:10		
Weather day before count: Temp(°C)	-41		
Weather day of count: Temp(°C)	-30		
Wind before count	0-5 km/hr		
Wind day of count	0-5 km/hr		
Time since last snow fall (hrs)	~144 hrs		
Comments			

Distance	Species Code	Sign Type	# of sign	Habitat	Comments
1220	MUER	TR	1	Boreal Highland / sloping hill in cover	
1250	MUER	TR	1	Boreal Highland / sloping hill in cover	Scattered tracks
1280	MUER	TR	1	Boreal Highland / sloping hill in cover	
1450	RATA	TR	4 OR 5	Boreal Highland / sloping hill in cover	
1460	MICR	TR	1	Boreal Highland / sloping hill in cover	
1560	LEAM	TR	1	Boreal Highland / sloping hill in cover	
1640	LEAM	TR	1	Boreal Highland / sloping hill in cover	
1780	LEAM	TR	1	Boreal Highland / sloping hill in cover	
1790	LEAM	TR	1	Boreal Highland / sloping hill in cover	
1810	LEAM	TR	1	Boreal Highland / sloping hill in cover	
1810	LUCA	TR	1	Boreal Highland / sloping hill in cover	
1990	LEAM	TR	1	Boreal Highland / sloping hill in cover	
2010	LEAM	TR	1	Boreal Highland / sloping hill in cover	
2090	LEAM	TR	1	Boreal Highland / sloping hill in cover	
2115	LEAM	TR	1	Boreal Highland / sloping hill in cover	
2145	MAAM	TR	1	Boreal Highland / sloping hill in cover	
2250	LUCA	TR	1	Boreal Highland / sloping hill in cover	
2255	LEAM	TR	1	Boreal Highland / sloping hill in cover	
2370	LEAM	TR	1	Boreal Highland / sloping hill in cover	
2400	MAAM	TR	1	Boreal Highland / sloping hill in cover	
2432	MICR	TR	1	Boreal Highland / sloping hill in cover	
2452	LEAM	TR	1	Boreal Highland / sloping hill in cover	
2480	MAAM	TR	1	Boreal Highland / sloping hill in cover	
2586	LEAM	TR	1	Boreal Highland / sloping hill in cover	
2603	MUER	TR	1	Boreal Highland / sloping hill in cover	
2780	LEAM	TR	1	Boreal Highland / sloping hill in cover	
2806	LEAM	TR	1	Boreal Highland / sloping hill in cover	
2873	LEAM	TR	1	Boreal Highland / sloping hill in cover	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
0 (POC)	59	56	63	59.3	
500	40	49	51	46.7	
WT03/POT/WT02/1000	44	49	52	48.3	
1500	49	41	44	44.7	
2000	29	39	32	33.3	
2500	46	46	47	46.3	
(WT02/POT)3000	42	44	48	44.7	

February

Samplers	RM/JS	Precip.	Nil
Date m/d/y	18/02/2010	Precip.	Nil
Start Time (24hr)	14:00		
End Time (24hr)	14:40		
Weather day before count: Temp(°C)	-5		
Weather day of count: Temp(°C)	-3		
Wind before count	0-5		
Wind day of count	0-15		
Time since last snow fall (hrs)	~24		
Comments	**Used GPS 76 to mark points**		

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Habitat	Comments
72	450726	6811453	MAAM	TR	1		1+days
73	450712	6811521	MAAM	TR	1		1+days
74	450714	6811523	LYCA	TR	1		1+days
75	450709	6811568	MUER	TR	1		1+days
76	450626	6811890	MAAM	TR	1		2+
77	450564	6812041	MAAM	TR	1		2+
78	450495	6812260	MAAM	TR	1		3+

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
POC	58	51	67	59	
500m	57	54	56	56	
POT	56	63	57	59	

March

Samplers	RM/JS		
Date m/d/y	22/03/2010		
Start Time (24hr)	10:45		
End Time (24hr)	11:15		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-10		
Wind before count	0-5	Precip.	Nil
Wind day of count	0	Precip.	Nil
Time since last snow fall (hrs)	~38		
Comments	**NO TRACKS FOUND**		

SNOW DEPTH DATA	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	
POC	55	52	66	58
500	79	73	72	75

April

Samplers	RM/JS	Precip.	Nil
Date m/d/y	11/04/2010	Precip.	Nil
Start Time (24hr)	12:00		
End Time (24hr)	12:50		
Weather day before count: Temp(°C)	-3		
Weather day of count: Temp(°C)	-3		
Wind before count	0-5		
Wind day of count	0-5		
Time since last snow fall (hrs)	30		
Comments	**Used GPS 76 to mark points**		

	450...	681...				
Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Comments**
334	691	1332	LEAM	TR	1	
335	722	1377	MUVI	TR	1	
336	707	1496	LEAM	TR	1	
337	709	1556	TAHU	TR	1	Red Squirrel (TAHU = Tamiasciurus hudsonicus petulans)
339	708	1580	MICR	TR	1	
340	701	1658	LEAM	TR	1	
341	674	1687	TAHU	TR	1	
342	87	1721	PECA	TR	2	Gray Jay (PECA = Perisoreus canadensis)
343	671	1756	TAHU	TR	1	
344	612	1958	TAHU	TR	1	
347	508	2223	TAHU	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	
POC	62	63	37	54
500	42	54	59	52
POT	49	48	54	50

November

Samplers	RM/MP	Precip.	nil
Date m/d/y	07/11/2010	Precip.	nil
Start Time (24hr)	1400		
End Time (24hr)	1500		
Weather day before count: Temp(°C)	-10		
Weather day of count: Temp(°C)	-9		
Wind before count	0-5		
Wind day of count	nil		
Time since last snow fall (hrs)	40hrs		
Comments			

Waypoint	**Easting**	**Northing**	**Species Code**	**Sign Type**	**# of sign**	**Comments**
509	450707	6811331	LEAM	TR	4	
510	718	1387	LEAM	TL	3	
511	724	1450	LYCA/TAHU	TR/TR	1/1	
512	711	1507	LYCA	TR	1	
514	698	1624	TAHU	TR	1	
515	692	1666	MYCR	TR	1	
516	685	1736	LEAM	TR	1	
517	677	1176	MAAM	TR	1	
518	665	1790	MAAM	O/TR	1	
519	645	1846	RATA	TR/U	2	
520	625	1877	RATA	TR	2	
521	628	1885	MAAM	TR	1	
522	620	1921	MAAM	TR	1	
523	582	1973	TAHU	TR	1	
524	562	2046	LEAM	TR	1	
525	559	2097	MAAM	TR	1	
526	540	2154	ALAL	TR	1	
527	488	2273	RATA/LEAM	TR	1/4	
528	483	2278	LYCA	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
POC	12	11	7	10	
500	26	17	18	20	
POT	20	23	13	19	

Transect PCSA-WT03

December

Samplers	RM/JS	Precip.	nil
Date m/d/y	08/12/2010	Precip.	light
Start Time (24hr)	1120		
End Time (24hr)	1200		
Weather day before count: Temp(°C)	-22		
Weather day of count: Temp(°C)	-20		
Wind before count	5-10		
Wind day of count	5-10		
Time since last snow fall (hrs)	48		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
661	450690	6811323	LYCA	TR	1	
662	705	1330	LEAM	TR	4	
663	720	1384	LEAM	TL	2	
664	709	1514	LEAM	TR	1	
665	686	1698	LYCA	TR	1	
666	630	1876	MAAM	TR	1	
667	585	1980	MAAM	TR	1	
668	485	2286	LEAM	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
0m	29	29	32	30	POC
500m	37	35	40	37	
1000m	30	25	28	28	POT

WINTER WILDLIFE MONITORING SURVEY

April

Newly established transect that crosses valley within Putt Creek Survey Area

Samplers	RM/JS		
Date m/d/y	18/04/2010		
Start Time (24hr)	15:00		
End Time (24hr)	16:00		
Transect Bearing	10.5 degrees		
Point Of Commencement (POC)	0450554 E	6814048 N	WP = 414
Point Of Termination (POT)	0450967 E	6813940 N	WP = 415
Transect length	~0.5 KM		
Weather	Some cloud (10 degrees C)		
Comments	**Used GPS 76 to mark points**		
	First half of transect is a cutline moving diagonally down hill; second half goes straight down hill toward lake		
	May need to extend at a later date if necessary		

November

Samplers	JS/JG	Precip.	none
Date m/d/y	18/11/2010	Precip.	none
Start Time (24hr)	1238		
End Time (24hr)	1340		
Weather day before count: Temp(°C)	-18		
Weather day of count: Temp(°C)	-19		
Wind before count	0-5		
Wind day of count	0		
Time since last snow fall (hrs)	12		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
920	450576	6814034	LEAM	TL	multiple	
921	591	4021	CALU	TL	multiple	
922	621	4001	LEAM	TL	1	
923	637	3938	LEAM	TL	multiple	
924	641	3986	VUVU	TR	1	
925	649	3982	CALU	TR	2	
926	659	3974	LEAM	TL	multiple	
927	668	3967	LEAM	TL	multiple	
928	683	3956	LEAM	TL	multiple	
929	689	3954	MUER	TR	1	
GPS memory full	702	3942	LEAM	TL	multiple	
	706	3937	TAHU	TR	1	
	717	3936	LEAM	TL	multiple	
	727	3939	MAAM	TR	1	
	741	3938	LEAM	TR	2	
	749	3940	TAHU	TR	1	
	758	3936	MUER	TR	1	
	758	3936	LEAM	TR	1	
	765	3935	LEAM	TL	multiple	
	770	3936	TAHU	TR	1	
	779	3936	LEAM	TL	1	
	786	3938	LEAM	TL	1	
	808	3938	LEAM	TL	1	
	816	3939	MUER	TL	1	
	819	3941	TAHU	TR	1	
	824	3941	MAAM	TL	1	
	835	3943	TAHU	TL/UR	1	
	843	3939	LEAM	TR	1	
	843	3939	MUER	TR	1	
	861	3939	TAHU	TR	1	
	879	3940	MAAM	TR/SC/UR	1	
	889	3943	LEAM	TR	1	
	910	3950	CALU	TR	1	
	910	3950	LEAM	TL	1	
	924	3941	SOAR	TR	1	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
POC	37	40	26	34	WP 920
216m	25.5	24.5	34	28	
POT	10.5	12	10	11	450964, 6813942

Transect PCSA-WT04

December

Samplers	JS/RM	Precip.	little
Date m/d/y	31/12/2010	Precip.	little
Start Time (24hr)	1350		
End Time (24hr)	1415		
Weather day before count: Temp(°C)	-20		
Weather day of count: Temp(°C)	-15		
Wind before count	10-15		
Wind day of count	0		
Time since last snow fall (hrs)	12		
Comments			

Waypoint	Easting	Northing	Species Code	Sign Type	# of sign	Comments
730	450564	6814047	LEAM	SC/TL	2	
731	4500571	6814043	LEAM	TL	3	
732	4500581	6814037	LEAM	TL	3	
733	450706	6813946	LEAM	TL	5	
734	450712	6813933	LEAM	TL	3	
			TAHU	TL	1	
735	450830	6813944	LEAM	TR	1	
736	450924	6813948	LEAM	TL	2	

SNOW DEPTH DATA	(cm)	(cm)	(cm)	(cm)	
Distance(m)	**Snow Depth #1**	**Snow Depth #2**	**Snow Depth#3**	**Avg. Snow depth**	**Comments**
POC	50	48	45	48	
265	49	54	54	52	
POT	26	26	18	23	

Appendix C Total Metals Levels in Vegetation – Summary Data

Total Metals in Levels in Vegetation - Summary Data

				Total Metals by ICP-MS (mg/kg)																															
Station Name	Sample Date	Sample No.	Moisture (%)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
MCSA01	15/08/2010	2010-MC1-STN1-SALI-A	53	69	0.1	0.04	65.8	0.1	0.1	8	2.51	12700	0.5	0.5	3.7	155	0.76	2030	224	0.01	0.2	1.1	810	7130	0.13	0.05	10	30.8	0.05	0.1	10	0.05	2	103
MCSA01	15/08/2010	2010-MC1-STN1-EQUI-A	80	46	0.1	0.05	84.1	0.1	0.1	13	0.17	22000	0.5	0.1	5.1	98	0.60	2480	59.5	0.01	0.4	0.3	1490	25400	0.24	0.05	13	55.3	0.05	0.1	2	0.05	2	17.4
MCSA01	15/08/2010	2010-MC1-STN1-CLAD-A	25	219	0.1	0.09	40.5	0.1	0.1	5	0.10	3890	0.6	0.2	1.4	296	0.26	425	46.1	0.01	0.1	0.6	376	911	0.08	0.05	10	9.8	0.05	0.1	10	0.05	2	15.7
MCSA01	15/08/2010	2010-MC1-STN2-SALI-A	62	27	0.1	0.04	20.0	0.1	0.1	10	2.26	10400	0.5	0.4	4.0	66	0.24	1850	131	0.01	0.2	0.8	1650	11900	0.22	0.05	10	17.4	0.05	0.1	2	0.05	2	184
MCSA01	15/08/2010	2010-MC1-STN2-SALI-B	61	38	0.1	0.03	21.9	0.1	0.1	9	2.65	11500	0.5	0.4	4.0	90	0.18	1870	140	0.01	0.2	0.8	1670	13600	0.23	0.05	10	19.0	0.05	0.1	3	0.05	2	224
MCSA01	15/08/2010	2010-MC1-STN2-SALI-C	63	37	0.1	0.04	22.5	0.1	0.1	8	2.42	11500	0.5	0.4	3.8	85	0.18	1840	144	0.01	0.2	0.7	1600	12500	0.23	0.05	10	19.3	0.05	0.1	4	0.05	2	202
MCSA01	15/08/2010	2010-MC1-STN2-EQUI-A	77	18	0.1	0.15	55.1	0.1	0.1	16	0.32	36400	0.5	0.2	4.8	74	0.10	3370	142	0.01	0.6	0.3	1720	28500	0.27	0.05	30	61.9	0.05	0.1	1	0.05	2	25.1
MCSA01	15/08/2010	2010-MC1-STN2-CLAD-A	19	204	0.1	0.08	15.7	0.1	0.1	5	0.05	485	0.5	0.1	1.1	209	0.34	170	95.2	0.01	0.1	0.5	412	773	0.03	0.05	10	2.3	0.05	0.1	12	0.05	2	19.6
MCSA01	15/08/2010	2010-MC1-STN3-SALI-A	57	35	0.1	0.02	21.0	0.1	0.1	6	1.24	11500	0.5	0.2	4.4	82	0.13	1890	110	0.01	0.3	0.8	1180	8840	0.19	0.05	10	18.1	0.05	0.1	4	0.05	2	164
MCSA01	15/08/2010	2010-MC1-STN3-EQUI-A	83	75	0.1	0.06	52.6	0.1	0.1	13	0.39	30400	0.5	0.2	6.6	166	0.13	3170	67.6	0.01	0.6	0.3	1630	33400	0.49	0.05	30	52.6	0.05	0.1	5	0.05	2	32.1
MCSA01	15/08/2010	2010-MC1-STN3-CLAD-A	23	74	0.1	0.04	9.9	0.1	0.1	5	0.04	587	0.5	0.1	1.2	127	0.15	243	109	0.01	0.1	0.4	508	1110	0.03	0.05	10	1.2	0.05	0.1	7	0.05	2	25.5
MCSA01	15/08/2010	2010-MC1-STN4-SALI-A	59	26	0.1	0.01	72.9	0.1	0.1	7	1.72	10600	0.5	0.1	4.9	64	0.07	2980	43.6	0.01	0.2	3.1	1750	7840	0.04	0.05	10	26.3	0.05	0.1	3	0.05	2	145
MCSA01	15/08/2010	2010-MC1-STN4-EQUI-A	79	20	0.1	0.01	95.8	0.1	0.1	19	0.26	23200	0.5	0.1	5.2	48	0.04	3730	21.7	0.01	0.3	0.2	1910	49300	0.69	0.05	22	51.9	0.05	0.1	1	0.05	2	26.0
MCSA01	15/08/2010	2010-MC1-STN4-EQUI-B	82	15	0.1	0.01	105	0.1	0.1	19	0.30	25300	0.5	0.1	4.9	44	0.03	4400	28.8	0.01	0.3	0.4	1710	44500	0.61	0.05	26	58.1	0.05	0.1	1	0.05	2	25.7
MCSA01	15/08/2010	2010-MC1-STN4-EQUI-C	79	15	0.1	0.01	93.5	0.1	0.1	19	0.29	22700	0.5	0.1	5.2	48	0.04	3780	32.9	0.01	0.3	0.4	1710	47500	0.64	0.05	24	51.8	0.05	0.1	1	0.05	2	25.9
MCSA01	15/08/2010	2010-MC1-STN4-CLAD-A	28	63	0.1	0.02	14.7	0.1	0.1	5	0.16	1100	0.5	0.1	0.9	102	0.14	334	51.4	0.01	0.1	0.3	578	1240	0.03	0.05	10	2.6	0.05	0.1	5	0.05	2	23.5
MCSA01	15/08/2010	2010-MC1-STN5-SALI-A	56	33	0.1	0.01	130	0.1	0.1	6	2.63	9870	0.5	0.4	3.3	70	0.08	1940	150	0.01	0.1	1.3	1610	5140	0.04	0.05	10	26.3	0.05	0.1	3	0.05	2	81.3
MCSA01	15/08/2010	2010-MC1-STN5-EQUI-A	78	49	0.1	0.04	71.9	0.1	0.1	19	0.18	34100	0.5	0.2	4.9	114	0.06	3520	84.2	0.01	0.5	0.4	1710	39900	0.54	0.05	26	57.2	0.05	0.1	4	0.05	2	22.9
MCSA01	15/08/2010	2010-MC1-STN5-CLAD-A	11	116	0.1	0.04	6.2	0.1	0.1	5	0.04	379	0.5	0.1	1.1	123	0.24	238	102	0.01	0.1	0.2	527	1310	0.04	0.05	10	1.2	0.05	0.1	6	0.05	2	19.5
MCSA02	16/08/2010	2010-MC2-STN1-SALI-A	63	99	0.1	0.01	233	0.1	0.1	6	6.74	12700	0.5	1.6	4.9	57	0.13	5540	501	0.01	0.4	20.8	4300	10900	0.62	0.05	10	93.5	0.05	0.1	1	0.05	2	253
MCSA02	16/08/2010	2010-MC2-STN1-EQUI-A	76	52	0.1	0.01	75.2	0.1	0.1	18	0.31	17200	0.5	0.5	4.3	39	0.16	6500	77.7	0.01	1.1	12.2	1650	30900	5.96	0.05	22	91.1	0.05	0.1	1	0.05	2	42.5
MCSA02	16/08/2010	2010-MC2-STN2-SALI-A	62	18	0.1	0.01	78.2	0.1	0.1	8	5.29	16400	0.5	0.3	4.3	55	0.07	3930	168	0.01	0.5	2.9	4470	15300	0.18	0.05	10	35.8	0.05	0.1	2	0.05	2	245
MCSA02	16/08/2010	2010-MC2-STN2-EQUI-A	76	523	0.1	0.36	112	0.1	0.1	11	0.31	21500	1.9	1.7	7.6	1140	0.42	5110	957	0.01	4.3	2.5	1550	20500	0.12	0.05	32	49.6	0.05	0.1	29	0.11	2	26.2
MCSA02	16/08/2010	2010-MC2-STN3-SALI-A	63	21	0.1	0.01	43.2	0.1	0.1	5	0.53	12100	0.5	0.1	2.8	61	0.05	4400	253	0.01	0.5	0.2	2480	9760	0.06	0.05	10	18.6	0.05	0.1	1	0.05	2	156
MCSA02	16/08/2010	2010-MC2-STN3-EQUI-A	77	15	0.1	0.05	83.3	0.1	0.1	13	0.11	23200	0.5	0.1	3.7	86	0.04	4600	102	0.01	1.6	0.1	1710	39000	0.04	0.05	38	31.7	0.05	0.1	1	0.05	2	18.1
MCSA02	16/08/2010	2010-MC2-STN4-SALI-A	60	23	0.1	0.01	155	0.1	0.1	15	4.11	8470	0.5	0.5	4.1	55	0.10	4320	94.3	0.01	0.5	3.7	3390	12600	0.83	0.05	10	37.7	0.05	0.1	1	0.05	2	108
MCSA02	16/08/2010	2010-MC2-STN4-EQUI-A	81	20	0.1	0.03	90.3	0.1	0.1	15	0.48	18800	0.5	0.2	4.5	75	0.07	4150	166	0.01	2.7	0.3	1820	35100	1.75	0.05	35	43.0	0.05	0.1	1	0.05	2	25.5
MCSA02	16/08/2010	2010-MC2-STN4-CLAD-A	18	78	0.1	0.02	12.9	0.1	0.1	5	0.08	1070	0.5	0.1	1.1	45	0.12	445	130	0.01	0.1	0.3	595	1350	0.04	0.05	10	2.9	0.05	0.1	2	0.05	2	24.6
MCSA03	16/08/2010	2010-MC3-STN1-SALI-A	65	15	0.1	0.01	43.9	0.1	0.1	11	1.10	15900	0.5	0.3	3.7	48	0.07	2410	55.2	0.01	0.2	1.0	1480	8630	0.62	0.05	10	29.0	0.05	0.1	1	0.05	2	117
MCSA03	16/08/2010	2010-MC3-STN1-EQUI-A	80	32	0.1	0.02	44.5	0.1	0.1	24	0.49	28700	0.5	0.1	4.1	73	0.53	7670	44.2	0.01	0.3	6.4	1380	35100	0.87	0.06	31	69.2	0.05	0.1	2	0.05	2	30.6
MCSA03	16/08/2010	2010-MC3-STN2-CLAD-A	45	47	0.1	0.02	12.0	0.1	0.1	5	0.27	1980	0.5	0.1	1.6	75	0.14	645	178	0.01	0.1	0.7	916	2140	0.07	0.05	10	4.3	0.05	0.1	3	0.05	2	46.6
MCSA03	16/08/2010	2010-MC3-STN2-EQUI-A	81	46	0.1	0.04	37.2	0.1	0.1	17	0.59	20600	0.5	0.2	6.8	111	0.08	4730	48.3	0.01	0.7	0.4	1650	48000	1.31	0.05	47	38.7	0.05	0.1	5	0.05	2	32.0
MCSA03	16/08/2010	2010-MC3-STN3-SALI-A	58	15	0.1	0.01	125	0.1	0.1	6	4.45	12300	0.5	0.6	5.3	47	0.05	2560	165	0.01	0.2	5.6	2210	8740	0.11	0.05	10	35.1	0.05	0.1	1	0.05	2	68.2
MCSA03	16/08/2010	2010-MC3-STN3-SALI-B	57	19	0.1	0.01	117	0.1	0.1	6	4.58	12400	0.5	0.7	5.5	52	0.06	2820	159	0.01	0.3	6.3	2760	8600	0.09	0.05	10	35.0	0.05	0.1	1	0.05	2	71.2
MCSA03	16/08/2010	2010-MC3-STN3-SALI-C	58	19	0.1	0.01	125	0.1	0.1	6	4.74	12700	0.5	0.6	5.8	52	0.05	2790	171	0.01	0.3	5.5	2580	8460	0.09	0.05	10	35.5	0.05	0.1	1	0.05	2	75.3
MCSA03	16/08/2010	2010-MC3-STN3-CLAD-A	15	56	0.1	0.04	44.9	0.1	0.1	5	0.27	2990	0.5	0.1	1.7	93	0.17	586	87.4	0.01	0.1	0.6	942	2200	0.06	0.05	10	7.8	0.05	0.1	3	0.05	2	40.4
MCSA03	16/08/2010	2010-MC3-STN3-EQUI-A	81	75	0.1	0.13	44.7	0.1	0.1	25	0.48	24100	0.5	0.5	6.2	171	0.09	6510	38.9	0.01	0.7	1.0	1650	45800	5.37	0.05	27	47.7	0.05	0.1	5	0.05	2	37.5
MCSA03	16/08/2010	2010-MC3-STN3-EQUI-B	80	23	0.1	0.08	70.6	0.1	0.1	21	0.51	22800	0.5	0.4	6.0	60	0.05	4770	34.6	0.01	0.6	0.8	1440	36500	4.82	0.05	29	47.5	0.05	0.1	1	0.05	2	37.3
MCSA03	16/08/2010	2010-MC3-STN3-EQUI-C	78	30	0.1	0.17	48.7	0.1	0.1	27	0.45	25700	0.5	0.4	6.4	78	0.08	5950	33.1	0.01	0.6	1.2	1530	40900	5.80	0.05	29	53.0	0.05	0.1	2	0.05	2	35.6
MCSA04	16/08/2010	2010-MC4-STN1-CLAD-A	14	32	0.1	0.03	5.0	0.1	0.1	5	0.04	415	0.5	0.1	1.0	51	0.11	203	68.5	0.01	0.1	0.3	576	1290	0.03	0.05	10	1.5	0.05	0.1	2	0.05	2	17.2
MCSA04	16/08/2010	2010-MC4-STN1-CLAD-B	15	37	0.1	0.03	5.3	0.1	0.1	5	0.04	568	0.5	0.1	1.1	56	0.10	358	138	0.01	0.1	0.4	697	1520	0.02	0.05	10	0.9	0.05	0.1	2	0.05	2	26.1
MCSA04	16/08/2010	2010-MC4-STN1-CLAD-C	52	57	0.1	0.02	7.2	0.1	0.1	5	0.05	551	0.5	0.1	1.0	56	0.13	345	103	0.01	0.1	0.4	647	1340	0.02	0.05	10	1.3	0.05	0.1	2	0.05	2	29.7
MCSA04	16/08/2010	2010-MC4-STN2-CLAD-A	11	38	0.1	0.03	4.6	0.1	0.1	5	0.05	405	0.5	0.1	0.7	54	0.12	205	68.7	0.01	0.1	0.2	477	1120	0.02	0.05	10	1.2	0.05	0.1	2	0.05	2	13.1
MCSA04	16/08/2010	2010-MC4-STN2-SALI-A	63	18	0.1	0.01	98.6	0.1	0.1	5	3.58	10700	0.5	0.8	3.4	53	0.04	3450	114	0.01	0.8	1.5	1490	8820	0.27	0.05	10	40.6	0.05	0.1	1	0.05	2	41.0
MSSA01	07/08/2010	2010-MS1-STN1-CLAD-A	57	568	0.1	0.35	32.7	0.1	0.1	5	0.08	1650	2.1	0.5	3.1	1080	1.12	500	108	0.01	0.1	2.3	441	967	0.08	0.05	17	2.6	0.05	0.1	70	0.05	2	19.8
MSSA01	07/08/2010	2010-MS1-STN3-CLAD-A	60	92	0.1	0.08	13.8	0.1	0.1	5	0.04	414	0.5	0.1	1.0	141	0.44	146	57.2	0.01	0.1	0.4	306	663	0.04	0.05	16	1.8	0.05	0.1	7	0.05	2	13.7
MSSA02	11/08/2010	2010-MS2-STN1-SALI-A	59	230	0.1	0.28	91.0	0.1	0.1	10	2.76	16300	0.9	0.2	4.5	468	1.52	1830	54.9	0.01	0.3	1.3	2450	8990	0.30	0.05	10	67.7	0.05	0.1	12	0.05	2	391
MSSA02	11/08/2010	2010-MS2-STN1-CLAD-A	37	211	0.1	0.16	24.5	0.1	0.1	5	0.28	1530	0.7	0.2	2.7	384	0.91	412	82.0	0.01	0.2	0.9	616	1610	0.10	0.05	10	5.3	0.05	0.1	19	0.05	2	74.1
MSSA02	11/08/2010	2010-MS2-STN2-CLAD-A	60	247	0.1	0.13	20.3	0.1	0.1	5	0.12	727	0.7	0.2	2.3	400	0.59	383	74.3	0.01	0.1	0.9	479	931	0.07	0.05	10	2.2	0.05	0.1	29	0.05	2	22.1
MSSA02	11/08/2010	2010-MS2-STN2-CLAD-B	54	240	0.1	0.13	16.3	0.1	0.1	5	0.16	638	0.8	0.2	2.3	363	0.58	354	96.3	0.01	0.1	1.0	577	1100	0.09	0.05	32	1.6	0.05	0.1	23	0.05	2	22.8
MSSA02	11/08/2010	2010-MS2-STN2-CLAD-C	58	237	0.1	0.12	15.5	0.1	0.1	5	0.13	606	0.8	0.2	2.0	385	0.59	378	80.2	0.01	0.1	0.9	598	1140	0.08	0.05	106	1.6	0.05	0.1	26	0.05	2	19.7
MSSA02	11/08/2010	2010-MS2-STN3-SALI-A	60	107	0.1	0.09	81.0	0.1	0.1	14	0.23	14900	0.5	0.1	4.8	229	0.49	2050	66.7	0.01	0.4	1.0	2850	7950	0.23	0.05	10	40.4	0.05	0.1	6	0.05	2	176
MSSA02	11/08/2010	2010-MS2-STN4-SALI-A	57	171	0.1	0.10	53.4	0.1	0.1	5	0.06	15000	0.7	0.2	1.6	341	0.52	3240	99.2	0.01	0.5	0.6	1740	4910	0.06	0.05	10	51.2	0.05	0.1	9	0.05	2	132
MSSA02	11/08/2010	2010-MS2-STN4-SALI-B	59	171	0.1	0.11	55.4	0.1	0.1	5	0.06	17200	0.8	0.2	1.5	351	0.51	4000	124	0.01	0.6	0.8	2330	6170	0.13	0.05	10	55.9	0.05	0.1	9	0.05	2	204
MSSA02	11/08/2010	2010-MS2-STN4-SALI-C	58	175	0.1	0.09	57.5	0.1	0.1	5	0.06	16300	0.8	0.2	1.7	354	0.50	3880	106	0.01	0.5	0.7	2360	5530	0.06	0.05	10	54.7	0.05	0.1	9	0.05	2	151
MSSA02	11/08/2010	2010-MS2-STN5-EQUI-A	80	96	0.1	0.05	59.6	0.1	0.1	13	0.74	20200	0.5	0.4	5.5	152	0.17	4170	51.5	0.01	0.2	2.0	1930	29600	2.60	0.05	28	72.0	0.05	0.1	4	0.05	2	30.1
MSSA02	11/08/2010	2010-MS2-STN5-SALI-A	61	97	0.1	0.06	57.5	0.1	0.1	5	1.43	11400	0.5	1.2	5.2	198	0.39	3950	94.2	0.01	0.3	3.6	2420	5740	0.18	0.05	10	46.1	0.05	0.1	5	0.05	2	77.8
MSSA02	11/08/2010	2010-MS2-STN5-CLAD-A	42	224	0.1	0.10	10.3	0.1	0.1	5	0.07	826	0.8	0.3	1.6	371	0.35	415	73.1	0.01	0.1	0.8	624	1100	0.05	0.05	10	2.6	0.05	0.1	33	0.05	2	21.1
MSSA03	11/08/2010	2010-MS3-STN1-SALI-A	59	57	0.1	0.02	11.2	0.1	0.1	9	0.08	9570	0.5	0.2	2.3	114	0.15	2050	41.9	0.01	0.2	0.2	2400	5430	0.20	0.05	10	29.0	0.05	0.1	5	0.05	2	112
MSSA03	11/08/2010	2010-MS3-STN1-EQUI-A	77	120	0.1	0.04	51.3	0.1	0.1	9	0.22	20400	0.8	0.3	5.8	232	0.35	6710	113	0.01	1.2	0.6	2290	21700	0.15	0.05	35	49.5	0.05	0.1	10	0.05	2	33.0
MSSA03	11/08/2010	2010-MS3-STN2-EQUI-A	79	18	0.1	0.01	25.7	0.1	0.1	11	0.01	21000	0.5	0.1	2.0	64	0.07	4580	84.2	0.01	0.5	0.1	1940	30400	0.55	0.05	32	59.3	0.05	0.2	1	0.05	2	23.9
MSSA03	11/08/2010	2010-MS3-STN2-SALI-A	59	91	0.1	0.02	11.2	0.1	0.1	10	0.02	15300	0.5	0.1	2.0	178	0.15	3310	61.0	0.01	0.2	0.3	1390	6760	0.38	0.05	10	44.6	0.05	0.1	10	0.05	2	251
MSSA03	11/08/2010	2010-MS3-STN3-EQUI-A	79	21	0.1	0.01	30.5	0.1	0.1	9	0.23	19100	0.5	0.1	4.4	61	0.04	8500	239	0.01	0.6	0.1	2710	31400	0.19	0.05	32	40.1	0.05	0.1	1	0.05	2	25.1
MSSA03	11/08/2010	2010-MS3-STN3-EQUI-B	78	33	0.1	0.04	27.5	0.1	0.1	10	0.44	18600	0.5	0.1	4.7	60	0.05	8060	256	0.01	0.5	0.1	2840	34000	0.18	0.05	36	38.4	0.05	0.1	1	0.05	2	26.0
MSSA03	11/08/2010	2010-MS3-STN3-EQUI-C	80	26	0.1	0.01	26.4	0.1	0.1	11	0.49	20900	0.5	0.1	4.8	58	0.05	8710	260	0.01	0.8	0.1	2480	35600	0.31	0.05	40	42.7	0.05	0.1	1	0.05	2	24.9
MSSA03	11/08/2010	2010-MS3-STN3-SALI-A	57	118	0.1	0.03	25.7	0.1	0.1	8	1.42	15900	0.6	0.2	3.9	217	0.19	2790	87.8	0.01	0.1	0.7	2130	7710	0.08	0.05	10	30.5	0.05	0.1	9	0.05	2	143
MSSA03	11/08/2010	2010-MS3-STN3-CLAD-A	61	130	0.1	0.04	6.3	0.1	0.1	5	0.87	724	0.5	0.1	1.2	202	0.25	247	39.7	0.01	0.1	0.4	444	1210	0.03	0.05	26	1.8	0.05	0.1	15	0.05	2	25.0
MSSA03	11/08/2010	2010-MS3-STN4-EQUI-A	80	77	0.1	0.03	70.4	0.1	0.1	12	0.66	28200	0.5	0.3	5.5	161	0.05	4870	95.9	0.01	0.5	0.4	1920	27600	0.46	0.05	54	47.5	0.05	0.2	10	0.05	2	31.9
MSSA03	11/08/2010	2010-MS3-STN4-SALI-A	61	64	0.1	0.02	27.5	0.1	0.1	7	1.69	11800	0.5	0.2	4.9	128	0.12	2250	23.6	0.01	0.2	1.3	2990	8480	0.05	0.05	10	20.6	0.05	0.1	7	0.05	2	161
MSSA03	11/08/2010	2010-MS3-STN5-SALI-A	57	294	0.1	0.12	29.0	0.1	0.1	5	1.62	14400	1.3	0.6	3.8	545	0.40	2510	45.6	0.01	0.5	1.5	1560	7420	0.09	0.05	10	27.1	0.05	0.1	43	0.05	2	113
MSSA03	11/08/2010	2010-MS3-STN5-CLAD-A	41	110	0.1	0.05	6.0	0.1	0.1	5	0.22	625	0.5	0.1	1.0	188	0.18	233	35.9	0.01	0.1	0.4	403	1050	0.03	0.05	10	1.6	0.05	0.1	13	0.05	2	12.6

Total Metals in Levels in Vegetation - Summary Data

				Total Metals by ICP-MS (mg/kg)																															
Station Name	Sample Date	Sample No.	Moisture (%)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silver	Sodium	Strontium	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
MSSA04	14/08/2010	2010-MS4-STN1-CLAD-A	31	134	0.1	0.12	12.4	0.1	0.1	5	0.09	443	0.5	0.1	1.4	214	0.52	175	66.7	0.01	0.1	0.8	275	506	0.06	0.05	10	1.6	0.05	0.1	9	0.05	2	24.6
MSSA04	14/08/2010	2010-MS4-STN2-EQUI-A	76	432	0.1	0.61	345	0.1	0.1	21	1.91	16100	1.7	1.3	6.4	927	0.96	4120	371	0.01	2.0	4.3	1970	33400	0.45	0.90	27	98.2	0.07	0.1	26	0.13	2	95.9
MSSA04	14/08/2010	2010-MS4-STN2-CLAD-A	6.5	141	0.1	0.14	16.9	0.1	0.1	5	0.10	551	0.5	0.1	1.9	251	0.86	275	85.0	0.01	0.1	0.5	520	1120	0.08	0.05	10	1.5	0.05	0.1	9	0.05	2	25.3
MSSA04	14/08/2010	2010-MS4-STN3-EQUI-A	73	88	0.1	0.20	216	0.1	0.1	13	0.44	10400	0.5	0.2	7.6	239	0.23	3600	72.5	0.01	0.3	0.6	3300	22600	0.88	0.05	25	53.7	0.05	0.1	4	0.14	2	79.9
MSSA04	14/08/2010	2010-MS4-STN4-EQUI-A	76	41	0.1	0.04	72.4	0.1	0.1	19	0.68	24800	0.5	0.1	6.4	81	0.08	9630	34.4	0.01	3.5	3.4	1430	12700	45.3	0.05	60	91.8	0.11	0.1	2	0.05	2	201
MSSA04	14/08/2010	2010-MS4-STN5-EQUI-A	76	40	0.1	0.03	95.7	0.1	0.1	22	0.36	20200	0.5	0.1	5.0	86	0.10	4940	29.7	0.01	1.2	0.8	1080	31200	29.0	0.05	11	70.9	0.05	0.1	3	0.05	2	50.8
MSSA04	14/08/2010	2010-MS4-STN6-EQUI-A	74	66	0.1	0.07	120	0.1	0.1	27	0.29	23100	0.5	0.1	4.7	125	0.11	6120	21.5	0.01	5.4	0.8	1700	32200	8.71	0.13	31	85.8	0.05	0.1	4	0.05	2	61.5
MSSA05	14/08/2010	2010-MS5-STN1-CLAD-A	37	280	0.1	0.30	43.7	0.1	0.1	5	0.17	613	0.6	0.2	4.5	519	2.85	352	98.0	0.01	0.1	0.8	422	870	0.26	0.09	10	1.7	0.05	0.1	19	0.05	2	28.6
MSSA05	18/08/2010	2010-MS5-STN2-SALI-A	67	105	0.1	0.05	31.5	0.1	0.1	12	1.01	20600	0.6	0.2	4.3	243	0.27	2850	51.1	0.01	0.5	1.1	942	12000	0.28	0.05	10	37.5	0.05	0.1	14	0.05	2	328
MSSA05	18/08/2010	2010-MS5-STN2-EQUI-A	83	42	0.1	0.03	42.5	0.1	0.1	20	0.31	26300	0.5	0.1	6.0	102	0.16	3250	36.3	0.01	0.5	0.4	1290	35700	0.30	0.05	46	52.1	0.05	0.1	4	0.05	2	39.7
MSSA06	18/08/2010	2010-MS6-STN1-SALI-A	57	130	0.1	0.16	47.5	0.1	0.1	5	4.67	8300	0.5	0.8	5.1	287	1.15	4200	82.1	0.01	0.4	4.4	2480	5860	0.78	0.05	10	38.0	0.05	0.1	6	0.05	2	113
MSSA06	18/08/2010	2010-MS6-STN2-SALI-A	60	181	0.1	0.29	75.6	0.1	0.1	6	2.80	12000	0.5	0.3	8.2	411	2.07	2010	58.0	0.01	0.3	2.0	5060	8080	0.84	0.05	10	33.6	0.05	0.1	7	0.05	2	277
PCSA01	08/08/2010	2010-PC1-STN1-SALI-A	64	220	0.1	0.10	152	0.1	0.1	5	2.35	15700	1.0	0.5	5.2	466	0.36	2780	70.5	0.01	0.4	1.7	1760	18200	0.06	0.05	10	48.1	0.05	0.2	19	0.05	2	99.2
PCSA01	08/08/2010	2010-PC1-STN1-SALI-B	58	186	0.1	0.09	168	0.1	0.1	5	2.38	15800	1.0	0.5	5.0	393	0.30	2830	82.5	0.01	0.4	1.8	1580	17700	0.04	0.05	10	49.6	0.05	0.1	16	0.05	2	112
PCSA01	08/08/2010	2010-PC1-STN1-SALI-C	60	188	0.1	0.07	162	0.1	0.1	5	2.22	16000	0.9	0.4	4.6	394	0.25	2810	95.4	0.01	0.4	1.3	1420	17000	0.04	0.05	10	48.0	0.05	0.1	20	0.05	2	88.8
PCSA01	08/08/2010	2010-PC1-STN1-CLAD-A	36	424	0.1	0.14	32.1	0.1	0.1	5	0.05	684	1.7	0.4	2.6	680	0.50	403	41.2	0.01	0.1	1.1	378	909	0.03	0.05	13	2.1	0.05	0.1	44	0.05	2	14.7
PCSA01	08/08/2010	2010-PC1-STN1-EQUI-A	77	71	0.1	0.04	143	0.1	0.1	16	0.78	11200	0.5	0.5	7.6	146	0.14	2320	66.2	0.01	0.2	0.9	2260	31800	0.04	0.05	10	35.3	0.05	0.1	5	0.05	2	66.6
PCSA01	08/08/2010	2010-PC1-STN2-SALI-A	60	172	0.1	0.04	256	0.1	0.1	20	2.57	9640	0.7	2.9	6.7	257	0.14	2410	385	0.01	0.1	5.1	3070	10800	0.04	0.05	10	66.8	0.05	0.1	6	0.05	2	83.1
PCSA01	17/08/2010	2010-PC1-STN3-SALI-A	60	245	0.1	0.06	60.9	0.1	0.1	5	12.0	19500	1.6	2.1	7.7	392	0.16	2990	660	0.01	0.6	6.2	1600	9880	0.03	0.05	10	33.1	0.05	0.1	20	0.05	2	157
PCSA01	17/08/2010	2010-PC1-STN3-EQUI-A	77	81	0.1	0.05	23.5	0.1	0.1	12	0.23	30100	0.6	0.4	5.9	155	0.22	4270	49.4	0.01	0.6	0.7	1400	24200	1.09	0.05	23	28.0	0.05	0.1	6	0.05	2	19.5
PCSA01	17/08/2010	2010-PC1-STN3-CLAD-A	35	532	0.1	0.15	12.1	0.1	0.1	5	0.05	1860	2.6	0.6	3.0	769	0.31	657	65.8	0.01	0.1	1.6	461	1310	0.03	0.05	10	2.3	0.05	0.1	48	0.05	2	17.3
PCSA01	17/08/2010	2010-PC1-STN4-EQUI-A	77	41	0.1	0.03	13.3	0.1	0.1	13	0.12	21200	0.5	0.3	4.3	85	0.08	1390	36.0	0.01	0.1	0.3	1150	34800	0.26	0.05	13	9.6	0.05	0.1	3	0.05	2	12.9
PCSA02	08/08/2010	2010-PC2-STN1-SALI-A	62	184	0.1	0.04	70.2	0.1	0.1	5	1.17	7600	0.8	2.4	6.3	248	0.10	3050	239	0.01	0.1	7.4	3290	11500	0.05	0.05	10	29.0	0.05	0.1	10	0.05	2	74.7
PCSA02	08/08/2010	2010-PC2-STN1-CLAD-A	58	368	0.1	0.08	7.1	0.1	0.1	5	0.05	800	1.7	0.4	2.3	507	0.22	531	157	0.01	0.1	1.3	537	948	0.02	0.05	16	1.2	0.05	0.1	38	0.05	2	27.3
PCSA02	08/08/2010	2010-PC2-STN2-CLAD-A	57	883	0.1	0.14	35.5	0.1	0.1	5	0.05	1240	2.2	0.6	2.1	692	0.25	569	65.5	0.01	0.1	1.7	471	956	0.02	0.05	32	4.0	0.05	0.1	53	0.05	2	13.4
PCSA03	08/08/2010	2010-PC3-STN1-EQUI-A	75	55	0.1	0.01	103	0.1	0.1	18	0.66	18800	0.5	0.3	4.5	119	0.08	6160	73.8	0.01	0.2	1.3	1620	23600	0.06	0.05	10	26.8	0.05	0.1	5	0.05	2	54.2
PCSA03	08/08/2010	2010-PC3-STN2-CLAD-A	49	214	0.1	0.10	18.3	0.1	0.1	5	0.05	1120	0.9	0.3	1.2	358	0.28	369	154	0.01	0.1	1.1	450	895	0.02	0.05	10	2.7	0.05	0.1	18	0.05	2	16.7
PCSA04	08/08/2010	2010-PC4-STN1-SALI-A	61	37	0.1	0.04	26.6	0.1	0.1	20	2.51	13600	0.5	0.3	4.7	110	0.09	5350	135	0.01	0.3	2.3	1160	6540	0.05	0.05	10	41.4	0.05	0.1	1	0.05	2	225
PCSA04	08/08/2010	2010-PC4-STN1-EQUI-A	77	12	0.1	0.08	87.0	0.1	0.1	22	1.22	14500	0.5	0.1	4.7	60	0.06	5290	46.3	0.01	0.4	0.4	1620	24000	0.29	0.05	13	50.3	0.05	0.1	1	0.05	2	32.7
PCSA04	08/08/2010	2010-PC4-STN1-EQUI-B	76	12	0.1	0.09	82.6	0.1	0.1	23	1.03	13500	0.5	0.1	5.3	63	0.04	5150	42.6	0.01	0.4	0.5	1650	24900	0.27	0.05	10	47.2	0.05	0.1	1	0.05	2	33.2
PCSA04	08/08/2010	2010-PC4-STN1-EQUI-C	77	10	0.1	0.05	73.9	0.1	0.1	23	0.96	12000	0.5	0.1	4.7	58	0.05	5100	49.2	0.01	0.5	0.5	1450	22600	0.18	0.05	19	40.9	0.05	0.1	1	0.05	2	31.8
PCSA04	08/08/2010	2010-PC4-STN1-CLAD-A	41	43	0.1	0.05	12.6	0.1	0.1	5	0.21	1790	0.5	0.1	1.7	89	0.19	590	118	0.01	0.1	0.3	551	1500	0.04	0.05	20	4.4	0.05	0.1	1	0.05	2	21.5
PCSA04	08/08/2010	2010-PC4-STN2-EQUI-A	75	21	0.1	0.02	39.5	0.1	0.1	17	0.98	21000	0.5	0.1	5.3	62	0.07	5310	18.6	0.01	0.3	0.4	1200	38600	1.92	0.05	35	86.9	0.05	0.1	1	0.05	2	22.0
PCSA04	08/08/2010	2010-PC4-STN2-CLAD-A	28	114	0.1	0.13	16.0	0.1	0.1	5	0.06	1340	0.5	0.1	1.1	228	0.32	348	38.8	0.01	0.1	0.5	391	942	0.04	0.05	10	5.2	0.05	0.1	4	0.05	2	14.5
PCSA04	08/08/2010	2010-PC4-STN2-CLAD-B	31	104	0.1	0.10	16.4	0.1	0.1	5	0.06	1330	0.5	0.1	1.2	198	0.29	419	78.2	0.01	0.1	0.4	440	948	0.03	0.05	10	5.4	0.05	0.1	4	0.05	2	15.8
PCSA04	08/08/2010	2010-PC4-STN2-CLAD-C	28	95	0.1	0.10	13.4	0.1	0.1	5	0.10	1290	0.5	0.1	1.3	183	0.27	405	69.1	0.01	0.1	0.4	459	1080	0.04	0.05	10	5.0	0.05	0.1	3	0.05	2	15.6
PCSA05	08/08/2010	2010-PC5-STN1-EQUI-A	73	23	0.1	0.12	97.8	0.1	0.1	23	0.22	17400	0.5	0.4	4.1	81	0.09	7370	213	0.01	1.5	0.5	1340	19600	0.02	0.05	10	85.1	0.05	0.1	1	0.05	2	53.1
PCSA05	08/08/2010	2010-PC5-STN1-CLAD-A	20	92	0.1	0.10	18.6	0.1	0.1	5	0.14	2010	0.5	0.1	1.2	192	0.36	531	88.1	0.01	0.1	0.5	392	1010	0.02	0.05	10	8.5	0.05	0.1	3	0.05	2	25.9
PCSA05	08/08/2010	2010-PC5-STN2-EQUI-A	72	9	0.1	0.02	52.1	0.1	0.1	15	1.29	11800	0.5	0.1	3.6	40	0.06	6060	81.3	0.01	0.9	0.1	1230	20800	0.03	0.05	10	39.3	0.05	0.1	1	0.05	2	50.1
PCSA05	08/08/2010	2010-PC5-STN2-CLAD-A	31	125	0.1	0.12	19.4	0.1	0.1	5	0.11	1580	0.5	0.1	1.1	264	0.40	460	59.8	0.01	0.1	0.6	315	836	0.03	0.05	10	4.9	0.05	0.1	5	0.05	2	17.9
PCSA06	09/08/2010	2010-PC6-STN1-SALI-A	58	22	0.1	0.01	339	0.1	0.1	9	2.29	21200	0.5	0.2	5.6	65	0.10	3310	54.6	0.01	0.1	6.9	1900	7170	0.32	0.05	10	124	0.05	0.1	1	0.05	2	130
PCSA06	09/08/2010	2010-PC6-STN1-CLAD-A	43	100	0.1	0.09	73.3	0.1	0.1	5	0.17	2070	0.5	0.1	1.5	158	0.41	327	176	0.01	0.1	0.4	403	839	0.03	0.15	18	10.6	0.05	0.1	3	0.05	2	17.9
PCSA06	09/08/2010	2010-PC6-STN2-SALI-A	56	20	0.1	0.01	18.2	0.1	0.1	7	11.2	13300	0.5	0.1	3.8	71	0.08	5150	83.0	0.01	0.4	1.3	1000	9610	1.46	0.05	10	64.1	0.05	0.1	1	0.05	2	320
PCSA07	09/08/2010	2010-PC7-STN1-EQUI-A	76	38	0.1	0.07	62.0	0.1	0.1	6	0.53	13500	0.5	0.3	3.9	121	0.09	5700	225	0.01	0.8	0.6	1510	33200	0.01	0.05	11	71.3	0.05	0.1	2	0.05	2	42.7
PCSA07	09/08/2010	2010-PC7-STN1-SALI-A	60	110	0.1	0.12	36.8	0.1	0.1	10	1.65	16000	0.6	0.3	4.7	306	0.19	5620	163	0.01	0.1	1.1	1500	7460	0.02	0.05	10	74.0	0.05	0.1	5	0.05	2	307
PCSA07	09/08/2010	2010-PC7-STN2-SALI-A	58	51	0.1	0.07	43.0	0.1	0.1	16	3.67	15100	0.5	0.4	4.1	187	0.12	3830	338	0.01	0.3	0.7	1000	12700	0.02	0.05	10	43.5	0.05	0.1	2	0.05	2	243
PCSA07	09/08/2010	2010-PC7-STN2-EQUI-A	73	17	0.1	0.06	100	0.1	0.1	14	0.49	12100	0.5	0.1	3.9	73	0.05	5450	47.3	0.01	0.4	0.4	1110	35700	0.16	0.05	69	39.9	0.05	0.1	1	0.05	2	26.2
PCSA08	11/08/2010	2010-PC8-STN1-SALI-A	62	94	0.1	0.06	53.8	0.1	0.1	8	8.22	13800	0.6	0.3	2.8	216	0.12	4880	130	0.01	0.4	3.8	1180	11800	0.33	0.05	10	42.9	0.05	0.1	8	0.05	2	337
PCSA09	17/08/2010	2010-PC9-STN1-EQUI-A	79	87	0.1	0.02	38.6	0.1	0.1	14	0.10	15600	0.5	0.3	7.3	123	0.09	5510	59.8	0.01	0.3	0.4	2130	27100	0.05	0.05	55	13.2	0.05	0.1	5	0.05	2	24.8
PCSA09	17/08/2010	2010-PC9-STN2-SALI-A	60	775	0.1	0.11	19.0	0.1	0.1	9	2.28	10000	4.4	1.7	9.2	1220	0.23	3690	184	0.01	0.1	5.3	1550	9900	0.02	0.05	10	11.4	0.05	0.1	88	0.05	3	200
PCSA09	17/08/2010	2010-PC9-STN3-EQUI-A	77	81	0.1	0.01	82.1	0.1	0.1	11	0.07	30400	0.7	0.4	4.8	131	0.06	6470	88.9	0.01	0.1	0.8	1340	37700	0.01	0.05	28	29.7	0.05	0.1	7	0.05	2	20.5
PCSA09	17/08/2010	2010-PC9-STN3-SALI-A	68	84	0.1	0.01	85.7	0.1	0.1	12	0.07	28800	0.7	0.4	4.8	136	0.06	5910	81.7	0.01	0.1	0.8	1250	35600	0.01	0.05	26	28.6	0.05	0.1	7	0.05	2	20.2

Note: Concentrations equal to the detection limit are set to equal the detection limit in the above table.
Lab reports comprising this data is available upon request.

Appendix D Summary of Statistical Comparisons for Metals Levels in Vegetation

Summary of Statistical Comparisons for Metals Levels in Vegetation

Results from statistical comparisons (using ANOVA) of mean total concentrations between survey areas for each vegetation species. A rejected hypothesis indicates a significant difference exists.

Arsenic

	Total Arsenic	α - value	P - value	F - value	F critical	Null Hypothesis
Lichen	MSSA vs PCSA	0.05	0.07	3.507	4.139	Accepted
	MSSA vs MCSA	0.05	0.009	8.127	4.301	**Rejected**
	PCSA vs MCSA	0.05	0.0004	15.784	4.183	**Rejected**
Horsetail	MSSA vs PCSA	0.05	0.912	0.012	4.183	Accepted
	MSSA vs MCSA	0.05	0.692	0.16	4.260	Accepted
	PCSA vs MCSA	0.05	0.698	0.154	4.21	Accepted
Willow	MSSA vs PCSA	0.05	0.03	5.119	4.113	**Rejected**
	MSSA vs MCSA	0.05	0.008	8.418	4.242	**Rejected**
	PCSA vs MCSA	0.05	0.002	11.429	4.139	**Rejected**

Cadmium

	Total Cadmium	α - value	P - value	F - value	F critical	Null Hypothesis
Lichen	MSSA vs PCSA	0.05	0.0767	3.3390	4.139	Accepted
	MSSA vs MCSA	0.05	0.3747	0.8211	4.301	Accepted
	PCSA vs MCSA	0.05	0.3878	0.7688	4.183	Accepted
Horsetail	MSSA vs PCSA	0.05	0.0481	4.2605	4.183	**Rejected**
	MSSA vs MCSA	0.05	0.0468	4.3951	4.26	**Rejected**
	PCSA vs MCSA	0.05	0.3312	0.9792	4.21	Accepted
Willow	MSSA vs PCSA	0.05	0.0372	4.6818	4.113	**Rejected**
	MSSA vs MCSA	0.05	0.0751	3.4488	4.242	Accepted
	PCSA vs MCSA	0.05	0.5125	0.4384	4.139	Accepted

Copper

	Total Copper	α - value	P - value	F - value	F critical	Null Hypothesis
Lichen	MSSA vs PCSA	0.05	0.044	4.372	4.139	**Rejected**
	MSSA vs MCSA	0.05	0.018	6.531	4.301	**Rejected**
	PCSA vs MCSA	0.05	0.132	2.402	4.183	Accepted
Horsetail	MSSA vs PCSA	0.05	0.603	0.277	4.183	Accepted
	MSSA vs MCSA	0.05	0.598	0.286	4.26	Accepted
	PCSA vs MCSA	0.05	0.958	0.003	4.21	Accepted
Willow	MSSA vs PCSA	0.05	0.371	0.822	4.113	Accepted
	MSSA vs MCSA	0.05	0.728	0.124	4.242	Accepted
	PCSA vs MCSA	0.05	0.206	1.667	4.139	Rejected

Lead

	Total Lead	α - value	P - value	F - value	F critical	Null Hypothesis
Lichen	MSSA vs PCSA	0.05	0.005	9.138	4.139	**Rejected**
	MSSA vs MCSA	0.05	0.018	6.551	4.301	**Rejected**
	PCSA vs MCSA	0.05	0.003	10.823	4.183	**Rejected**
Horsetail	MSSA vs PCSA	0.05	0.143	2.269	4.183	Accepted
	MSSA vs MCSA	0.05	0.894	0.018	4.26	Accepted
	PCSA vs MCSA	0.05	0.156	2.127	4.21	Accepted
Willow	MSSA vs PCSA	0.05	0.001	12.608	4.113	**Rejected**
	MSSA vs MCSA	0.05	0.038	4.811	4.242	**Rejected**
	PCSA vs MCSA	0.05	0.321	1.016	4.139	Accepted

Nickel

	Total Nickel	α - value	P - value	F - value	F critical	Null Hypothesis
Lichen	MSSA vs PCSA	0.05	0.59	0.296	4.139	Accepted
	MSSA vs MCSA	0.05	0.055	4.092	4.301	Accepted
	PCSA vs MCSA	0.05	0.027	5.445	4.183	**Rejected**
Horsetail	MSSA vs PCSA	0.05	0.44	0.614	4.183	Accepted
	MSSA vs MCSA	0.05	0.56	0.35	4.26	Accepted
	PCSA vs MCSA	0.05	0.77	0.087	4.21	Accepted
Willow	MSSA vs PCSA	0.05	0.036	4.732	4.113	**Rejected**
	MSSA vs MCSA	0.05	0.269	1.277	4.242	Accepted
	PCSA vs MCSA	0.05	0.6	0.28	4.139	Accepted

Selenium

	Total Selenium	α - value	P - value	F - value	F critical	Null Hypothesis
Lichen	MSSA vs PCSA	0.05	0.003	10.664	4.139	**Rejected**
	MSSA vs MCSA	0.05	0.095	3.043	4.301	Accepted
	PCSA vs MCSA	0.05	0.105	2.802	4.183	Accepted
Horsetail	MSSA vs PCSA	0.05	0.071	3.501	4.183	Accepted
	MSSA vs MCSA	0.05	0.216	1.616	4.26	Accepted
	PCSA vs MCSA	0.05	0.041	4.621	4.21	**Rejected**
Willow	MSSA vs PCSA	0.05	0.107	2.727	4.113	Accepted
	MSSA vs MCSA	0.05	0.836	0.044	4.242	Accepted
	PCSA vs MCSA	0.05	0.188	1.806	4.139	Accepted

Zinc

	Total Zinc	α - value	P - value	F - value	F critical	Null Hypothesis
Lichen	MSSA vs PCSA	0.05	0.008	8.031	4.139	**Rejected**
	MSSA vs MCSA	0.05	0.821	0.053	4.301	Accepted
	PCSA vs MCSA	0.05	0.005	9.406	4.183	**Rejected**
Horsetail	MSSA vs PCSA	0.05	0.016	6.585	4.183	**Rejected**
	MSSA vs MCSA	0.05	0.017	6.629	4.26	**Rejected**
	PCSA vs MCSA	0.05	0.055	4.038	4.21	Accepted
Willow	MSSA vs PCSA	0.05	0.224	1.529	4.113	Accepted
	MSSA vs MCSA	0.05	0.093	3.042	4.242	Accepted
	PCSA vs MCSA	0.05	0.434	0.627	4.139	Accepted