COEUR ALASKA KENSINGTON PROJECT

USFS Annual Report 2009

Terrestrial Wildlife Monitoring
Slate Lakes Basin

Aquatic Science Inc
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1.0 Introduction

This report describes monitoring conducted during 2009 in accordance with the Kensington Project Terrestrial Wildlife Monitoring Plan. This plan was designed to ensure that environmental impacts to wildlife resources in the Slate Lakes basin area are mitigated during both construction and operation of the Kensington Project and that the reclamation process includes a plan to support and encourage use by local wildlife species.

The occurrence of wildlife species in the Slate Lakes basin prior to construction activity was summarized in the Kensington Gold Project Final Supplemental Environmental Impact Statement (FSEIS) (USFS 2004) and a baseline survey conducted in 2005 (Living System Designs 2005). Management indicator species in the Berners Bay area include black and brown bear, Sitka black-tailed deer, Alexander Archipelago wolf, bald eagle, red squirrel, river otter, marten, red-breasted sapsucker, brown creeper and Vancouver Canada goose. Sightings of wildlife or their sign within the Slate Lakes basin include moose, black bear, Canada geese, ducks, red squirrels, porcupine, river otter, old beaver cuttings, bald eagles, boreal toads, and various mustelid species. A lack of prey, including Sitka black-tailed deer, is suspected to limit use of the Slate Lakes area by wolves. Wildlife monitoring was conducted in 2006 and 2007 during the first phase of construction. There was no construction activity during 2008 and no wildlife monitoring was conducted during this period. Wildlife monitoring was resumed in early September 2009 at the start-up of construction activity at the Tailings Treatment Facility (TTF).

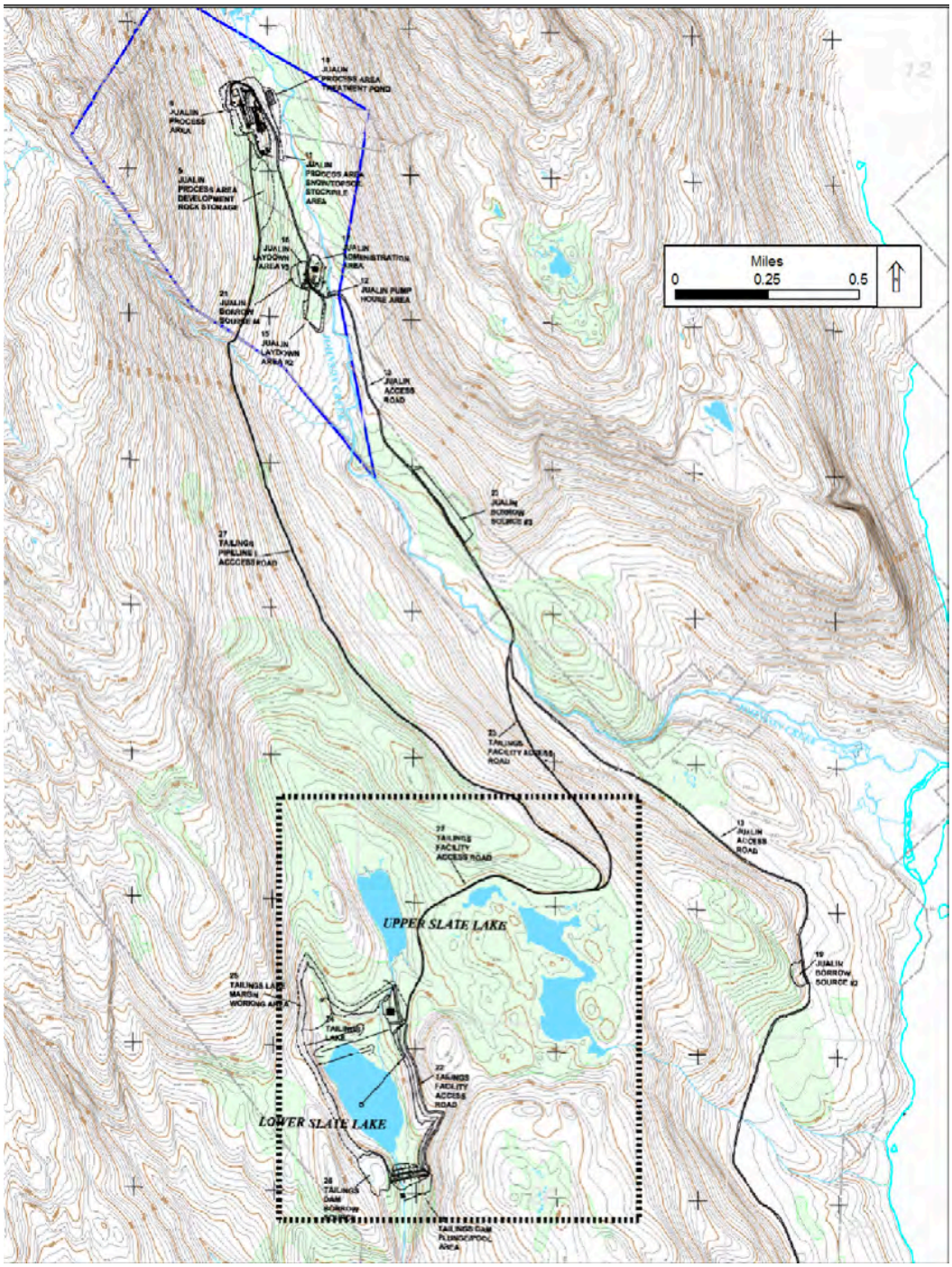

Figure 1: Slate Lakes Basin in relation to access roads and proposed tailings facility. The access road to the tailings facility was constructed in 2006.

1.1 Wildlife Monitoring Objectives

The objectives of the Kensington Project Wildlife Monitoring Plan are to:

- Supplement the regional resource knowledge base with site-specific data.
- Gather new information on specific wildlife habitats and species that could be affected by increased activity at the project site with specific attention to sensitive species.
- Identify concentrations of wildlife near specific resources (e.g., stream mouth marshes, anadromous streams, lakes, wetlands, bird nesting/feeding areas, large mammal crossing areas, etc.).
- Conduct wildlife observations along an established route surrounding the Slate Lakes basin on a frequent basis from spring through fall and intermittently through the remainder of the year.
- Collect data and other information that can be used to shape the subsequent year's studies and long-term monitoring.

Figure 2: The Slate Lakes Basin in 2005, prior to construction of the access road.

2.0 Survey Area

The survey area covered by the wildlife monitoring project lies within the confines of the Slate Lake basin, an area of approximately 2 sq km, ranging in elevation from 200m at the mouth of Lower Slate Lake to 300m on the ridge to the west of Lower Slate Lake (Figure 1). Water bodies within the basin include Lower and Upper Slate Lakes to the west and the Spectacle Lakes complex to the east. Both Lower and Upper Slate Lake have steep western slopes, but much of the remaining area around Upper Slate Lake is flat with a mild slope to the east. The area around Spectacle Lake is also fairly flat. There is drainage from the south-east corner of Spectacle Lake into Berners Bay, while Fat-Rat Lake drains into Upper Slate Lake (Figure 2). Upper Slate Lake drains to Lower Slate Lake via Mid-Lake Slate Creek and Lower Slate Lake drains to East Fork Slate Creek.

Prior to construction, terrestrial vegetation types around Upper and Lower Slate Lake were fairly similar and included mixed spruce and hemlock forest to the west of both lakes and to the southeast of Lower Slate Lake. The north and east shores of both lakes were characterized by wetlands containing sedge meadow and scrub muskeg. The periphery of Lower Slate Lake was clear-cut by September 2005 and the TTF access road along the north of Spectacle Lakes was constructed by August 2006. The immediate vicinity of Upper Slate Lake has not been impacted by the project. The vegetation structure around the Spectacle Lake complex includes sphagnum bogs and sedge fens with brushy, scrub forest in elevated areas. All of the lakes contained various species of aquatic vegetation, though not in high volume (Living System Designs 2005). Spectacle Lake contains the greatest concentration of aquatic vegetation, mainly in the three sloughs and in Fat Rat Lake.

3.0 Methods

Kate Savage, who conducted wildlife monitoring in 2006 and 2007, came to the site in early September 2009 to re-establish the same transects that were used in previous surveys. There are 21 transects around the basin, each 50m long and running in a north-south direction (Figure 3). The transects provide a systematic method for recording wildlife sign throughout the year. The north and south ends of each transect are marked

with long poles and survey flagging and GPS co-ordinates. During the fall each transect was visited once a week. The north end of a transect was first located then a 50m measuring tape was strung out between the poles. Trained field technicians then walked the length of the tape examining the ground within 1m either side of the measuring tape. Signs such as tracks, scat or digging were recorded along with their position along the tape and whether they lay on the east or west side of the transect. In this way the precise location of wildlife sign was recorded so that fresh wildlife sign might be more easily separated from older, previously recorded sign. In winter, snowfall covered up wildlife sign so surveys were only conducted after a period of at least 5 days without snow.

Five motion-sensor cameras (Bushnell Trail Sentry, Model 11-9300) were also placed in areas where wildlife utilization or travel appeared especially high to provide information on the number of individuals using an area (Figure 3).

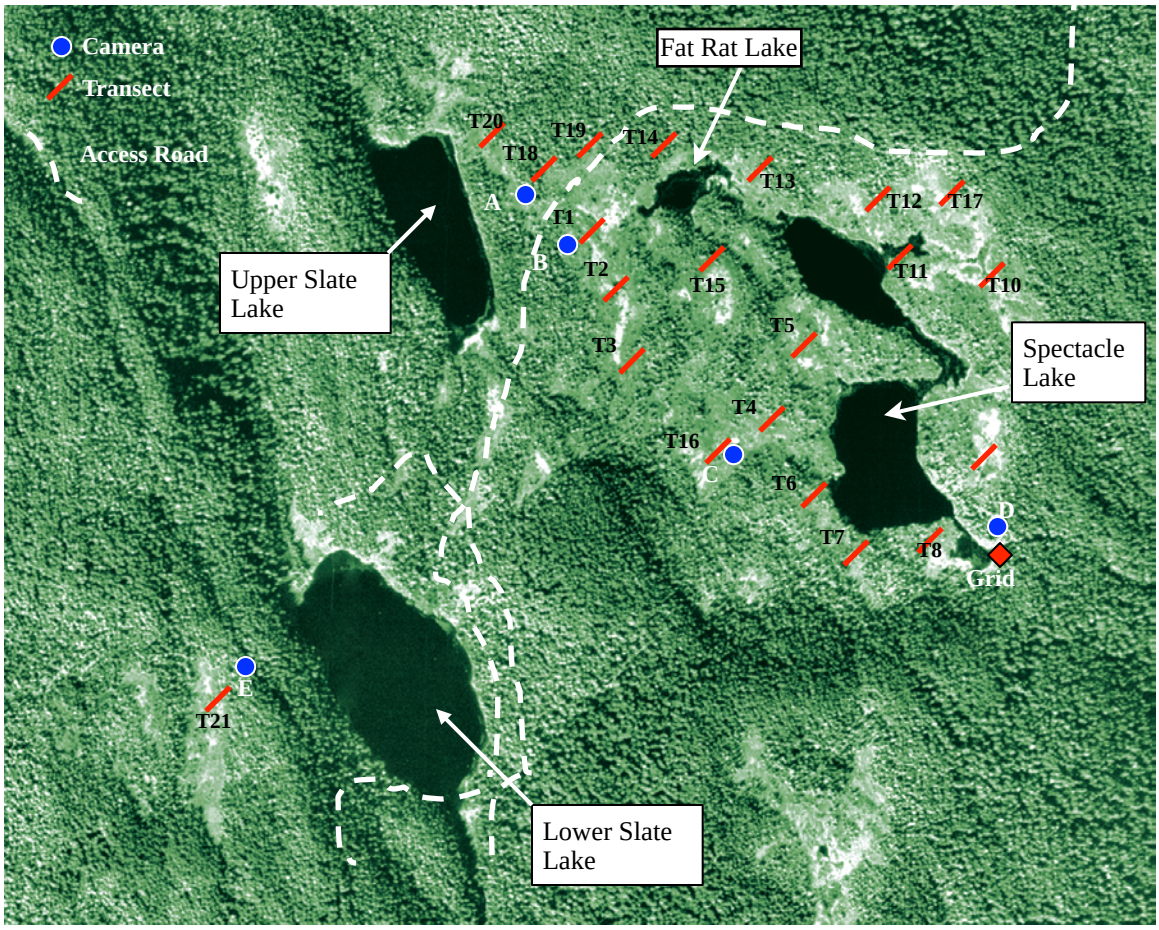

Figure 3: Wildlife transects camera locations in the Slate Lakes Basin.

Scans with binoculars were also made from established locations to detect the presence of wildlife from afar. This method is most effective for observing waterfowl on the lakes. Lower Slate Lake is easily visible from almost any aspect and was observed on route to Transect 21 accessed by walked around the south end of the lake. Upper Slate Lake scans for waterfowl were made from both the southern meadow and the north- eastern muskeg. Viewing locations were optimum in the Spectacle Lakes area from the western edge of Lower Spectacle Lake, the southern tip of lower Spectacle Lake, which also afforded a good view of the adjacent southern slough, and the northern tip of upper Spectacle Lake.

Data collected during surveys included observations of wildlife species with photographs where possible and the time of day, location and behavior. Species of special interest include herons, waterfowl such as Vancouver Canada Geese, and raptors such as eagles and goshawks. Special surveys to detect the presence of goshawks are most appropriately conducted in spring by trained personnel using standard broadcast methods. No such surveys were conducted in 2009 due to the lack of construction activity. Each survey was conducted by a field biologist as well as one of three technicians, who were trained on site to ensure that observations and data collection were as standardized and unbiased as possible. Other information collected included weather conditions and visibility and any human activity in the area. Tracks and other sign was identified using field guides eg. Elbroch (2003), Murie and Elbroch (2005), National Geographic Society (1987).

4.0 Survey Results

The presence of wildlife within the Slate Lakes basin was determined either through actual sightings and motion-sensor camera photography or through identification of signs. Wildlife sign recorded included perennial sign such as well used game trails, dens or middens, scratching posts and stripped bark as well as ephemeral sign such as tracks, scat, browsing or digs. The colored tables (Tables 1-4) summarize wildlife sign by main species (bear, moose, goose).

4.1 Mammals

Black Bear (*Ursus americanus*):

Indications of bear activity were in the form of tracks, scats and "digs" with some bear sign noted at all transects by the end of September (Table 2). The greatest amount of bear sign was noted at transects 8 through 10, 12 and 17 which are located on the east side of Spectacle Lake, transect 18 towards Upper Slate Lake and transect 21 above lower Slate Lake (Figure 4). Bear sign appeared to peak around the end of September and early October and decline again by November. The lack of sign in December was due to snow covering up previous sign and no new sign being present since bears were most likely hibernating by this time.

There were several sightings of black bear in the fall with a black bear and cubs sighted near Spectacle Lake from the TTF access road on September 5 and again on September 19 and 20. A bi-colored black bear (light-brown on the back with darker legs) was captured on motion camera D at the south-east corner of Spectacle Lake on September 8 (Figure 5). A single black bear was observed and photographed near Spectacle Lakes on September 30 and October 1 and observed again on October 5. Observations indicated that at least three adult black bears were present around Spectacle Lake in the fall of 2009. No observations were made of brown bear around the lakes in fall 2009, though they were frequently observed at the mouths of Johnson, Slate and Sherman Creeks during fish surveys.

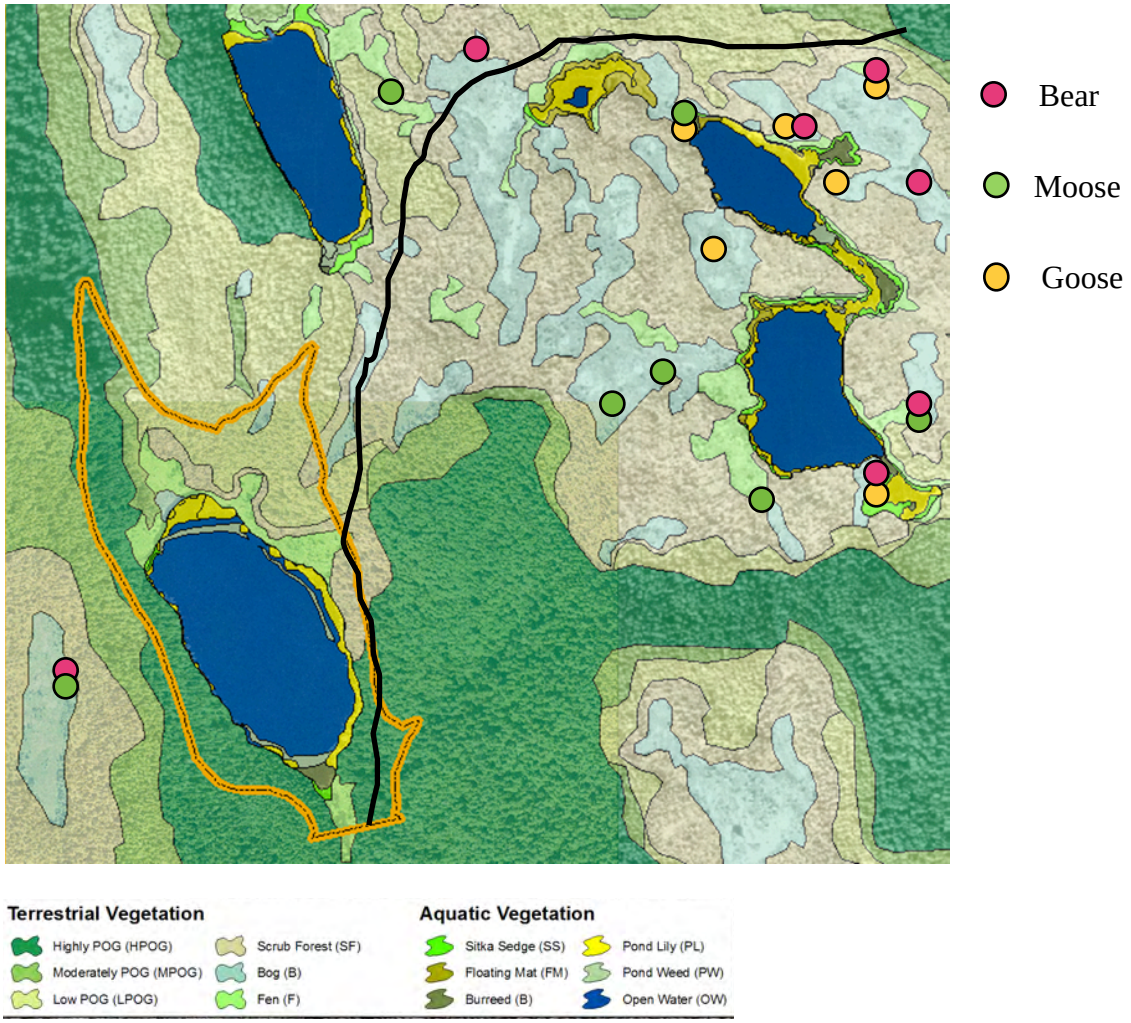

Figure 4: Locations with the greatest amounts of wildlife sign laid over the vegetation map. Vegetation was mapped in August 2005 and remains little changed except for the area disturbed within the orange boundary around Lower Slate Lake. This was clearcut in September 2005.

Moose (*Alces alces*):

Moose indices in the form of tracks, scat, browse and bedding sites were present at all transects, with the greatest concentration found at transects 4, 16, 7 and 9 toward the west and south of Spectacle Lake and also transects 13 and 20 towards Upper Slate Lake (Figure 4). Moose activity appeared to increase from early September to mid-October with fresh tracks recorded. Several large scrapes in the ground about 3ft apart were also noted near transect 3 and were thought to have been made by a bull moose rubbing its antlers into the ground. Snow cover in November covered earlier tracks and sign, but fresh tracks were observed in snow at transects 1, 10, 13 and 16 through 19.

A bull moose (M1) with fairly large antlers was observed by field technicians calling to a cow moose (M2) with calf on October 1. All three moose were observed near transect 16 on the south-west side of Spectacle Lake. The following week a large single moose antler measuring 31 inches long was found at the same spot (Figure 7). The same bull moose (M1) was captured on motion camera A near Upper Slate Lake around the same time (Figure 6). Several sightings were made of a large bull moose by mine personnel from the TTF access road during October 2009. A bull moose with smaller antlers (M3) than the one observed on October 1 was captured by motion camera D at 11pm on September 20 and 4am the next morning (Figure 6). Another bull with larger antlers (M4) was captured here later in the morning (Figure 7). A cow moose was also captured by camera E (M2?) at Lower Slate Lake in mid-October (Figure 6). These observations would indicate that at least three bulls and one cow moose utilized the area around the Slate Lakes basin, most probably as passage to areas with more abundant forage. No moose with collars were observed in fall 2009 as had been observed in previous years.

Figure 5: Wildlife sightings: A-C = same black bear observed near Spectacle Lake; D = bi-colored black bear from camera D; E = wolverine near Upper Slate Lake; F = coyote at Comet Beach.

Figure 6: Moose captured on motion sensor cameras: A-C = M1; D = M2, E-F = M3

E

F

Figure 7: More wildlife pictures: A = M4; B = antler found near T16; C = female Goldeneyes on Fat Rat Lake; D = female American widgeon Lower Spectacle; E-F = Savannah sparrows near Spectacle Lake.

Other mammals:

Coyote (*Canis latrans*) tracks were found at transects 6, 13, 16, 17, 18 and 20 in the fall of 2009. Tracks were most obvious in snow, but some were found in softer muskeg before snowfall. No coyote sightings were made in the Slate Lake Basin in 2009, but one was observed on the main road to Jualin Camp about 0.5 miles from Slate Cove on August 20 and one was observed at Comet Beach on September 28. One was previously sighted near Jualin Camp in 2006.

Porcupine (*Erithizon dorsatum*) tracks were noted at transects 15, 18 and 20 during October and short-tailed weasel (*Mustela erminea*) tracks were noted at transects 18 and 20 in October and December. Small vole-like trails were found at T12, 14 and 19 in September and October and may belong to the deer mouse (*Peromyscus maniculatus*). Red squirrel (*Sciuris vulgaris*) tracks were also noted in snow, but not at any transects.

Small mammal indices were plentiful around all of the lakes. Perennial sign such as den sites, gnawed branches and stripped bark are mainly found in the forested areas around Upper and Lower Slate Lake (Savage 2007). Ephemeral sign in the form of tracks was both very apparent when snow cover arrived in November. Porcupine, marten and short-tailed weasel tracks were found both in the woods and crossing open space around Spectacle Lake and towards Upper Slate Lake.

A wolverine (*Gulo gulo*) (Figure 5) was sighted by a field technician on December 12 next to transect 20 toward Upper Slate Lake (Figure 3). Its tracks were also found in the snow at this location.

Figure 8: Wildlife sign: A = moose tracks; B = bear dig; C= moose scat; D = Canada geese feathers; E = goose scat; F = major game trail west side of Lower Slate Lake.

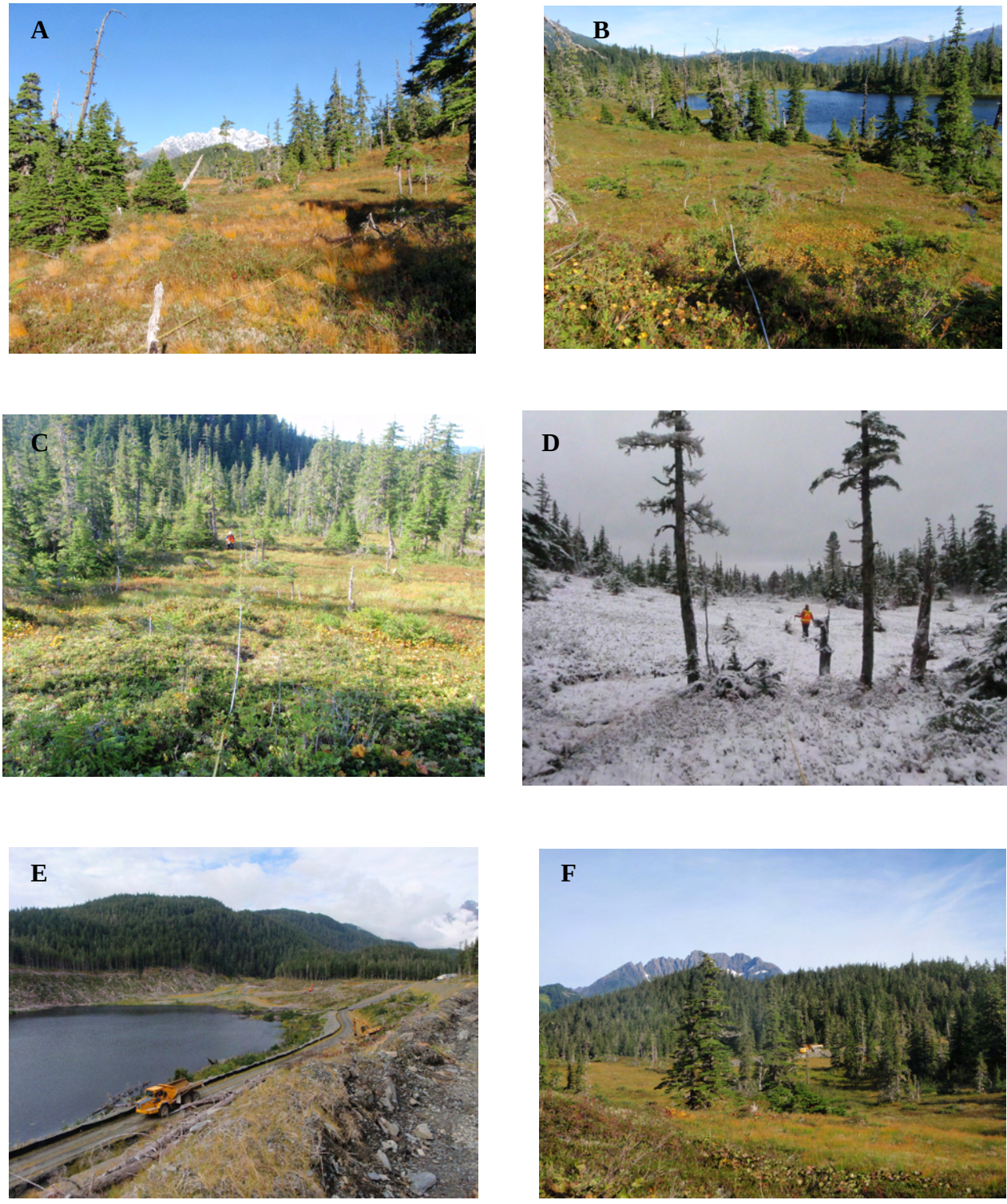

Figure 9: Transects and haul trucks: A = Transect 2; B = Transect 5; C = Transect 16; D = Transect 3 in light snow early November; E = haul truck at Lower Slate Lake; F = haul truck on passing Spectacle Lake.

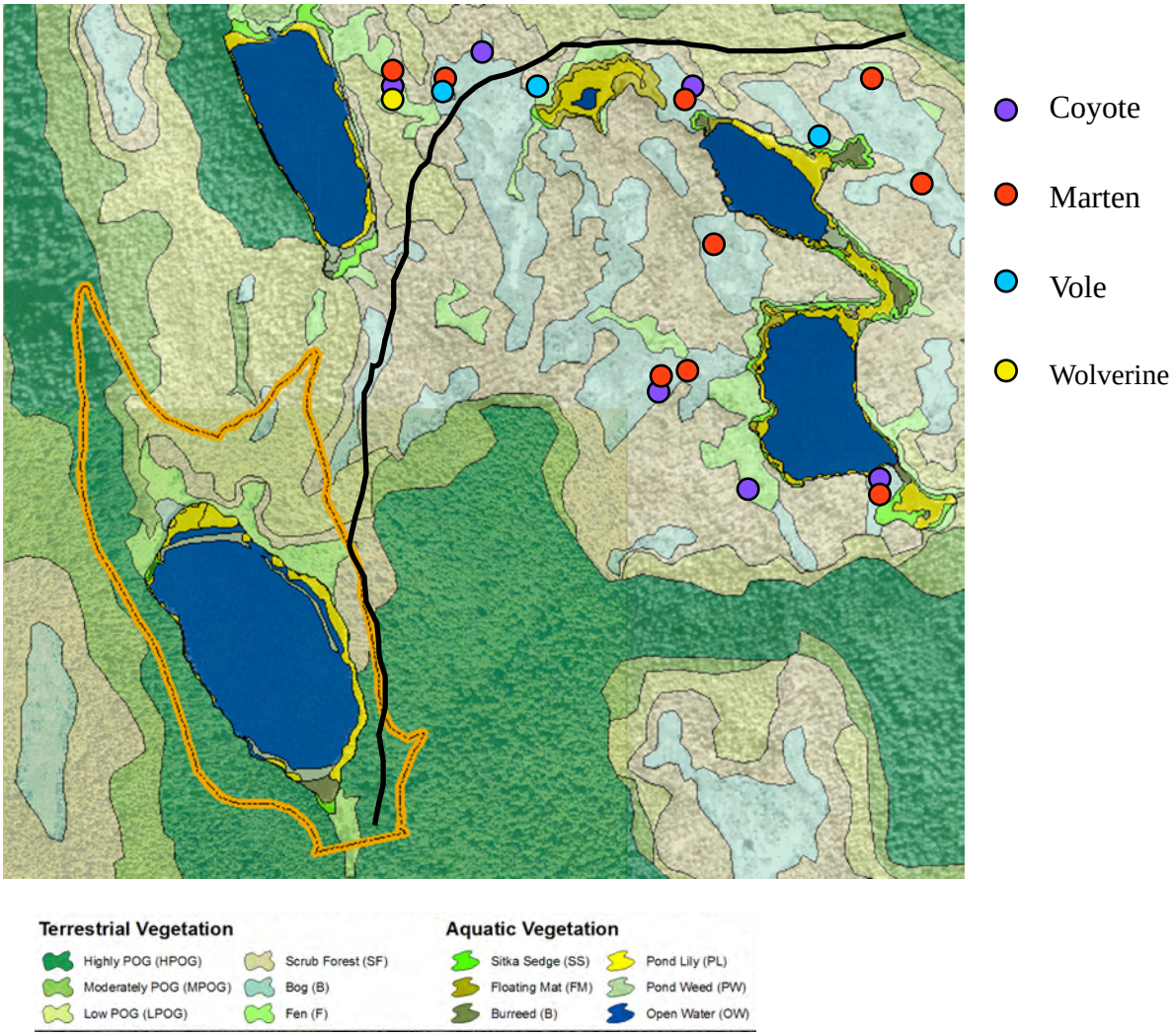

Figure 10: Location of other mammal sign in Slate Lakes Basin.

4.2 Avian Species

The avian species identified through direct sightings or indirectly through songs or calls included both resident and migratory wading birds, non-passerine land birds, passerines and species of special interest, which include waterfowl, raptors and herons. Waterfowl were noted only on Spectacle Lake and Fat Rat Lake. In previous years, a group of 29 Canada geese have been observed on Spectacle Lake in summer and were observed again in July 2009. A bear was observed by mine personnel swimming in Spectacle Lake and appearing to chase some young geese without success. By the time the official wildlife surveys began in September, the geese appeared to have left as is normal by September. A common goldeneye with 6 chicks was also noted on Upper Spectacle in July 2009. In early September three female American widgeons were observed on Lower Spectacle Lake and one was observed on October 9. Three immature goldeneyes were also present on Fat Rat Lake on September 5, with one present on September 19. An unidentified duck was observed in Fat Rat Lake on October 22.

Only one sighting was made of a bald eagle on September 4 at Spectacle Lake. A bald eagle nest is present in Slate Cove about 1/2 mile from the dock and at least a dozen eagles are sighted around Johnson and Slate Creeks in spring, particularly during the eulachon run. A Great blue heron was observed flying east over Lower Slate Lake on September 6 and over Upper Spectacle Lake on October 6. No herons were observed feeding at any of the lakes, but have been observed at the mouths of Sherman and Sweeny Creeks and in lower Johnson Creek. A female Northern harrier was observed at Upper Spectacle on October 21, calling and moving from tree to tree.

Other bird species observed in the fall of 2009 included dark-eyed juncos, Stellers jays, varied thrushes, chestnut-backed chickadees, the common raven and Savannah sparrows (Figure 7, Table 5).

Table 1: Number of wildlife signs on each transect over time (all species). Colored cells show highest density of sign.

Transect	*9/5*	*9/19*	*9/29*	*10/5*	*10/17*	*10/28*	*11/8*	*12/11*	*TOTAL*
1	1	1	9	9	7	ND	8	0	36
2	5	6	5	8	9	ND	0	1	36
3	2	2	11	7	13	19	0	0	57
4	5	7	16	16	28	23	2	4	105
5	12	15	27	29	20	30	0	14	152
6	13	12	11	13	9	12	1	2	79
7	16	16	21	22	20	17	1	2	122
8	10	12	16	16	13	16	1	3	95
9	16	17	18	37	19	20	1	0	137
10	8	8	10	12	12	20	3	4	87
11	7	8	8	13	7	ND	1	18	73
12	15	14	16	ND	15	ND	0	0	72
13	18	21	8	14	21	0	5	31	131
14	2	2	5	4	5	ND	1	0	33
15	3	3	6	10	10	14	0	1	62
16	0	9	10	13	11	23	10	6	98
17	10	10	14	15	15	ND	1	4	86
18	8	7	4	14	16	12	8	13	100
19	7	4	6	13	10	14	6	1	80
20	18	18	20	17	23	0	0	3	119
21	12	14	14	14	20	18	0	0	113

Table 2: Number of signs of bear activity at each transect over time. Colored cells show highest density of sign.

Transect	*9/5*	*9/19*	*9/29*	*10/5*	*10/17*	*10/28*	*11/8*	*12/11*	*TOTAL*
1	1	1	8	5	3	ND	2	0	20
2	4	4	1	3	1	ND	0	0	13
3	0	0	6	3	3	3	0	0	15
4	2	2	2	2	2	2	0	0	12
5	1	1	6	3	2	1	0	0	14
6	1	1	3	1	1	2	0	0	9
7	1	1	2	2	2	2	0	0	10
8	2	4	4	4	4	5	0	0	23
9	3	4	4	3	5	2	0	0	21
10	4	4	4	4	3	3	0	0	22
11	0	1	1	3	2	ND	0	0	7
12	5	5	6	ND	6	ND	0	0	22
13	2	2	1	1	1	1	0	0	8
14	1	1	1	1	1	ND	1	0	6
15	1	1	2	2	1	3	0	0	10
16	0	1	3	2	4	5	0	0	15
17	6	6	7	6	5	ND	0	0	30
18	3	3	1	6	3	5	2	0	23
19	3	1	2	2	3	0	2	0	13
20	0	0	1	9	0	0	0	0	10
21	5	4	4	4	3	3	0	0	23

Table 3: Number of signs of moose activity at each transect over time. Colored cells show highest density of sign.

Transect	*9/5*	*9/19*	*9/29*	*10/5*	*10/17*	*10/28*	*11/8*	*12/11*	*TOTAL*
1	0	0	1	4	4	ND	6	0	15
2	1	2	4	6	8	ND	0	0	21
3	2	2	5	4	10	16	0	0	39
4	4	6	14	14	26	20	0	0	84
5	7	4	5	14	7	14	0	0	51
6	12	11	8	11	7	9	0	0	58
7	15	15	19	20	18	15	0	0	102
8	8	8	9	10	8	9	0	0	52
9	13	13	14	34	14	18	0	0	106
10	4	4	6	8	8	17	3	1	51
11	5	5	2	4	4	ND	0	0	20
12	7	7	8	ND	7	ND	0	0	29
13	16	19	19	19	19	19	4	0	115
14	1	1	2	3	4	ND	0	0	11
15	2	2	4	8	7	11	0	0	34
16	0	8	7	11	7	18	10	0	61
17	3	3	4	6	8	ND	1	0	25
18	5	4	3	8	12	6	6	0	44
19	2	2	4	11	7	9	4	0	39
20	17	18	19	21	21	10	0	0	106
21	7	10	10	10	17	15	0	0	69

Table 4: Number of signs of goose activity at each transect over time. Colored cells show highest density of sign.

Transect	*9/5*	*9/19*	*9/29*	*10/5*	*10/17*	*10/28*	*11/8*	*12/11*	*TOTAL*
1	0	0	0	0	0	ND	0	0	0
2	0	0	0	0	0	ND	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	4	11	18	12	11	15	0	0	71
6	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	3	2	2	2	0	0	9
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	1	0	0	0	1
11	2	2	5	6	1	ND	0	0	16
12	2	2	2	ND	1	ND	0	0	7
13	0	0	2	3	1	2	0	0	8
14	0	0	1	0	0	ND	0	0	1
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	1	1	3	3	2	ND	0	0	10
18	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0		0	0
20	1	1	1	1	1	0	0	0	5
21	0	0	0	0	0	0	0	0	0

4.3 Human activity

Up to ten haul trucks were moving rock material from the Jualin Portal to Lower Slate Lake during most of September along the TTF access road passing by Spectacle Lakes. Perhaps the loudest activity on the access road occurred during the week of October 5 to 11 when new rock material was being added to the road as part of erosion control measures. Haul trucks were also moving graphitic phyllite material from near the dam site back to Pit 4 in mid- to late October. Other light vehicle traffic also occurred fairly regularly on the TTF access road daily from late August to the end of the year.

5.0 Discussion

The transects are all located in bog and fen open areas around the lakes as opposed to thick brush for ease of finding wildlife sign. These flat, open areas tend to be soft and wet and the tracks of larger mammals may persist for several months. Recording tracks along a measuring tape to the nearest 0.1m enables fresh sign to be distinguished from sign recorded previously. Smaller, lighter mammals do not leave visible tracks in firmer ground, but their tracks are often visible in snow. This leads to some bias with apparent abundance of large mammals relative to smaller animals, but evaluating signs over time gives a better indication of large mammal activity. There was an increase in the amount of bear and moose sign recorded at transects through September and October. Fall is a time when bears are typically moving from stream mouths where they feed on salmon to upland areas to feed on roots and berries before they hibernate for the winter. Moose may also be actively feeding at this time before winter sets in and also moving in search of females to mate with. Bear and moose sign was present at all transects and black bears were frequently seen between Spectacle Lake and the access road in September.

Perennial signs such as well worn game trails persist for several years even without continued activity, but can give information on long-term patterns of use. Ephemeral signs such as scats and digging tend to disappear after a season of inactivity so can help understand seasonal patterns of activity. A baseline survey conducted in 2005 (Living System Designs 2005) found very little perennial bear sign, with some light trails around Lower Slate Lake and signs of foraging mostly concentrated near Upper Slate Lake. Most of the bear sign found in fall 2009 was in the form of scat, tracks and digging and was concentrated toward the east side of Spectacle Lake whereas moose were concentrated more on the west side. Some moose sign was found on western hilltops among thick blueberry bushes overlooking Spectacle Lake, which may give moose calves some protection against predatory bears. As was found in 2007 (Savage 2007), the presence of bear digs and scat indicates that bears forage in the area, but there is little in the way of moose browse sign or scat suggesting that moose are transiting through the area rather than actively browsing there. Several large paired scrapes in the ground were found near transect #4 along with moose tracks suggesting some bull moose rutting activity. One bull moose was observed close to this area attempting to approach a female. Moose activity is likely curtailed in the basin in winter by heavy snowfall. A large amount of moose sign has been observed in early spring along the forest fringe near the mouth of Johnson Creek so this is likely one area where moose spend the winter. A little moose sign was encountered on the north shore of Lower Slate Lake in 2005. Part of this area has been filled during construction activity, but moose were still using the Spectacle Lake area in 2009.

The major game trail along the northwestern portion of Lower Slate Lake received use by both moose and bear during 2006/2007 and 2009 indicating wildlife were still using this area close to construction activity. The motion camera here captured a cow moose in October 2009. Abundant evidence of both moose and bear was also noted along the eastern muskeg of Upper Slate Lake in 2007 and 2009.

One of the most significant signs of wildlife use in the basin are those from molting geese particularly in areas close to floating mats of vegetation near lake shores. These may be preferred for roosting as they would not support the weight of large

predators. Use of the Spectacle basin as a refuge for Canada geese was previously documented in 2000 (ABR 2000), 2004 (USFS 2004), in 2005 (Living System Designs 2005), 2006, 2007 (Savage 2007) with no surveys conducted in 2008. The lakes are typically frozen over from mid-November until mid-May and geese are thought to be present from the end of May or early June until some time in August. Construction activity did not begin again until late August 2009 after geese had already left the area. Use of heavy equipment on the TTF access road in September and October did not appear to discourage use of the area by large mammals. Moose and bears apparently frequented the area just as often in 2006 and 2007 (Savage 2007). Some wetland and forested habitat around Lower Slate Lake was of course lost, but the main geese refuge areas around Spectacle Lake remains intact. It will be interesting to see if geese return in 2010 while heavy equipment remains in operation. Geese may still find refuge at the south-east corner of Spectacle Lake furthest away from construction activity. A no-fly zone over the basin was instigated through Coastal helicopters in 2007 to minimize disturbance to geese and should be implemented again in May 2010.

6.0 Summary

There was increasing field sign of large mammals (bear and moose) using the area around Spectacle Lake during September and October 2009 despite heavy equipment using the TTF access road nearby. Obviously there has been some small loss of habitat around Lower Slate Lake, but wildlife is still making use of nearby areas. New species added to the Slate basin species list in 2009 included American widgeon, Northern harrier and wolverine. Perhaps the most important use of the area is as a summer refuge for molting geese, which were not affected in 2009 as construction did not begin until after they had left the area. Monitoring in 2010 will determine whether geese return whilst construction continues. Other species of special interest recorded in 2009 were the Great blue heron and bald eagle.

Table 5: Wildlife Observations 2009.

DATE	LOCATION	NO.	SPECIES	OBSERVER	H=heard, S=saw B=both	COMMENTS
			MAMMALS			
9/5/09	SP	1	Black bear - sow and cubs	Construction	S	Observed around Fat Rat around 9 am
9/8/09	LSP	1	Bicolored black bear	TM	S	Beaver dam
9/19-20/09	SP	2	Black bear - sow and cubs	Construction	S	Observed around SP
9/19-20/09	SP	1	Black bear	Construction	S	Observed around SP
9/30 -10/1	SP	1	Black bear	LF, JW	S	Fat black bear T1 then T17
10/1/09	SP	1	Bull moose	LF, JW	B	T16
10/1/09	SP	1	Cow moose and calf	JW	S	T16
10/5/09	SP	1	black bear	JM,GW	S	little black bear/ south side of fat rat lake
12/12/09	USL	1	wolverine	GW	S	T20N
			WATERFOWL			
8/28/09	USP	1	common goldeneye w/ 6 chicks	LF, KG	S	Upper Spectacle
8/28/09	USP	1	29 Canada geese	LF, KG	S	Upper Spectacle
9/5/09	LSP	3	Female American widgeons	LF,KS	S	near beaver dam
9/5/09	FR	3	Immature goldeneyes	LF,KS	S	Observed on Fat Rat
9/19/09	FR	1	Immature goldeneye	KS, CG	S	Observed on Fat Rat
10/5/09	SP	1	duck	JM	S	duck flew over T1, quick flaps
10/9/09	SP	1	American Widgeon	LF	S	near dam on spectacle
10/21/09	SP	2	duck	LF	S	on Spectacle away from road

10/21/09	SP	12	Pintails	LF	S	12 ducks flew overhead, N Spectacle
10/21/09	SP	3	White-winged scoters	LF	S	No Spectacle
10/22/09	T13	1	duck	GW,CM	S	duck in fat rat lake
			FOREST/SHORE/ SONG BIRDS			
9/5/09	SP		Dark eyed juncos	LF,KS	S	Near T5
9/5/09	LSP	2	Savannah sparrow	LF,KS	S	Western edge
9/6/09	LSL	1	Stellers jay	LF,KS	H	Muskeg above LSL
9/6/09	LSL	1	Great blue heron	LF,KS	B	Flying east over LSL
9/6/09	LSL	mult	Varied thrush	LF,KS	H	In woods west of LSL
9/6/09	LSL	mult	Common raven	LF,KS	H	flying around west edge
9/19/09	SP	mult	Varied thrush	KS,CG	H	Multiple areas
9/19/09	SP	mult	Chestnut backed chickadees	KS,CG	H	From T5 - T8
9/20/09	USL	mult	Varied thrush	KS,CG	H	
9/20/09	SP	mult	Common raven	KS,CG	S	
9/30/09	SP	mult	Chickadees	LF,JM	S	on approach to T5
10/6/09	LSL	mult	Chickadees	LF,GW	H	T21
10/6/09	SP	1	Great blue heron	LF	S	flew over upper spectacle
10/21/09	SP	1	female northern harrier	LF,GW	B	at upper spectacle
			RAPTORS			
9/4/09	SP	1	Bald eagle	LF,KS	S	flying overhead

Table 6: GPS points for the north end of each transect

T1N - 58.81712N / 135.03537W

T2N - 58.81631N / 135.03036W

T3N - 58.81509N / 135.03416W

T4N - 58.81410N / 135.03052W

T5N - 58.81537N / 135.02911W

T6N - 58.81288N / 135.02849W

T7N - 58.81182N / 135.02705W

T8N - 58.81250N / 135.02470W

T9N - 58.81377N / 135.02370W

T10N - 58.81657N / 135.02342W

T11N - 58.81678N / 135.02596W

T12N - 58.81763N / 135.02682W

T13N - 58.81788N / 135.03061W

T14N - 58.81834N / 135.03325W

T15N - 58.81660N / 135.03181W

T16N - 58.81410N / 135.03157W

T17N - 58.81782N / 135.02492W

T18N - 58.81820N / 135.03523W

T19N - 58.81812N / 135.03630W

T20N - 58.81844N / 135.03839W

T21N - 58.80974N / 135.04633W

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Appendix 1. Updated Avian Species List for Slate Lakes Basin

Waterfowl

1. White-winged Scoter (*Melanitta fusca*)
2. Greater Scaup (*Aytha marila*)
3. Mallard (An*as platyrhynchos*)
4. Canada Goose (*Branta canadensis*)
5. Ring-necked Duck (*Aythya collaris*)
6. Red-throated Loon (*Gavia stellata*)
7. Hooded Merganser (*Lophodytes cucullatus*)
8. Common Goldeneye (*Bucephala clangula*)
9. American wigeon *(Anas Americana)*

Raptors

1. Bald Eagle (*Haliaeetus leucocephalus*) – Common, B
2. Red-tailed Hawk (*Buteo jamaicensis*)
3. Sharp-shinned Hawk (*Accipiter striatus*)
4. Northern Pygmy Owl (*Glaucidium gnoma*) – C/S
5. Northern harrier *(Circus cyaneus)* - C/S

Other

1. Belted Kingfisher (*Ceryle alcyon*) – Common, B
2. Steller's Jay (*Cyanocitta stelleri*) – Common, B
3. Common Raven (*Corvus corax*) – Common, B
4. Chestnut-backed Chickadee (*Poecile rufescens*) – Common, B
5. Dark-eyed Junco (*Junco hyemalis*) – Common, B
6. Winter Wren (*Troglodytes troglodytes*) – Common C/S
7. Savannah Sparrow (*Passerculus sandwichesis*) - B
8. Varied Thrush (*Ixoreus naevius*) - B
9. Pine Grosbeak (*Pinicola enucleator*) - S
10. Northwestern Crow (*Corvus caurinus*) - B
11. Red-breasted Sapsucker (*Sphyrapicus rubber*) –Common, B
12. Bohemian Waxwing (*Bombycilla garrulous*) - B
13. Least Sandpiper (*Calidris minutilla*) – S
14. Blue Grouse (*Dendragapus obscurus*)
15. Lesser Yellowlegs (*Tringa flavipes*)
16. Ruby-crowned Kinglet (*Regulus calendula*)
17. Wilson's Warbler (*Wilsonia canadensis*)
18. White-crowned Sparrow (*Zonotrichia albicollis*)
19. Rufous Hummingbird (*Selasphorus rufus*)
20. Tree Swallow (*Tachycineta bicolor*)
21. Orange-crowned Warbler (*Vermivora celata*)
22. Hermit Thrush (*Catharus guttatus*)
23. Cedar Waxwing (*Bombycilla cedrorum*)
24. Olive-sided Flycatcher (*Contopus borea*lis)
25. Solitary Sandpiper (*Tringa solitaria*)
27. Song Sparrow *(Melospiza melodia*)
28. Great blue heron *(Ardea herodias)*

Common = multiple sightings through season
S = identified through sighting
C/S = identified through call or song

Appendix 2: Transect 1

Meter	9/5/09	9/19/09	9/29/09	10/5/09	10/17/09	10/28/09	11/8/09	12/11/09
5			WBD, old	WBD, old	WMT		WMT	
7.5			XBT,old					
22				EBD				
26.5			WBD, old	WMT				
28.5			WBD, old	X, WoldBS	WBD		WMT	
31.5							baby XMT	
32.5				WBD ~2M				
33					EMT		EMT	
34	WBD	WBD	XBT					
34.5			XBT	WBD ~2M	WBD		E/W old BDs	
40			BS, W~3m	X	WBS ~3m		WBS ~3m	
43.5			WBT, faint	X	WMT		WMT	
46			XMT	X	XMT		XMT	

Transect 2

Meter	9/5/09	9/19/09	9/29/09	10/5/09	10/17/09	10/28/09	11/6/09	12/10/05
1.5	EBS	EBS	EBS	EBS				
2	WBS,old	WBS,old		WBS,old	EBS			
13.5					EMT			
15				WMT				
16	WMT	WMT		XMT	XMT			
17					XMT			
18		WMT						
18.5			EMT					
19.5				WMT				
20.5					CMT Old			
26	Wfaint-cub	Wfaint-cub						
27			EMT	EBT				
27.5				WMT	EMT			
30			WMT		XMT			
33.5				WMT	XMT			
38					EMT ~2M			
39.5	EBD	EBD						
40			WMT	CBT				

Transect 3

Meter	9/5/09	9/19/09	9/29/09	10/5/09	10/21/09	10/28/09	11/6/09	12/11/09
7					antler scraping	antler scraping		
7.5					antler scraping	antler scraping		
8					WBD			
8.5			EMT, WBD		EBD	EWUH		
9			EBT		E old scraping	E old scraping		
9.5					E old scraping	E old scraping		
12	EMT, faint	EMT, faint		EMT				
12.5					EMT	EMT		
15					XMT			
19.5				E ~2m hairy scat				
21.5				C Pee Stain		WUH		
25				XMT		XMT		
26.5			EBS ~5m	EBS	EBS			
27			EMT ~5m			EBS		
28						XMT		
29						EMT		
30						WMT		
31			WBS ~1.5m					
32.5			EBD			WMT		
33.5					XMT			
35						WMT		
36					WMT	WMT, EBT		
37			WMT					
39			EMT					
39.5			EMT			WMT		
41	EMT, faint	EMT, faint	WMT, WMT	XMT small	EMT, XMT	EMT		
44						EMT small		
48.5			WBS ~1.5m		CMT			
49				E ~2m/BIG BD		WMT		

Transect 4

Meter	9/5/09	9/19/09	9/30/09	10/5/09	10/21/09	10/28/09	11/6/09	12/11/09
3					WMT	WMT		WT
3.5					WMT			
4					WMT			
4.5					WMT			
5	WBT	WBT	EMT,EMT		WMT			
5.5					WMT			
6			EMT	WMT	WMT	WMT		
6.5					WMT			
7		WMT			WMT			MrtX
7.5					WMT			
8					WMT			
8.5					WMT			
9			EMT	WMT	WMT			
11			XMT	WMT	WMT	XMT		
11.5						EMT		
12.5						EUT		
13			EMT		WMT	WMT		
14			EMT		EMT	WMT		
15	EBD,EMT	EBD,EMT			CBD			
15.5			CBD	WBD		WBD		
16	EMT	EMT	WMT	EMT	EMT	EMT		
16.5						WGS		
17			WMT	EMT	EMT			
18			WMT			EMT		MrtX
18.5		XMT						
19.5			XMT	XMT	XMT	XMT		
20								MrtX
24.5			EMT					
28.5			EMT			WMT		
29.5			WBD		EBD	EBD		
30	XMT	XMT		EoldBD	XMT			
31			XMT	XMT	XMT	XMT		
31.5	EMT	EMT					CMT old	
32						WMT small		

34			EMT	XMT	XMT	XMT		
35.5				XMT		XMT		
36.5					XMT			
37						EBT		
37.5					EMT			
38						E barf		
39.5				XMT	XMT	EMT		
43				WMT		WMT		
47							small mammal Xing, rabbit?	
49					WMT	WMT ~2m		

Transect 5

Meter	9/5/09	9/19/09	9/30/09	10/5/09	10/21/09	10/28/09	11/6/09	12/10/05
2.5			WGS		E small scrapes	WBD ~2m		
3.5	E faint	E faint	WBT		EBD, GS	EMT		
4			WBD	EBT				
5.5	WGS	WGS			WGS			
6			EGS	WGS		WGS		EMrtT
6.5								EMrtT
7								EMrtT
7.5								EMrtT
8								EMrtT
8.5								EMrtT
9			EGS					EMrtT
9.5								EMrtT
10								EMrtT
10.5								EMrtT
11								EMrtT
11.5						WMT		EMrtT
12								EMrtT
13			WMT	EMT	EMT	EMT		
14						WMT		
15.5				EMT	EMT	EMT		
18	WBD	WBD, GSx2			WMT, GS	WGS scratch		
19			EGS, EBD	WBD				
20.5			WGS		EGS			

21			GS					
21.5	E-WMT, calf		GS		EMT			
22	E,WGSx3	E,WGSx3	GS	EMT	EWGS	EMT, EWGS		
22.5			GS	EGS?	EWGS	EWGS		
23	EGS	EGS	GS	Wscat?	EWGS	EWGS		
23.5	WGSx2, EGS	WGSx2, EGS	GS	EGS?	EWGS	EWGS		
24			GS		EWGS	EWGS		
24.5			GS	EGS	EWGS	EWGS		
25	WGS	WGS	GS	WGS		WMT		
25.5			GS		EGS			
26			GS, EBD	WMT, EGS		EGS		
26.5			GS					
27			GS					
28		GS				WGS		
28.5		GS				WGS		
29		GS				WGS		
29.5		GS				WGS		
30		GS		Wsmall track		WGS		
30.5					XMT			
31			EBD ~2m			WMT		
33.5				EMT				
34				EMT				MrtX
37						WGS		
37.5				WBD		C small scrape		
39.5					XMT			
40				WMT				
40.5			WMT	MT		XMT		
41	WMT	WMT	XMT	MT				
41.5				MT				
43.5						XMT		
45	WMT	WMT	XMT	EWMT	XMT	XMT		
45.5				WMT				
46			XMT		WBD			
47			EBD ~1.5m			WMT		
48	EMT	EMT		EMT	XMT			
49	XMT			XMT		XMT		

Transect 6

Meter	9/5/09	9/19/09	9/30/09	10/5/09	10/21/09	10/28/09	11/6/09	12/10/09
2	WBD	X	EBD	WBD	WBD			
3						WBD		
5.5			EMT	XMT	XMT	XMT		
6						XMT		
7.5	MT faint	X	X, EMT					
8	MT faint	X	X, EMT	XMT		XMT		
8.5	MT faint	X	X, EMT					
10	MT faint		E coyote T	E coyote T	E coyote T	E coyote T		
13				XMT	EMT			
13.5						EMT		
14.5			WMT	EMT		EMT		
19			EMT		XMT	EMT		
19.5				XMT				
20.5			XMT		XMT	WMT		
21				EMT				K-9X
28.5					CMT	WMT		
31			XMT, could be BS close by					
31.5	XMT	X			XMT			
32				XMT		XMT		
33	XMT	X						
33.5	XMT	X						
34	XMT	X						
34.5	XMT	X		WMT				
35	XMT	X		WMT				
35.5	XMT, WMT	X,X,X		WMT				
36								WK-9T
36.5				XMT	XMT	WBD, WUH		
38	WMT	X						
39			EBD					

Transect 7

Meter	9/5/09	9/19/09	9/30/09	10/5/09	10/21/09	10/28/09	11/6/09	12/11/09
1.5				EMT	EMT			
3.5			EMT					
4.5				EBD?		EMT		
5			EMT		EBD			
9						WMT		
10			E BT					
11					EMT	W/browse		
12	XMT	X		WMT		WMT		
12.5	BS	X						
13				WMT	EMT	WBS		
13.5					WBS w/seeds			
14			WBD ~2m			EBD ~2m		
15	XMT	X	EMT			XMT		
16.5	XMT	X			WMT			
18			XMT	EMT	XMT	XMT		
21.5	E,WMT	X	XMT		XMT			
22	E,WMT	X	XMT		XMT			
22.5	E,WMT	X	XMT	XMT	XMT	XMT		
23	E,WMT	X	XMT	XMT	XMT			
23.5	E,WMT	X	XMT	XMT	XMT			
24	E,WMT	X	XMT	XMT	XMT	XMT		
24.5	E,WMT	X	XMT	XMT	XMT			
25	E,WMT	X	XMT	XMT	XMT			MtrX
25.5	E,WMT	X	XMT	XMT	XMT	WMT		
26	E,WMT	X	XMT		XMT			
26.5	E,WMT	X	XMT		XMT			
27				XMT		XMT		
27.5	XMT	X						
29				EMT		EMT		
29.5			EMT	WBS		WMT		
30			WMT					
33.5				EMT	XMT	XMT		
34.5			XMT	EBT or MT		XMT		
35.5			EMT	XMT	XMT	XMT		

Transect 8

Meter	9/5/09	9/19/09	9/30/09	10/5/09	10/21/09	10/28/09	11/6/09	12/11/09
0			WBD ~2m	EBD	EBD	EBD	no new sign	
2				WMS				
4	EBD, old	EBD, old						
5			WBD	EoldBD	EBD old	EBD, old		
6			XMT?					
12	XMT	XMT						
12.5	XMT	XMT						
13.5					WBD old ~2m	XMT		
14				XMT				
14.5			WMT		XMT			
17.5			WMS ~2m	EMT, EMS~2m	EMT			
18.5			EBS old					
19.5								K-9X
21	EMS	EMS						
22.5	EBD, CMT	EBD, CMT	WMS	EMS	EMS			
23.5				EWMT, WGF		WGF, EBD		
24.5			XMT, EGF		XMT + GF			MrtX
25	EMT	EMT		EBD		EBD?		
25.5		EBD						
26			XMT	EMT	EMT	EMT		
29.5	XMT, old	XMT, old						
30.5			XMT	XMT	XMT	XMT		
31.5	EMT	EMT						
33				XMT	labrador tea browsed			
34.5			WGS?		EMT	EMT		
36.5			EGS	WGS		EWGS, WMT		
37			EMT	WMT		XMT		
39	XMT	XMT	WMT		XMT	XMT		
42	XMT	XMT						
43.5			EMT			WMT		
44						XMT		
44.5						WMT		
46						WMT		MrtX
48.5		EBD	WBD old, EMT	EoldBD, WMT	X, X	EBD		

Transect 9

Meter	9/5/09	9/19/09	9/30/09	10/5/09	10/21/09	10/28/09	11/6/09	12/11/09
1					WMS			
1.5	WBD	X						
2		WBD						
2.5				WBD				
3			EBD		W2BD	WBD		
4.5				EMT		EMT		
5	XMT	X						
5.5	XMT	X						
6	XMT	X						
6.5	XMT	X		XMT				
7	XMT	X		XMT				
7.5	XMT	X		XMT				
8			XMT	XMT	XMT	XMT		
8.5	WBD	X	EBD	XMT				
9				XMT		EMT		
9.5			EMT	EMT, WBD	WBD			
10						WBD		
10.5						WMT		
11.5			EMT	XMT	XMT	WMT		
13				CMT				
13.5	XMT	X				WMT		
14	XMT	X						
14.5	XMT	X, WBD	EBD ~2m	EMT	WBD ~2m			
15			WMT	EMT	XMT	CMT		
15.5			EMT	EMT				
16	WMT	X		EMT		EMT		
16.5			EMT	EMT	EMT	EMT		
17	WMT	X		EMT	EMT			
17.5				EMT		EMT		
18				EMT				
18.5			WMT	EMT	EMT	CMT		
19				EMT				
19.5				EMT				
20	WMT	X		EMT	EMT			

20.5				EMT				
21				EMT				
21.5			CMT	EMT		EMT		
22				EMT		EMT		
22.5				EMT				
24				EMT	EMT	EMT		
24.5			WMT					
26.5			WMT	EMT		EMT		
28			WMT	EMT	EMT			
32				EMT				
33.5	WBD, old	WBD, old	WBD, old	EBD old		E browsed branch		
36					EBD ~2m			
42.5	XMT	X						
43			WMT	XMT	XMT			
45				XMT	EMT			
46.5			EMT	XMT	WMT			
47.5					XMT	WMT		
49			WMT ~2m					
50					EMT	EMT		

Transect 10

Meter	9/5/09	9/19/09	9/30/09	10/5/09	10/17/09	10/28/09	11/6/09	12/11/09
2.5								EMT (2m)
3.5	WBD	WBD						
4.5			EMT	WBD?	WMT	WUH, WMT		
5.5			EMT	WMT				
6						WMT		
6.5			EMT			WMT		
7.5	WBD	WBD	EBD ~2m	WBD	WBD	WBD		
8.5							XMT	
9			EMT				MT	
11				WMT	WMT	WMT		
12						WMT		
13						EMT		
13.5	XMT	XMT						MX
14	XMT	XMT						

14.5	XMT	XMT	XMT	XMT		XMT	XMT	
15	XMT	XMT			EMT	XMT		
15.5						XMT		
16					WMT	XMT		
16.5						XMT		
17						WMT		
17.5				EMT		WMT		
18						WMT		
20				EMT	EMT	WMT		
20.5					EMT			
23.5			EMT					
24				CMT		WMT		
25.5				WMT	WMT	WMT		MrtX
26.5				EMT				
33.5			EBS ~3.5m		~3mWBS			
37	WBD	WBD						
37.5			E hole					
38				WBD	WBD	WBD		
39					GS			
40.5	WBD	WBD	EBD	WBD	CBD	CBD		

Transect 11

Meter	9/5/09	9/19/09	9/30/09	10/5/09	10/17/09	10/28/09	11/6/09	12/11/09
2.5				WGS				
3				WGS				
4.5			WGF, EGS	WGS	EGS			
6			WGS	EGS				
6.5	EGS	EGS	WMT	EMT~2m, WGS	EMT			
9			WGS					
10.5			WBS	EBS, WMT				
12		EBS						
19	WMS	WMS						
19.5				EGS, WMS~2m	CMS			
22.5			EBD	EBD	EBD old			
28	EGS	EGS		EBS~2m	EBS			

31.5								EMrT
32								EMrT
32.5								EMrT
33								EMrT
33.5				XMT				EMrT
34	WMT	WMT			WMT			EMrT
34.5								EMrT
35			XMT					EMrT
35.5								EMrT
36								EMrT
36.5								EMrT
37								EMrT
37.5								EMrT
38								EMrT
38.5	WMT	WMT						EMrT
39	WMT	WMT			WMT			EMrT
39.5	WMT	WMT						EMrT
40								EMrT
41			WGS					

Transect 12

Meter	9/5/09	9/19/09	9/29/09	10/5/09	10/17/09	10/28/09	11/6/09	12/11/09
0					WMT			
7.5			WMT					
8.5	XMT	XMT	WMT					
9	XMT	XMT	WMT		EMT			
9.5	XMT	XMT	WMT					
10	XMT	XMT	WMT					
10.5	XMT	XMT	WMT		EMT			
11	XMT, EBD	XMT, EBD	WMT, WBD		CBD			
11.5	XMT	XMT	WMT					
13	XMT	XMT	XMT		XMT			
15					WBD old			
15.5					EBD			
18	XVTr	XVTr	XVTr		XVTr			
25	WBS	WBS	WBS w/hair		EBS			

27.5	WBD	WBD						
28.5	WBD	WBD	WBD		EBD old			
29			WBD, WBS ~2m		EBD			
37					WMT			
38.5	WGF	WGF	EGF		WGF			
45	WGF	WGF	EGF					
47.5					EMT			
48	WBD	WBD	EBD		CMT			

Transect 13

Meter	9/5/09	9/19/09	9/29/09	10/5/09	10/21/09	10/28/09	11/8/09	12/11/09
1							XMT, X small mammal	
2.5					WMT			
4.5						WMT		
5.5			Xcoyote					
8	EMT	EMT						
9.5		XMT					XMT	
15						WBT		
18.5	EBD	EBD						
19	EMT	EMT	WMS					MrtX
19.5			WMT	WMS	EMT			
20				WBD~2m		WMS, EMT		
20.5	EMT	EMT			WBD	WMT~2m		
21			WMT	EMT		EMT	XMT	
21.5			WGS	EGS	EGS	EGS		
22	EMT	EMT						
22.5								
23					EMT	WMT		
24				WMT~2m	WMT			
26				WGS				
27					WMT			MX
28		XMT		WMT		WMT		
29.5		WMS			WMT	WMT		
31	CBD	CBD	CBD	EMT	EMT			
31.5						CMT		

36								K-9X
36.5								EK-9T
37								EK-9T
37.5								EK-9T
38								EK-9T
38.5			WMT					EK-9T
39	EMT	EMT		EMT	XMT	XMT		EK-9T
39.5	EMT	EMT		EMT	XMT			EK-9T
40	EMT	EMT		EMT	XMT			EK-9T
40.5	EMT	EMT	EGS		XMT			EK-9T
41	EMT	EMT		EMT	XMT		CMT	EK-9T
41.5	EMT	EMT			XMT	EMT		EK-9T
42	EMT	EMT		WGS	XMT			EK-9T
42.5	EMT	EMT		EMT	XMT	WGS		EK-9T
43	EMT	EMT			XMT			EK-9T
43.5	EMT	EMT			XMT			EK-9T
44	EMT	EMT			XMT			EK-9T
44.5	EMT	EMT			XMT			EK-9T
45								EK-9T
45.5								EK-9T
46								EK-9T
46.5								EK-9T
47								EK-9T
47.5								EK-9T
48							EMT	EK-9T
48.5								EK-9T
49								EK-9T
49.5								EK-9T
50								EK-9T

Transect 14

Meter	9/5/09	9/19/09	9/29/09	10/5/09	10/17/09	10/28/09	11/8/09	12/11/09
4	EBD	EBD		EBT				
5					X?		EBD	
11			WMT	EMT	EMT			
17					WMT			
19.5				CMT				
22.5			E vole hole					
32			E poop-small black		W sml blk scat coiled			
32.5	XMT	XMT	WGS	XMT				
33			EMS		EMT			

Transect 15

Meter	9/5/09	9/19/09	9/29/09	10/5/09	10/21/09	10/28/09	11/6/09	12/11/09
1					WMT	WMT		
2				EMT~2m	EMT			
3				EMT		EUH		
5.5			EMT small	WMT				
9			E pee stain		WT porcupine	WMT ~3m		
14				XMT		XMT		
17.5					XMT			
18			EBD?	WMT	WMT			
20						XMT small		
22.5	XMT	XMT						
23.5					EMT	EMT		
24			EXMT	XMT				
30				EMT~2m		EMT		
31						EMT		
35	EMT	EMT	WMT		EMT	EMT		
35.5				EMT				
36				EMT				
36.5	WBD	WBD	EBD	WBD	WBD	WBD		
38.5					WT porcupine			
39.5				WBT		XMT		
41.5						EUT		
43						WBD		
44					WMT			

Transect 16

Meter	9/5/09	9/19/09	9/30/09	10/5/09	10/21/09	10/28/09	11/6/09	12/11/09
1.5			EMS ~2m		X	WMS ~2m		
6			EMT	WMT				
6.5			WBD			EBD old?		
9				WMT				
10.5					X	EBD ~2m		
11				WMT				
11.5					WBS old			
12						EMT		
12.5					EMT			
13.5					WBD	WBD old		
15.5				WBD				
16				EMT	XVT		XMT	MrtX
17				EMT			XMT	
18						XVT		
19.5				XMT				
21						WMT		
22								MX
23							XMT	
25		XMT				XMT		
26			WBD		X	EBS		
27			Mult. EWMT					
28								MrtX
29		XMT				WMT	XMT	
30				EoldBD				
31			EMT	XMT				
32						WMT		
32.5		XMT			WMT	WMT		
33						WMT		
33.5			EMT			WMT		
34				XMT		WMT	MTs	
34.5						WMT	MTs	
35						WMT	MTs	
35.5				XMT		WMT	MTs	
36						WMT	MTs	

36.5		XMT				WMT	MTs	
39.5		EBS, old	WBS	XMT	EBS	EBS		
41.5		XMT						EK-9T
42		XMT						
42.5		XMT	EMT					
43		XMT		WMT				MrtX
45					CMT	XMT		
47								MrtX

Transect 17

Meter	9/5/09	9/19/09	9/30/09	10/5/09	10/17/09	10/28/09	11/6/09	12/11/09
0					WMT		MT ~1m north	
4.5								MX
6.5			WBD					
8.5				EBD~2m	EBD			
12			WGS	EGS				
12.5			WGS	EGS	WGS, WMT			
13			WMT		EMT old			
14	EGS	EGS						
15.5			EMT	WMT	WMT			
22.5								?X
24			WGS	EGS	GS			
26				EMT				
27				WMT	WMT?			
32	WBD	WBD						
32.5	EBD	EBD						
33			WBD old	WBD~2m	EMT			
34			EBD					
39	WBD	WBD	EBD	WBD	WBD			
43	WMT	WMT	EMTs	WMT	WMT			
45	WBD	WBD	EBD ~2m	WBD	WBD			EMT
46.5	XMT	XMT	XMT	EWMT	XMT			
48	XMT	XMT			XMT			MX
48.5	WBD	WBD		EWMT				
49.5	EBD	EBD	EBD	WBD	WBD			
50			CBD	EBD	CBD			

Transect 18

Meter	9/6/09	9/19/09	9/29/09	10/5/09	10/12/09	10/26/09	11/8/09	12/12/09
0								WWesT
3.5						EMT		
4.5				CMT?			CMT	
5.5						WMT		
6					WMT			WesX
6.5					WMT	XMT		
8					WMT			
11.5						XMT		
12.5	XMT						EUT	
13					WMT			
13.5					WMT			
15						XMT		
15.5				WMT? Small				
17.5							CMT	
18.5				EMT? Small				
19					EMT	WcanineT		
20				WBS ~5m				
22.5					X Porcupine			
23.5							XMT	
24			EMT					
25	WBD	WBD	WBD	CBD				
25.5	WBD	WBD			WBD	WBD	CUT	
26.5					WBD	WBD		
28				WBD		WBD		
29					WMT			
30				XMT				
32.5	XMT	XMT		WBD			BDx2	
33.5					XMT			
34.5			XMT		WsmallMT	XMT		
35				EBD				
36.5	WBD old	WBD old		WBD	WoldBD	WBD old	old BD	
40	XMT	XMT		XMT				
40.5	XMT	XMT		XMT				
41	XMT	XMT		XMT				

Transect 19

Meter	9/6/09	9/19/09	9/29/09	10/5/09	10/12/09	10/26/09	11/8/09	12/12/09
0								tracks nearby
0.5				XMT				
1			XMT	XMT		WMT		
2.5					WMT			
3							small mamX	
5	WBD		WBD	WBD	WMT?		CBD	
5.5		WMT	XMT	XMT		WMT	XMT	
7						EMT		
10						EMT		
12	Wunid. Scat, small/old							
13				CMT along transect few meters				
13.5					EMT			
17.5						EVTr		
18						WmartinTrail		
18.5						WmartinTrail		
19						WmartinTrail		
19.5						WmartinTrail		
20.5				WMT small				
21.5	Scat, small/old					WMT		
22	Scat/ WMT	Scat/WMT						
22.5					E old BD			
23					WMT			
23.5						WMT		
27			WBD	WMT?	WBD	WMT		
28.5				EMT				
29			EMT		EMT		CMT	
33	WBD	WBD			XMT			
33.5			WMT	XMT		WMT	CMT, WBD	
34					WBD			
37	WBD			W old BD				
39				WMT small				
43				CMT				
46.5	CMT	CMT		XMT	EMT			

Transect 20

Meter	9/6/09	9/19/09	9/29/09	10/5/09	10/12/09	10/26/09	11/6/09	12/12/09
3			XMT		MT	EMT		
4					W scat	Wmartin scat?		
6.5					Porcupine X			
7.5								WolvX
8.5	WGS				WGS			
11	CMT	CMT	XMT		XMT			
11.5	CMT	CMT	XMT		XMT			
12	CMT	CMT	XMT		XMT			
12.5	CMT	CMT	XMT		XMT	XMT		
13	CMT	CMT	XMT		XMT			
14						WMT		WolvX
16.5						WMT		
17				EMT/weaselS				
18				CMT				
20	XMT	XMT	XMT	CBD, XMT	XMT			
20.5	XMT	XMT	XMT	CBD, XMT	XMT			
21	XMT	XMT	XMT	CBD, XMT	XMT	XMT		
21.5	XMT	XMT	XMT	CBD, XMT	XMT			
22	XMT	XMT	XMT	CBD, XMT	XMT			
22.5	XMT	XMT	XMT	CBD, XMT	XMT			
23	XMT	XMT	XMT	CBD, XMT	XMT	XMT		
23.5	XMT	XMT	XMT	CBD, XMT	XMT			
24	XMT	XMT	XMT	CBD, XMT	XMT	XMT		
25			XMT					
27	EWMT	EWMT		CMT				
27.5				XMT		XMT		
28			XMT	CMT	XMT			
29.5					XMT	XMT		
37.5						Wcoyote trail?		?X
39.5	CMT	CMT		XMT	XMT			
40			XMT	XMT	XMT			
45	XMT	XMT	XMT, EBS	XMT small	XMT	XMT		
47.5						W martin		
49		XMT	XMT					

Transect 21

Meter	9/6/09	9/20/09	9/29/09	10/5/09	10/21/09	10/26/09	11/6/09	12/11/09
1					EMT			
3.5		WBS		WBS, WBT	WBS, WMT	WBS		
7.5				WBD~2m				
9.5	WBD							
11.5					XMT			
13	EWMT	EWMT		WMT	WMT	WMT		
14					EMT	EMT		
17					WMT			
18						XMT		
18.5		XMT		EMT	XMT			
20	EMT, faint	EMT, faint						
20.5	WBD, old	WBD, old						
22.5					XMT	XMT		
25.5		MT		EsmallMT		EMT		
26					XMT	XMT		
26.5				WMT				
27					XMT			
27.5	MT multiple	MT multiple		WMT				
28.5	EBD	EBD		EBD	WMT	WMT		
29					EMT	EMT		
30	EMT old	EMT old		EMT	EMT			
32		XMT		EMT		EMT		
32.5						XMT old		
35	WMT			EMT				
36		EMT			WMT			
37	CBD old			EMT		EMT		
40	WBD	WBD		WBD	WBD old			
43.5	WMT faint	WMT faint						
44					XMT	WBD		
44.5						EMT		
45.5					EMT	EMT		
48	WMT faint	WMT faint		WMT	WMT	XMT		
49.5					EMT	XMT		
50					WBS	WBS		