WINTER FURBEARER TRACK-COUNT

SURVEYS IN THE COAL RIVER PARK RESERVE, YUKON TERRITORY (NOVEMBER-DECEMBER 1984)

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March 1985

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ABSTRACT

Winter track counts of furbearers in the Coal River proposed park area were conducted November 26 to December 21, 1984. Six species of furbearers were encountered: weasel, marten, wolf, red fox, lynx and red squirrel. Squirrel, marten and weasel were abundant, as were snowshoe hare and small rodents (mice and voles). Habitat preferences were shown by weasel (intermittent burn, pine/black spruce), marten (intermittent burn), red squirrel (pine regeneration), snowshoe hare (aspen/pine/spruce, pine/black spruce). A site visit to the Coal River Springs on February 28, 1985 revealed the presence of mink and otter. Wolverine, muskrat, and fisher are also known to be present in the area. Moose, were the only ungulate noted, although a set of sheep horns was found in the Coal River Springs.

A beaver cache survey in October 1984, located 25 active, and 20 inactive colony sites southwest of the springs in the park reserve. Aspen is their dominant food species here.

The open water pools and sloughs associated with the springs attract mink, otter and beaver in winter albeit in low numbers.

The historical fur harvest data shows marten, beaver and lynx to be the most important economic furbearers. The furbearers are all underharvested.

ACKNOWLEDGEMENTS

The authors wish to thank persons who assisted with the track-counts; Cor Smits, Barry Tokarek and Harvey Jessup. Al Hodgson, Lands, Parks and Resources Branch provided the financial support for the field work. Catherine Kennedy extrapolated her vegetation classification of the original park reserve to cover our study area. We are especially grateful to Denny and Rick Hair for hospitality and entertainment at the Contact Creek Lodge. Pearl Callaghan typed the manuscript. Thom Rodgers drafted the maps. Kerry Guenter assisted Brian Slough with the Coal River site visit on February 28, 1985.

INTRODUCTION

The Coal River Springs Nature Reserve (Map 1) has been proposed with the intent of protecting and managing the two mineral springs and their associated terraced "fish bowl" pools, which are sensitive to disturbance (Lands, Parks and Resources Branch, Yukon Department of Renewable Resources 1983). This feature is unique because of the very precise conditions needed for the "tufa" formation. The proposed park is seen as having great potential for interpretation of the natural history of glaciation, glacial-fluvial landforms, tufa formation, and other features such as local wildlife.

Surveys for the geomorphology, geology and vegetation of the area were conducted by the Lands, Parks and Resources Branch (Davies et al 1983). A winter track-count survey was needed to provide baseline data needed for the planning process. The limitations of this technique have been discussed by Slough and Jessup (1984). The concluded that track-counts provide an acceptable index of relative abundance and relative use of the habitat by furbearers. In this report the track-count surveys are presented and discussed in comparison with data from other areas in Yukon Territory.

This study was jointly funded by the Fish and Wildlife and Lands, Parks and Resources Branches of the Yukon Department of Renewable Resources at a total cost of about $10,000, including 40 man-days spent in the field and 10 in the office. Field work was conducted November 26 to December 21, 1984.

Data is also presented from a beaver food cache survey (October, 1984), A winter wildlife survey of the mineral springs (February 1985), the historical fur harvest records and other miscellaneous observations.

STUDY AREA

The study area included all areas of proposed park reserve (Map 1) which were reasonably accessible by snowmobile and foot.

TERRAIN

The Coal River study area is dominated by glacial-fluvial and morainal landforms (Davies et al 1983). In the centre, a large kame and esker complex was deposited, with the surrounding area being littered with kettles, drumlinoid landforms and morainal deposits. The combined effect creates an area of very hummocky to rolling, and ridged terrain, with some slopes as great as 80°, intersected by gullies, seepage channels and lakes. Along the Coal River are high terraces, with another lower level terrace adjacent to the river. The most spectacular feature, just north east of Coal River, are the two cool spirngs and the associated terraced pools.

VEGETATION

The Coal River study area is comprised basically of a mosaic of burn, coniferous, deciduous and mixed forests (Davies et al 1983). A fire went through the northern section of the study area in 1982, but a history of fires created an area with vegetation of varying age classes and seral stages. The majority of the area is comprised of one of two forest types; pine and black spruce forest or a mixed forest of pine, aspen and spruce. The wetland and

seepage sites have sedges, willow, shrub birch, black spruce and larch. The high elevation ridges in the north and east support subalpine flora, while lake shores and other alluvial sites support mature white spruce.

The vegetation communities (Map 1) in the proposed park boundaries have been ground proofed whereas the communities below the park boundary have not.

METHODS

WINTER TRACK-COUNT SURVEYS

The track-count methodology followed Slough and Jessup (1984). Habitat units correspond with the vegetation communities described by C. E. Kennedy (Davies et al 1984). It should be noted that each snowshoe hare runway recorded in the raw data, was converted to 7 hare tracks in the calculations.

The results were analyzed according to the procedure outlined by Neu et al (1974) to evaluate a species preference or avoidance of a given habitat unit.

BEAVER FOOD CACHE SURVEY

Beaver food cache surveys provide a census of all active beaver colony sites. Colonies are surveyed before freezup and after leaf-fall, when visibility of caches is optimal. Beaver colonies are discrete social units, usually averaging 5 animals.

The surveys were flown in a Bell Jet Ranger, at 100 k.p.h., 100 metres above ground level. One observer/navigator accompanied the pilot. All active and inactive colony sites were recorded on 1:250,000 topographic maps.

HISTORICAL FUR HARVEST DATA

Fur harvest data was tabulated for traplines in the area encompassing the proposed park. The data includes available records for all trapping seasons since traplines were registered in 1951. At that time, trapper declarations were used. In 1976, a computerized fur harvest inventory system was developed, using fur export permits and fur trader records as source documents.

RESULTS AND DISCUSSION

WINTER TRACK-COUNTS

The total distance sampled was 152.8 km, representing 187.9 km-days. Map 2 gives the transect locations. Six furbearer species were encountered (weasel, Mustela erminea; marten, Martes americana; wolf, Canis lupus; red fox, Vulpes vulpes; Lynx, Lynx canadensis; red squirrel, Tamiasciurus hudsonicus). Tracks of snowshoe hare (Lepus americanus), small rodents (several species of mice, voles and lemmings, with deer mice, Peromyscus mamiculatus, and red-backed voles, Clethrionomys rutilus, probably dominating), moose (Alces alces), domestic dogs (Canis familiaris), grouse (Ruffed grouse, Bonasa umbellus and Spruce grouse, Canachites canadensis), ptarmigan (willow ptarmigan, Lagopus lagopus) and raven (Corvus corax) were also noted.

Table 1 shows the relative abundance indices of the furbearers and other wildlife. Snowshoe hare, small rodents, red squirrel, marten and weasel were the most abundant species. Preference-avoidance tests of habitat units were conducted for those species (to follow). A detailed habitat preference for other species observed in the study area is not possible.

Snowshoe Hare

In previous track-count surveys in Yukon (Slough and Jessup 1984, Smits and Slough 1984) snowshoe hare runways were converted to "track" units by applying a factor of x10 to each runway. In this study, where snowfalls were more frequent, this factor was reduced to x7.

The track density of hares in the study area (mean of 22.964) was surprisingly high considering that over most of Yukon hares have been declining since the population "crash" early in 1982 (Slough 1984). During the population peak (1981/82) maximum track densities of 28.783 were recorded in the Kluane area (Slough and Jessup 1984). The density declined to 2.406 (in Kluane) in 1982/83. A mean density of 0.364 was recorded in 1984 in the Frenchman-Tatchun area. In the present study area hares were particularly abundant in forest types containing pine (the highest density of 38.400 was recorded in pine regeneration).

In 1979, Penner (1979) reported a mean snowshoe hare track density of 21.48 for the lower Liard Basin in B. C. There was no monitoring of populations during the extended peak of 1980/81 and 1981/82. The present high density is believed to reflect a recovery of the population since the crash.

The cause of the hare "crash" is believed to be food shortage. Current research at Kluane and Alaska indicates that certain plant species which are heavily browsed by hares (willows, aspen, dwarf and paper birch, pine, fir and spruce) react by producing defensive chemicals in their new growth, rendering them low in nutritive quality. As the mature edible shoots become overbrowsed, hares are forced to feed on low quality food, resulting in starvation, increased risk of predation, susceptibility to cold, and finally a population crash. This defence in plants may last only two or three years, a time lag sufficient to produce a 10 year cycle in hare numbers.

Small Rodents

Small rodents, mice, voles and lemmings, were very abundant in the study area (mean track density of 5.301 tracks per km-day). Previous reported densities have not exceeded 0.200 (Slough and Jessup 1984). Their preference for pine and aspen types agrees with previous studies (Slough and Jessup 1984 and Smits and Slough 1984).

Approximately 10 species of rodents might be represented here, although 2 species, red-backed voles and deer mice, are expected to be most common. Ermine and marten, small mammal predators, are also abundant in some of the same habitat units (Table 1).

Red Squirrel

Red squirrel were abundant in the study area, especially in forest types containing pine. Squirrels typically show a preference for white spruce and floodplain mixedwood types (spruce and balsam poplar) (Penner 1979, Smits and Slough 1974). The recent spruce cone crop (1983-1984) has resulted in increased squirrel densities over most of Yukon (Slough 1984). Spruce is a minor component of the forest in the Coal River area, however, pine, a major component, seems to be exhibiting a similar bumper cone crop. The squirrel track density in the pine regeneration unit (5.800 tracks per km-day) is the highest ever recorded in Yukon.

Weasel

Both ermine (Mustela erminea) and least weasel (M. nivalis) were observed in the study area, however tracks of the least weasel were rare and were combined wth those of the ermine for analysis.

The mean index of weasel activity was 0.436 tracks per km-day (Table 1). This is greater than the values reported by Penner (1979) for the Liard Basin in B. C. in 1979 (0.22), Slough and Jessup for the Yukon River Basin in 1982 and 1983 (mean of 0.055, with a high value of 0.120 reported for the North Canol study area), by Smits and Slough (1984) for the Frenchman-Tatchun area in 1984 (no ermine tracks were observed) and by Penner (1979) for 8 other locations in the boreal forest.

Weasel track densities were greatest in the intermittent burn (1.884) and pine/black spruce (0.784) forest types. They were least common in the complete burn, aspen/pine/spruce, and aspen regeneration types.

Ermine and least weasels are two closely-related small mustelids with similar habits. They are specialist predators of small rodents, namely mice, voles and lemmings. The most common small mammals of the study area are suspected to be deer mice (Peromyscus mamiculatus) and red-backed voles (Clethrionomys rutilus). Voles fluctuate over a 3-4 year cycle, producing a similar fluctuation in the weasel populations. Small rodent populations are concurrently high in the Coal River area.

Marten

Marten, like ermine, show a much greater track density in the Coal River area than reported for other areas and are also most common in the intermittent burn. Small rodents are the main food item of the marten in Yukon (Slough, unpublished data). The mean density of 0.820 tracks per km-day exceeds 0.306, reported for the North Canol (highest in the Yukon River Basin) (Slough and Jessup 1984) and 0.001 tracks per km-day in the Frenchman-Tatchun area (Smits and Slough 1984). The figure reported by Penner (1979) of 0.79 tracks per km-day is comparable. In the Coal River area the preference for the intermittent burn (4.638 tracks per km-day) is outstanding. They generally prefer mature coniferous forests, entering the edges of burns where small mammals are abundant. Marten are a prime economic furbearer of the area, and southeast Yukon region is one of the greatest producers of marten in Yukon.

Other Observations

Wolverine (Gulo gulo), and muskrat (Ondatra zibethicus) are known by the local trappers to be present in the area. The wetlands are, at best, very poor habitat for muskrats. Mink (Mustela vison) and river Otter (Lutra canadensis) were noted near the springs in February 1985. They may be exploiting easy access to overwintering fish. A regularly used wolf den complex (as determined from age of diggings and scats) is located in the park area southwest of the springs (Map 3). Fisher (Martes pennanti), which are rare in Yukon, are proably as common in the Coal River area as they are anywhere in the southeast (Yukon) (where trappers report them as "scarce" - Slough 1984). Old tracks (snowed in) of a fisher was seen in a mature white spruce forest of the study area (3 tracks along a 2 km transect). Coyote (Canis latrans) are rare in the area.

Moose were the only ungulate noted in the area during the surveys. Barry Tokarek, Watson Lake District Conservation Officer found old sheep horns in the springs in 1984, indicating their possible use as a mineral lick.

Beaver Cache Survey

The October 1984 aerial beaver (Castor canadensis) cache survey located 25 active beaver colonies, or a total estimated beaver population of 125 (Map 3). Twenty inactive colony sites were also located. These figures convert to a maximum colony occupancy rate of 55.5%, which is typical of this type of vegetation- wetland complex.

The principal food species of beaver here are willow (Salix spp.) and trembling aspen (Populus tremuloides). A relatively stable number of beaver is able to coexist with riparian willows in a cutting-abandonment cycle. In other words as sites are abandoned due to overcutting old sites where willows have regenerated are re-occupied. Aspen is the preferred food of any found in North America, however, aspen stands represent only transient beaver habitat, albeit of the highest quality. Aspen is a pioneer species following fire. Beaver establish new colony sites as dispersing individuals "discover" the aspen. The exploitation of aspen occurs very quickly as large number of beaver colonies quickly become established in these areas. When aspen is cut it regrows by suckering. Repeated cutting of suckers ultimately destroys stands and leads to permanent beaver colony site abandonment.

In the proposed Coal River park area many colony sites exploiting mature aspen have already been abandoned (aspen/pine/spruce habitat unit). The beaver populations should be increasing presently in the Aspen regeneration unit (1948 burn) and in 20-30 years in the 1982 burn (complete burn and intermittent burn).

Moderate beaver trapping pressure is an excellent management tool to prolong the life of colonies exploiting aspen.

There appear to be three beaver colony sites in the vicinity of the springs; two inactive sites below the terraced pools, and one active site on the source pool itself. The latter colony (consisting of a lone beaver following removal operations in the fall of 1984) is feeding on aspen (near depletion), alders and birch. Alder and birch are non-preferred food species. This colony site would probably be vacated within a year or two if left to a

natural course of events. The remaining beaver was foraging on land in winter (Appendix III), an anomilie in the north, where most beavers are confined under the ice where they must feed on stored food. There is no permanent method to remove beavers from a suitable colony site short of altering the biophysical habitat (food and physical environment). The recommended solution is to install a drain in the pond which permits a constant outflow of water while prohibiting damming by beaver. Several models of such drain-pipe systems are available.

HABITAT UNITS

The following discussion gives use of individual habitat units by wildlife species. Only the predominant units were sampled.

Complete Burn

The 1982 burn showed regeneration of willows and some ground cover within a year (Davies et al 1983). Most wildlife species used this unit less than expected. Marten, possibly transient, were common.

Intermittent Burn

Utiization of the intermittent burn is much greater than that of the complete burn by small rodents, weasels and marten. This unit consists of vegetation untouched by fire interspersed with partially or totally burned stands. The remnant stands are largely pine/black spruce or aspen/pine/spruce types.

Aspen/Pine/Spruce

Snowshoe hare and small rodents utilized aspen/pine/spruce in greater proportion than its' availability, with marten and red squirrel also common. Beaver colony sites are abundant within this unit, although many have been abandoned due to overcutting.

White Spruce

The white spruce association occurs in low quantity in the study area. It was not significantly utilized by any species.

Pine/Black Spruce

This unit was heavily utilized by weasel, small rodents and snowshoe hare. Marten were also common.

Aspen Regeneration

The early successional aspen type was avoided by most species with snowshoe hare being uncommon. As these stands mature they will provide abundant food for beaver.

Pine Regeneration

Pine regeneration was heavily utilized by red squirrel and snowshoe hare, with weasel and marten also common.

Lake Shore

Lake shore, the edge of the ice surface, was not utilized significantly by any species. Snowshoe hares occasionally cross ice surfaces.

Historical Fur Harvest

Two trapping concessions overlap the proposed park reserve (Map 1, #371 and 373). Table 2 gives all recorded fur harvests between 1950/51 and 1982/83.

The most economic furbearers and marten, lynx and beaver. From our surveys in the area marten and beaver are the most common species and are expected to be stable over the long term. The area is not prime lynx habitat. The lynx harvest in the Liard Basin in general increased in 1982/83 following an exodus of lynx from prime habitat to the north and west early in 1982 (when the snowshoe hares "crashed"). This harvest should reduce and stabilize to former levels in the near future.

The furbearers, and marten in particular, are underharvested in the area. The average income per trapper, currently at $500 to $4000/season could easily reach $5000 to $10,000 or more at present fur prices and population levels.

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Table 1. Relative Abundance Indices of Fur bearers and Utilization Availability of the Habitat Units.

	HABITAT UNITS																	
	A. Complete Burn		B. Intermittent Burn		C. Aspen/Pine/ Spruce		D. White Spruce		E. Pine/Black Spruce		F. Aspen Regen.		G. Pine Regen.		H. Lake Shore		TOTAL	
Species	Tracks	Tracks/ Km day Util.	Tracks	Tracks/ Km day Util.	Tracks	Tracks/ Km day Util.	Tracks	Tracks/ Km day Util.	Tracks	Tracks/ Km day Util.	Tracks	Tracks/ Km day Util.	Tracks	Tracks/ Km day Util.	Tracks	Tracks/ Km day Util.	Tracks	Tracks/ Km day
Weasel	1	0.095-	13	1.884+	17	0.237 –	3	0.300=	32	0.784+		-	16	0.533=		-	82	0.436
Marten	14	1.333=	32	4.638+	60	0.837=	1	0.100-	26	0.637=	1	0.156-	19	0.633=	1	0.086-	154	0.820
Wolf	7	0.667															7	0.037
Lynx					2	0.028			1	0.025			4	0.133			7	0.037
Red Squirrel	3	0.286-	2	0.290-	205	2.859=	7	0.700-	75	1.838-		-	174	5.800+		-	466	2.480
Snowshoe hare**		-		-	1985(143)	27.685+	23(1)	2.300-	1072(76)	26.275+	64(2)	8.438-	1152(70)	38.400+	29(1)	2.500-	4315(293)	22.964
Small rodents	5	0.476-	51	7.391=	446	6.220+	12	1.200-	358	8.775+		-	124	4.133-		-	996	5.301
Moose	2	0.190	5	0.725	10	0.139											17	0.090
Grouse			5	0.725	4	0.056			2	0.049			9	0.300			20	0.106
Raven	2	0.190															2	0.011
Ptarmigan	4	0.381															4	0.021
Red fox									3	0.074							3	0.016
Dogs									3	0.074							3	0.016
																	TOTAL	
Total Transect Length (km)	15.5		13.5		56.7		4.0		30.3		1.4		23.2		8.2		152.8	
Total Km-Days	10.5		6.9		71.7		10.0		40.8		6.4		30.0		11.6		187.9	

* Utilization: - avoided, + preferred, = utilized proportional to occurrence ($\alpha = 0.05$)
Tested by technique of Neu et al (1974) as presented in Appendix I.

** Snowshoe hare runways are in parentheses ( ). One runway = 7 tracks.

Table 2. Fur Harvest and Dollar Value 1950-51 to 1982-83, Coal River Area[1].

Season	1975/1976		1979/1980		1980/1981		1981/1982		1982/1983	
	# Trapped	Value	# Trapped	Value	# Trapped	Value	# Trapped	Value	# Trapped	Value
Marten	7	$ 197.19	29	$1049.80	84	$3165.96	41	$1831.47	8	$ 410.00
Beaver					8	259.36	8	163.60	9	165.87
Muskrat					1	6.20				
Otter							1	44.80		
Lynx	2	441.50	2	420.24	3	859.95			23	7027.65
Wolverine	1	124.89								
Black bear			1	65.00			1	44.07		
Mink			2	52.88	8	274.32	4	137.64	1	23.31
Squirrel			7	11.90	52	72.80	5	8.40		
Weasel							2	3.64		
Wolf							2	237.22		
Total Nominal Fur Value		$ 763.58		$1599.82		$4638.59		$2470.84		$7626.83

1. Notes. Concessions 371,373.
There was no record of harvest for the seasonsnot tabulated (since 1950/51).
The returns are based on fur export records and fur dealer records.

APPENDIX I

Utilization - Availability Analyses

	Habitat Unit	km-days	Proportion km-days	Tracks Observed	Tracks Expected	Proportion Observed	Lower Limit	Upper Limit	Utilization
a) Weasel	Complete Burn	10.5	0.056	1	4.6	0.012	-.021	0.045	-
	Intermittent Burn	6.9	0.037	13	3.0	0.159	0.048	0.269	+
	Aspen/Pine/Spruce	71.7	0.382	17	31.3	0.207	0.085	0.330	-
	White Spruce	10.0	0.053	3	4.4	0.037	-.020	0.093	=
	Pine/Black Spruce	40.8	0.217	32	17.8	0.390	0.243	0.537	+
	Aspen Regen	6.4	0.034	0	2.8	0.000	0.000	0.000	-
	Pine Regen	30.0	0.160	16	13.1	0.195	0.076	0.315	=
	Lake Shore	11.6	0.062	0	5.1	0.000	0.000	0.000	-
b) Marten	Complete Burn	10.5	0.056	14	8.6	0.091	0.028	0.154	=
	Intermittent Burn	6.9	0.037	32	5.7	0.208	0.119	0.297	+
	Aspen/Pine/Spruce	71.7	0.382	60	58.8	0.390	0.282	0.497	=
	White Spruce	10.7	0.053	1	8.2	0.006	-.011	0.024	-
	Pine/Black Spruce	40.8	0.217	26	33.4	0.169	0.086	0.251	=
	Aspen Regen	6.4	0.034	1	5.2	0.006	-.011	0.024	-
	Pine Regen	30.0	0.160	19	24.6	0.123	0.051	0.196	=
	Lake Shore	11.6	0.062	1	9.5	0.006	-.011	0.024	-
c) Red Squirrel	Complete Burn	10.5	0.056	3	26.0	0.006	-.004	0.017	-
	Intermittent Burn	6.9	0.037	2	17.1	0.004	-.004	0.013	-
	Aspen/Pine/Spruce	71.7	0.382	205	177.8	0.440	0.377	0.503	=
	White Spruce	10.0	0.053	7	24.8	0.015	-.000	0.030	-
	Pine/Black Spruce	40.8	0.217	75	101.2	0.161	0.114	0.207	-
	Aspen Regen	6.4	0.034	0	15.9	0.000	0.000	0.000	-
	Pine Regen	30.0	0.160	174	74.4	0.373	0.312	0.435	+
	Lake Shore	11.6	0.062	0	28.8	0.000	0.000	0.000	-
d) Snowshoe Hare	Complete Burn	10.5	0.056	0	241.1	0.000	0.000	0.000	-
	Intermittent Burn	6.9	0.037	0	158.5	0.000	0.000	0.000	-
	Aspen/Pine/Spruce	71.7	0.382	1985	1646.5	0.460	0.439	0.481	+
	White Spruce	10.0	0.053	23	229.6	0.005	0.002	0.008	-
	Pine/Black Spruce	40.8	0.217	1072	936.9	0.248	0.230	0.266	+
	Aspen Regen	6.4	0.034	54	147.0	0.013	0.008	0.017	-
	Pine Regen	30.0	0.160	1152	688.9	0.267	0.249	0.285	+
	Lake Shore	11.6	0.062	29	266.4	0.007	0.003	0.010	-
e) Mouse Species	Complete Burn	10.5	0.056	5	55.7	0.005	-.001	0.011	-
	Intermittent Burn	6.9	0.037	51	36.6	0.051	0.032	0.070	=
	Aspen/Pine/Spruce	71.7	0.382	446	380.1	0.448	0.405	0.491	+
	White Spruce	10.0	0.053	12	53.0	0.012	0.003	0.021	-
	Pine/Black Spruce	40.8	0.217	358	216.3	0.359	0.318	0.401	+
	Aspen Regen	6.4	0.034	0	33.9	0.000	0.000	0.000	-
	Pine Regen	30.0	0.160	124	159.0	0.124	0.096	0.153	-
	Lake Shore	11.6	0.062	0	61.5	0.000	0.000	0.000	-

Conditions of Analysis:

1. x^2 is significant (α=0.05).
2. There is at least one expected observation in each category.
3. The average expected observation is 5 or more.

APPENDIX II (Attached)

Map 1 Coal River Study Area - Vegetation Cover
Map 2 Coal River Study Area - Winter Track-Count Transects.
Map 3 Coal River Study Area - Beaver Colony Census

Appendix III: Winter Wildlife Survey - Coal River Springs

Date: February 28, 1985

Observers: Brian Slough
Kerry Guenter

Aircraft: Frontier Bell Jetranger, Pilot: John Saunders

Notes: The objective of the survey was to observe wildlife diversity and populations in the immediate proximity of the Coal River Springs in winter.

It had been mild and windy for the previous 3 days, deteriorating the surface of the snow for track-count purposes. Observations were not quantified or included in the analyses presented in the report, however, they are interpreted with the results.

Our snowshoe transect was within a white spruce vegetation polygon between the Coal River and the two main Coal River Springs. The total transect length was about 2.0 km. The snow depth varied up to 125 cm. Water was ice-free in the main source-pool, the secondary terraced pools (to the north), and the slough draining the springs to the Coal River. The gravel bar on the Coal River in the vicinity of the spring drainage channel was ice and snow free. Tracks and species observed include:

Marten	- common
Red Squirrel	- common
Mink	- fresh track near drainage into Coal River.
River Otter	- track on shore of slough below terraced pools.
Beaver	- at least one individual active in sourcepool (open water).
Snowshoe Hare	- 1 track identified
Grey Jays	- several (10+) seen
Dippers	- several (10+) seen
Moose	- track of one individual along Coal River and going right to source pool.
Sculpins	- several seen in open water of Coal River near spring drainage.

In summary, the area supported a diversity of species, each abundant in accordance with the densities noted for the Coal River Study Area in general.

Species which may be attracted by the densities noted for the unique open-water condition are mink, otter, beaver, and dippers. Food for the carnivorous furbearers did not appear to be particularly abundant in the open water areas. The lower sloughs, being quite shallow, lacked prime fish habitat, and fish are not apparently present in the upper

pools. The beaver in the upper source pool is able to exploit the open water condition by foraging on shore, supplementing his low quality cached food with fresh cuttings. Unfortunately the available forage is of lower quality (alder and birch rather than willows and aspen) in any case.

The Coal River valley near the springs and the main Coal River Study area were surveyed informally for moose and other wildlife on the return to Watson Lake. Moose appeared to be restricted by snow depth to prime riparian habitats along rivers, streams and some lake shores. They were not abundant, although distributed across the area. Moose were absent from the complete burn, where regenerating browse plants were not available due to snow depth. Lynx tracks were noted on the small lake south of Denning Lake.