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REVIEW OF ROBSON VALLEY LAND RESERVES

Prepared for:
Columbia Basin Fish and Wildlife Compensation Program

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Appendix I **Transect and Feature Maps**
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1.0 INTRODUCTION

Parcels of land within the Robson Valley have been reserved for conservation and management for fish and wildlife. Many of these land reserves were established in the 1980's under the Lands Act. Now twenty years later, these reserve lands may have different attributes and habitat suitability. BC Hydro's Fish and Wildlife Compensation Program has an objective to conserve and enhance fish and wildlife habitat and populations in a large area surrounding the reservoirs in the Kootenay Region, including the Robson Valley.

This review of land reserves includes twenty-one Wildlife Habitat Emphasis Areas (WHEs) and ten Recreation Conservation Management Areas (RCMAs) in the Upper Fraser Trench (UFT) Ecosystem. The intent of the project is to assess the current state of the designated lands and their suitability for fish and wildlife management and provide a proposed strategy for managing the system of conservation lands in the Robson Valley. This may include recommendations for restoration or enhancement opportunities.

2.0 METHODS

The 31 land reserves were each stratified prior to entering the field to optimize a sampling design and to reduce the amount of time spent on areas not likely to have changed since the lands were designated twenty years ago. Stratifying can reduce variability in a study design as different habitat components are identified and greater sampling effort can be applied in areas that wildlife are most likely to use. Areas that were extensively disturbed by recent harvesting or development or large expanses of homogenous habitat (significant wetlands) were focused on less with the assumption that sampling a small portion of the habitat will produce similar results as more extensive effort. Four strata were developed using large scale orthophoto coverage including mature forest, recently harvested second growth, linear disturbance, and wetland/riparian. Forest health (mountain pine beetle attack) was also delineated within each reserve where othophotos (2005) showed infestation. The land reserves each had between 1 - 4 strata as follows.

1 stratum	2 strata	3 strata	4 strata
WHE 3	WHE 4	WHE 2	WHE 5
WHE 20	WHE 10	WHE 7	WHE 6
WHE 21	WHE 12	WHE 8	RCMA 6
WHE 22	WHE 14	WHE 9	
	WHE 17	WHE 11	
	WHE 18	WHE 13	
	RCMA 2	WHE 15	
	RCMA 4	WHE 16	
	RCMA 5	WHE 19	
		RCMA 3	
		RCMA 7	
		RCMA 8	
		RCMA 9	
		RCMA 10	
		RCMA 11	

Visits to each stratum were conducted within each individual reserve individually to achieve adequate representation of potential fish and wildlife habitat. Certain strata were not ground-truthed if potential fish and wildlife value had already been determined in the reserve.

The objective of the survey was to document species presence and use (habitat suitability), thus the inventory of land reserves was conducted using presence/not detected level of surveys (RIC 1999). These surveys allow determination of the types of species occupying various habitats within a defined study area. Encounter transects were established within the different strata of each land reserve and animal sign was documented along the transect. The objective of encounter transects is to record observations seen from the transect, regardless of the distance from the line. Wildlife sign was documented on wildlife sighting cards created specifically for this project, adapted from Wildlife Habitat Assessment field cards (RIC 1998). Habitat suitability ratings were based on British Columbia Wildlife Habitat Assessment Standards given an intermediate knowledge of habitat use (4-class scheme). A two season approach was applied based on limited knowledge of animal movement and use within the land reserves, lack of differentiation between animal sign in different seasons, and the reconnaissance level scope of the study.

Fieldwork was conducted for three days in the early spring and four days in the summer by a crew of two. Project biologist, Eric O'Bryan, supervised the crews for each sampling session. Surveys conducted in the early spring focused on areas north of the community of Valemount, British Columbia to key in on early green up areas for ungulate use.

The following sources of information provided existing information of wildlife use or fisheries and wildlife habitat in the Robson Valley area.

- Ecocat – Ministry of Environment Ecological Reports Catalogue
- Columbia Basin Fish and Wildlife Compensation Program – Fish and Wildlife Report Database
- BC Conservation Data Centre – Ministry of Environment
- Forest Health on-line database (Integrated Land Management Bureau – Natural Resource Information Centre)
- Fisheries Information Summary System (BC Ministry of Environment / Fisheries and Oceans Canada)
- Orthophotos (Integrated Land Management Bureau 2005)

3.0 RESULTS

Each designated land reserve is discussed individually in a distinct section that can be extracted from the report. For each reserve, the existing information, access, vegetation, and evidence of wildlife use and suitability are presented based on fieldwork and review of existing information. Dominant vegetation and wildlife use observations are summarized in two tables under each section. Transects conducted in the field and wildlife use observations are presented in a map of each reserve, which are included in Appendix I. Site photos are provided in Appendix II. Trespass concerns are presented for land reserves where they are applicable. The final section under each land reserve provides management recommendations based on findings of this project and any relevant existing information.

Associations between land reserves are discussed where necessary as many of the designated lands are located adjacent to one another or are in close proximity and may share similarities in terms of wildlife use and habitat value. Land reserves WHE 2-4, WHE 7, RCMA 2-9 were assessed on April 24-26, 2007. Land reserves WHE 5-6, WHE 8-22, and RCMA 10 were assessed on July 28-30th 2007.

3.1 WHE 2

3.1.1 Existing Information

Orthophoto interpretation noted significant thinning of the forest in this reserve and access roads were well established. Permanent structures had also been established near the highway. The recommended Valemount Crown Land Use Plan designates the northern half of the land reserve as Long Term Development. The reserve lies within the biogeoclimatic zone SBSdh1.

3.1.2 Access

This land reserve can be accessed by driving approximately 4.5 km south of Fraser River Bridge crossing on Highway 5, then turning east on a small rough access road at UTM 11. 5868771 N, 339973 E.

3.1.3 Vegetation

There were three strata identified for this reserve including forested, harvested and linear disturbance. The reserve had been manipulated by linear disturbance from access roads, harvesting and construction of a power line right-of-way through the middle. Timbered areas were dominated by mature Douglas fir with a minor component of pine and aspen. Disturbed areas varied from compacted roads and landings to thinned forest with some Douglas fir regeneration and shrub establishment. Dominant vegetation species are presented in Table 1a.

Table 1a. Dominant vegetation observed within WHE 2.

WHE 2	
Douglas fir	*Pseudotsuga menziesii*
lodgepole pine	*Pinus contorta*
trembling aspen	*Populus tremuloides*
spreading dogbane	*Apocynum androsaemifolium*
kinnikinnick	*Artostphylos uva-ursi*
bull thistle	*Cirsium vulgare*
red raspberry	*Rubus ideaus*
heart leaved arnica	*Arnica corifolia*
fireweed	*Epilobium angustifolium*
ground cedar	*Lycopodium complanatum*
wild strawberry	*Fragaria virginiana*
prickly rose	*Rosa acicularis*

3.1.4 Evidence of Wildlife Use and Suitability

Wildlife sign included deer and moose tracks and pellet groups, moose hair on a Douglas fir trunk, coyote scat and a squirrel midden. Observations included dark-eyed junco, yellow-rumped warbler and a chipmunk.

Table 1b. Identified wildlife use and observations.

WHE 2	
Species	**Sign**
Moose	Pellets, hair, tracks
Deer	Pellets, tracks
Coyote	Scat
Dark-eyed junco	Observation
Yellow-rumped warbler	Observation
Squirrel	Midden
Chipmunk	Observation

Most wildlife sign noted in the reserve did not appear to be recent as it was dry and discolored. Deer sign was the most abundant and noted along the roads in the east portion of the reserve. Coyote scat was white indicating it was no longer fresh or recent. The level of recent disturbance has reduced the browse potential for ungulates and only a few pellet groups were noted along the entire transect.

Although it appears the reserve is primarily used by deer and to a lesser extent moose, the wildlife habitat suitability of the reserve as a whole is moderate. The SBSdh zone within the Upper Fraser Trench (UFT) is considered Class 2 winter habitat for moose and the ICHwk zone (south of land reserve) is considered Class 3 during the growing season (RIC 1999).

Rail line and highway traffic combined with the level of recent disturbance from access roads and the power line right-of-way reduces the availability of suitable habitat at any time of year. The open Douglas fir habitat does not provide optimal thermal or thermal security habitat for moose or deer and foraging opportunities appear to be limited to scattered pockets of vegetation and within the southern third of the reserve where the thinned forest has good shrub growth.

3.1.5 Management Recommendations

The recommended Valemount Area Crown Land Use Plan identifies the northern half of the land reserve as Long Term Development whereas the current Robson Valley Crown Land Use Plan designates this part of the wildlife habitat emphasis area. This conflict should be addressed to properly identify what designation is best suited for the land reserve. This reserve is fragmented by recent disturbance and isolated within the valley from high traffic linear disturbances on the east and west sides. The wildlife suitability was conservatively deemed moderate. Vegetation re-establishment will provide increased value for ungulates and the reserve may serve as a corridor to the Jackman Flats Provincial Park and the Mclennan River in an area where settlement has removed shelter and security for wildlife movement.

3.2 WHE 3

3.2.1 Existing Information

The Forest Health Online inventory identified a mountain pine beetle (MPB) infestation within the northeastern pocket of the land reserve. Orthophotos showed WHE 4 exists within the boundaries of WHE 3 and may have trespass issues (See section 3.3.5). Swift Creek is location just outside the reserve on the eastern boundary. Fish species noted in Swift Creek include bull trout, chinook salmon, rainbow trout, slimy sculpin, sockeye salmon (FISS 2007). Significant wildlife values are associated with the Swift Creek watershed unit (east of reserve), including goat habitat along the height of land between Swift and Crooked Creeks. The lower reaches provide winter range for ungulates and summer range for bear, with scattered populations of goats, caribou and bear in the upper watersheds (Peepre 2006). The reserve lies within the biogeoclimatic zone SBSdh1.

3.2.2 Access

This land reserve can be accessed by driving approximately 1.0 km north Valemount, turn east on Loseth road and drive approximately 700 m. Park near the rail line at UTM 11. 5857635 N, 346662 E.

3.2.3 Vegetation

There was only one strata (forested) identified for this reserve. Natural openings are present within the forest in the northeast area of the reserve associated with the steep slopes leading to Swift Creek. Timbered areas were dominated by mixed age lodgepole pine and Douglas fir regeneration with pockets of mature Douglas fir and paper birch. Soopolallie was the dominant shrub observed, but there was low understory density in areas with primarily mature pine. Alder and thimbleberry were noted in pockets that contained paper birch. MPB attack did not appear to be significant within the reserve as only a few mature lodgepole pine were infested in the north portion of the reserve. MPB have been documented to attack trees as small as 7-10 cm diameter (personal communication MOE, July 2007.) This forest is vulnerable to infestation. Dominant vegetation species are presented in Table 2a.

Table 2a. Dominant vegetation observed within WHE 3.

WHE 3	
lodgepole pine	*Pinus contorta*
Douglas fir	*Pseudotsuga menziesii*
paper birch	*Betula papyrifera*
prickly rose	*Rosa acicularis*
soopolallie	*Shepherdia canadensis*
bunchberry	*Cornus canadensis*
willow	*Salix sp.*
thimbleberry	*Rubus parviflorus*
alder	*Alnus sp.*

3.2.4 Evidence of Wildlife Use and Suitability

Deer pellet groups were noted along the entire transect, whereas moose pellets and browse were more concentrated in the valley bottom along the southern boundary. Hare pellets were noted within the younger pine forests associated with increased understory density. Numerous stumps and logs had been turned over or pulled apart, likely from bears.

Table 2b. Identified wildlife use and observations.

WHE 3	
Species	**Sign**
Moose	Pellets, tracks
Deer	Pellets, tracks
Bear	Digs
Unidentified grouse	Drumming
Dark-eyed junco	Observation
Squirrel	Midden
Hare	Pellets, game trails
Ruby-crowned kinglet	Observation
Rodents	Tunnels and mounded dirt

WHE 3 is relatively undisturbed, although there is evidence of selective logging from a couple decades ago. A variety of species were noted along the transect and deer sign appeared to be the most abundant within the reserve. Wildlife habitat suitability is rated as moderate due to variable structural stage cover including browse species availability, the connection to undisturbed habitat, and because of the variety of wildlife sign noted during one sampling session. Deer may utilize the young Douglas fir as winter forage and could find security values in the mature timber. Moose may utilize the lower slopes associated with adjacent clearing in the river bottom as multi-season food source. The provincial benchmark (winter) for mule deer in the southern interior mountains is location in the IDFdm zone. The growing season benchmark is the ESSFdk. A moderate wildlife habitat suitability classification for this WHE is made in comparison to these areas.

3.2.5 Management Recommendations

Deer and moose sign from the previous winter and early spring indicates the reserve may support ungulate winter range use. The presence of a southwest aspect, mature timber and forage such as Douglas fir, soopolallie and willow are all features associated with ungulate winter range habitat. This reserve should be managed as winter range habitat. Development and or harvesting activities should be restricted and a buffer on Swift Creek should be maintained to protect important fisheries values.

3.3 WHE 4

3.3.1 Existing Information

Orthophotos showed WHE 4 exists within the boundaries of WHE 3. There are no waterbodies or special features associated with this reserve. A residential development was noted on the orthophotos in the reserve.

3.3.2 Access

This land reserve can be accessed by driving approximately 1.0 km north of Valemount, and turning east on Loseth road and drive approximately 700 m. Parking is available near the rail line at UTM 11. 5857635 N, 346662 E.

3.3.3 Vegetation

There were two strata (forested and disturbed) identified for this reserve. Timbered areas were dominated by mixed age lodgepole pine and pine regeneration. Soopolallie was the dominant shrub observed, with sporadic alder, willow and prickly rose. Dominant vegetation species are presented in Table 3a.

Table 3a. Dominant vegetation observed within WHE 4.

WHE 4	
lodgepole pine	*Pinus contorta*
prickly rose	*Rosa acicularis*
soopolallie	*Shepherdia Canadensis*
bunchberry	*Cornus Canadensis*
willow	*Salix sp.*
alder	*Alnus sp.*

3.3.4 Evidence of Wildlife Use and Suitability

WHE 4 is small (approximately 1 hectare) and has limited wildlife suitability. Disturbance from a private dwelling within the reserve, an access road, and adjacent rail line and secondary road all contribute to the low value given to this reserve. Although, wildlife (deer and moose) could use the habitat for feeding, the reserve does not provide adequate security or thermal values in any season.

Deer pellet groups were noted and moose pellets and browse on willow shrubs was prevalent. A deer carcass was noted within the reserve (see wildlife feature and transect map in Appendix I). Hare pellets were noted within the younger pine forests associated with increased understory density.

Table 3b. Identified wildlife use and observations.

WHE 4	
Species	**Sign**
Moose	Pellets, browse
Mule deer	Pellets, carcass
Hare	Pellets

3.3.5 Trespass Concerns

The private residence established in WHE 4 appears to be a trespass concern. A home has been built and approximately one-third of the reserve has been cleared.

3.3.6 Management Recommendations

WHE 4 has limited wildlife habitat suitability at this time, and it is recommended that either it is rehabilitated or an area of equal size is added to WHE 3. The latter may be the best option in terms of protecting wildlife habitat, and the area in WHE 3 along the Swift Creek ridge would add value to that land reserve in lieu of the degraded WHE 4 reserve.

3.4 WHE 5

3.4.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify and known pests for the last seven years. The reserve is bordered by Kinbasket Reservoir on the east side. The reservoir levels elevate each year and flood a portion of the reserve. The high water levels likely influence the present of waterbodies within the floodplain of the reservoir. The reserve contains an area known as East Ponds where moose and deer are known to travel for freshwater (Thompson Forest Man. et al. 2002). Fisheries inventory work has not been conducted for any of the streams mapped within this reserve. One stream near the north end of the reserve (watershed code 300-832500) had good flow and may be fish bearing. The reserve lies within the biogeoclimatic zone SBSdh1.

3.4.2 Access

This land reserve can be accessed by driving southeast on Canoe River Forest Road, then turn south on West Canoe River Forest Road. The reserve is located approximately 2.7 km after Canoe River Bridge at UTM 11. 5847750 N, 353260 E.

3.4.3 Vegetation

There were four strata identified for this reserve including forested, harvested, disturbed and wetland/riparian. The reserve had been partially manipulated by harvesting activities that expanded to include the majority of WHE 6 to the north. The disturbed portion of the reserve consists of an access road that is partially grown over with grass and shrubs in wetter environments. Wetlands and shrub dominant habitat persist in the eastern half of the reserve towards the lake. Several small streams and ponds (East Ponds) are also mapped. Forested areas can be divided into two types: coniferous and deciduous. A small portion of the reserve is second growth dominated by trembling aspen and thimbleberry, whereas the mature timber is dominated by western redcedar and western hemlock. Pockets of black cottonwood are present in riparian zones and a small pocket of lodgepole pine exists on dry sandy soils at the north end of the block. Dominant vegetation species are presented in Table 4a.

Table 4a. Dominant vegetation observed within WHE 5.

WHE 5	
western redcedar	*Thuja plicata*
Douglas fir	*Pseudotsuga menziesii*
western hemlock	*Tsuga heterophylla*
trembling aspen	*Populus tremuloides*
black cottonwood	*Populus basamifera*
hybrid white spruce	*Picea engelmannii*
alder	*Alnus sp.*
thimbleberry	*Rubus parviflorus*
goatsbeard	*Aruncus dioicus*
red raspberry	*Rubus ideaus*
showy aster	*Aster conspicuus*
prickly rose	*Rosa acicularis*

3.4.4 Evidence of Wildlife Use and Suitability

Wildlife sign was noted along an old grown in access road and within the wetland habitat. Bear scat was noted in three different areas including a hunting campsite just off Canoe West Forest Service Road. Moose sign was noted in areas associated with more browse (riparian) and deer sign was observed along the road and within a willow dominated habitat.

Table 4b. Identified wildlife use and observations.

WHE 5	
Species	**Sign**
Moose	Pellets, tracks and skull
Deer	Pellets and tracks
Wolf	Scat
Bear	Scat on access road
Squirrel	calls, active midden
Unidentified	Game trails through brush

A significant amount of wildlife sign was not observed in July, but evidence of use by carnivores, omnivores and ungulates was present. A trap line is present in this reserve (empty trap boxes) suggesting furbearer presence in the area. The reserve is relatively undisturbed with the exception of older harvesting that is now grown over. Diverse habitat characteristics offer suitable value to a variety of life requisites for species such as deer, moose, bear and mustelids. A deer rutting and calving site is present at the north end of the reservoir (Nesbit et al. 2003). Mature forests of cedar and Douglas fir provide thermal and shelter value to ungulates in summer and winter while the riparian habitat and shrub dominated areas provide foraging opportunities during the growing season.

Wildlife suitability is thought to be moderate based the presence of habitat with multiple life requisite values for different species. For example, the provincial benchmark for moose (winter) in the southern interior mountains is SBSdh. The overall lack of ungulate sign noted may be indicative of survey timing or transect location and does not reduce the habitat suitability.

3.4.5 Trespass Concerns

The trap line (if not registered) may be considered a trespass.

3.4.6 Management Recommendations

WHE 5 is considered to have moderate value for wildlife. When combined with WHE 6 this reserve serves to protect a potential corridor from high elevation habitat to valley bottom and lakeshore habitat. WHE 5 contains valuable wetland and shrub land habitats that moose and deer utilize.

3.5 WHE 6

3.5.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify and known pests for the last seven years. Most of the reserve was logged more than 15-20 years ago. A small patch of mature timber is located in the northern tip of the reserve. A stream (WC 300-832500) originates upslope and outside the reserve, but flows through the northern portion and down through WHE 5. Fisheries inventory work has not been conducted (FISS 2007).

3.5.2 Access

This land reserve can be accessed by driving southeast on Canoe River Forest Road and turning south on West Canoe River Forest Road. The reserve is located approximately 3.7 km after Canoe River Bridge at UTM 11. 5846951 N, 353696 E.

3.5.3 Vegetation

There were four strata identified for this reserve including forested, harvested, disturbed and wetland/riparian. There is a strong deciduous component within this reserve due to harvesting activities. Moist slopes are dominated by trembling aspen and white spruce with thimbleberry and fireweed comprising the understory. On dry slopes and soils lodgepole pine is common, especially along the access roads. Upslope Douglas fir regeneration is more common with trembling aspen and willow. High-bush cranberry, red-osier dogwood and thimbleberry are common on the southeast facing slopes. Dominant vegetation species are presented in Table 5a.

Table 5a. Dominant vegetation observed within WHE 6.

WHE 6	
lodgepole pine	*Pinus contorta*
Trembling aspen	*Populus tremuloides*
hybrid white spruce	*Picea engelmannii*
Douglas fir	*Pseudotsuga menziesii*
alder	*Alnus sp.*
thimbleberry	*Rubus parviflorus*
fireweed	*Epilobium angustifolium*
red raspberry	*Rubus ideaus*
palmate coltsfoot	*Petasites frigidus*
highbush cranberry	*Viburum edule*
prickly rose	*Rosa acicularis*

3.5.4 Evidence of Wildlife Use and Suitability

Wildlife sign was noted throughout the reserve. Moose activity was very common along an old grown in access road and bear scat was noted in several locations. Deer tracks were observed less frequently along the road and in the thicker vegetation within the middle of the reserve. Scat thought to be of a coyote was noted on two occasions along the access road.

Table 5b. Identified wildlife use and observations.

WHE 6	
Species	**Sign**
Moose	Pellets, tracks
Deer	Pellets, tracks
Wolf	Scat
Bear	Scat
Ruffed grouse	Observation
Unidentified	Game trails through brush
Unidentified	Bed in thick understory

This reserve appears to have a moderate suitability for bear and moose during the growing and winter seasons based on berry production and availability of browse along the access roads and within the immature forest. Deer appear to use the block less frequently and mustelid sign was not observed. Mustelids usually key into more mature structural stages, specifically during the winter. The young forest and associated shrub density provides suitable shelter for wildlife and may be used as a corridor to the valley bottom.

Several small drainages are mapped within WHE 6. All of these were noted crossing the main access road (West Canoe River Forest Road) and two were assessed at locations within the reserve. All of the streams are small and likely have marginal fish habitat.

3.5.5 Management Recommendations

Retain the reserve as a WHE and manage for moose, bear and possible carnivore species. The habitat from the lake shore to the upper elevations west of the reserve provides a suitable mosaic of habitat types each with their own value to a particular species, season and life requisite.

3.6 WHE 7

3.6.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify pest infestations within the mapped reserve area for the last seven years, but MPB has infested pine stands in the valley bottom adjacent to the reserve. The Douglas fir beetle and the western balsam bark beetle have also impacted forests just north of the reserve.

The Conservation Data Centre indicates caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. Specific caribou sightings have not been documented within or around WHE 7.

3.6.2 Access

This land reserve can be accessed by driving south of Valemount 16.0 km and turning east on Canoe Mountain Tower Access Road (unmarked). The reserve is located approximately at UTM 11. 5840899 N, 348060 E.

3.6.3 Vegetation

There were three strata identified for this reserve including forested, disturbed and riparian. The non-forested portion of the reserve consists of the access roads landings and pipeline right-of-way. The lone stream mapped was assessed in the field and determined to be a dry draw with no riparian or channel characteristics. This reserve is comprised of second growth lodgepole pine, Douglas fir, and scattered spruce on the upper drier slopes and more trembling aspen and birch on the wetter flatter bench near the highway. Douglas fir and a minor component of trembling aspen were more dominant in the upper third of the reserve where gradients were steeper (40%). Evidence of selective harvesting was noted on the lower slopes. Dominant vegetation species are presented in Table 6a.

Table 6a. Dominant vegetation observed within WHE 7.

WHE 7	
lodgepole pine	*Pinus contorta*
Douglas fir	*Pseudotsuga menziesii*
trembling aspen	*Populus tremuloides*
paper birch	*Betula papyrifera*
alder	*Alnus sp.*
blueberry	*Vaccinium sp.*
red raspberry	*Rubus ideaus*
fireweed	*Epilobium angustifolium*
grass	*Poa sp.*
prickly rose	*Rosa acicularis*
soopolallie	*Shepherdia canadensis*

3.6.4 Evidence of Wildlife Use and Suitability

Table 6b. Identified wildlife use and observations.

WHE 7	
Species	**Sign**
Moose	Pellets, browse, tracks and bones
Deer	Pellets
Caribou	Pellets
Coyote	Scat
Hare	Pellets
Grouse	Pellets
Unidentified	Game trails

This reserve encompasses the valley bottom up to the highway edge and climbs upslope in a northern direction. The base of the reserve is comprised of a pipeline corridor and a significant access road that leads to the top of Canoe Mountain. The remaining portion of the reserve has been impacted by logging activities at least 25 years ago.

Overall wildlife activity noted was relatively low, but moose sign was documented most frequently. Older pellets that were noted in the middle of the reserve were likely moose. A wildlife tree was noted with several cavity nests. The nest appeared unoccupied at the time of the assessment in April; however, environmental conditions were cool and it was likely early for migrating birds to be nesting.

Wildlife suitability is thought to be moderate. Wildlife may use the area as a travel corridor to other habitats in the valley bottom or upslope. The reserve does not provide significant thermal values, but may provide shelter to ungulates, bears and other wildlife and higher foraging values for moose near the pipeline corridor.

3.6.5 Management Recommendations

WHE 7 is considered to have moderate value for wildlife. When assessing the value of the reserve in the context of the valley it does not connect habitats or appear to provide a corridor for animal movement. It has an irregular shape in the context of the valley except for the base which parallels the highway. The pipeline corridor will continue to provide foraging opportunity for wildlife providing brush management programs continue and the forest upslope will mature and provide additional value in the future.

3.7 WHE 8

3.7.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify pest infestations within the mapped reserve area for the last seven years, but MPB has infested pine stands in the valley bottom adjacent to the reserve. There is one stream mapped within the reserve and Camp Creek is located along the south east border. Fish species documented within Camp Creek include dolly varden, kokanee, lake chub, prickly sculpin, rainbow trout and slimy sculpin (FISS 2007).

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed, but it does not appear to encompass the valley bottom along Camp Creek. The lower boundary is mapped upslope of the rail line and outside all of the WHE reserves in the area.

3.7.2 Access

This land reserve can be accessed by driving south of Valemount 16.0 km and turning east on Canoe Mountain Tower Access Road (unmarked). The reserve is located approximately 200 meter north at UTM 11. 5841196 347787 E.

3.7.3 Vegetation

There were three strata identified for this reserve including forested, linear disturbance, wetland/riparian. The disturbed portion of the reserve consists of a well used access road. This reserve is comprised of a mixed forest including lodgepole pine and Douglas fir east of the access road and increased cedar, hemlock and Douglas fir in the transition zone adjacent to Camp Creek. Understory vegetation was dominated by vaccinium, kinnikinnick and moss in the predominantly pine stand and soopalallie and vaccinium in the transition zone associated with Camp Creek riparian area.

MPB has infested the reserve, but appeared to be limited to a few mature (30 cm diameter) lodgepole pine in the west portion of the reserve. The young pine (<20 cm) did not appear to have any red or green attack by MPB. Dominant vegetation species are presented in Table 7a.

Table 7a. Dominant vegetation observed within WHE 8.

WHE 8	
lodgepole pine	*Pinus contorta*
Douglas fir	*Pseudotsuga Populus*
western redcedar	*Thuja plicata*
trembling aspen	*Populus tremuloides*
western hemlock	*Tsuga heterophylla*
alder	*Alnus sp.*
blueberry	*Vaccinium sp.*
prickly rose	*Rosa acicularis*
soopolallie	*Shepherdia canadensis*
bunchberry	*Cornus canadensis*
stiff clubmoss	*Lycopodium annotinum*
saskatoon	*Almelanchier alnifolia*

3.7.4 Evidence of Wildlife Use and Suitability

Table 7b. Identified wildlife use and observations.

WHE 8	
Species	**Sign**
Moose	Pellets, browse and tracks

Moose sign was the only wildlife sign documented during the assessment. Most of the pellets groups were noted away from the highway and within the transition zone where there was a variety of forage species and increase security. This reserve encompasses the valley bottom and is bordered by Camp Creek and Highway 5. The reserve has been disturbed by harvesting activities and access road development. A private residence has been built on the north edge of the reserve.

Wildlife suitability for ungulates is considerate moderate as there are foraging and shelter values during the growing and winter seasons, more so near the western edge. The open pine forest and proximity to the highway right-of-way likely discourages wildlife movement through the reserve.

3.7.5 Trespass Concerns

A private residence is located just outside the north boundary of the reserve. Gravel piles appeared to have been placed on the access road inside the boundary. A survey line had been cut and two survey stakes had been installed at the north tip of the reserve. This survey line does not match the boundary line provided by ILMB.

3.7.6 Management Recommendations

The reserve boundary should be properly surveyed to determine if there has been a trespass. The wetland feature and association with Camp Creek places higher value on this reserve. The integrity of the wetland should be maintained and the buffer on Camp Creek should remain intact. Although part of the reserve is vulnerable to MPB attack, the riparian zone of Camp Creek (west edge of reserve) consists of spruce and hemlock.

3.8 WHE 9

3.8.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify pest infestations within the mapped reserve area for the last seven years. A significant area of the reserve has been disturbed through harvesting activities during the last five years. Two streams are mapped on the orthophotos, but fish inventory work has not been conducted. These streams flow into Camp Creek approximately 100 meters downstream. The biogeoclimatic zone associated with the reserve is ICHmm.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed, but it does not appear to encompass the valley bottom along Camp Creek. The lower boundary is mapped upslope of the rail line and outside all of the WHE reserves in the area.

3.8.2 Access

This land reserve can be accessed by driving south of Valemount 16.2 km and turning west on an unmarked secondary access road at UTM 11. 5840559N 348242 E. A clear span bridge is in place but the approaches have been deactivated to vehicle traffic. The reserve is located approximately 200 meters north of WHE 11.

3.8.3 Vegetation

There were three strata identified for this reserve including forested, harvested and riparian. This reserve is dominated by raspberry plants and other berry shrubs like elderberry and twinberry. Berry producing plants were ripe at the time of the assessment in July. Mature timber patches consisted of cedar, hemlock and spruce with minor components of Douglas-fir, sub-alpine fir. Understory vegetation within the mature timber was dominated by devil's club, ribes species and rosy twisted stalk. Dominant vegetation species are presented in Table 8a.

Table 8a. Dominant vegetation observed within WHE 9.

WHE 9	
western redcedar	*Thuja plicata*
hybrid white spruce	*Picea engelmannii*
Douglas fir	*Pseudotsuga menziesii*
western hemlock	*Tsuga heterophylla*
trembling aspen	*Populus tremuloides*
paper birch	*Betula papyrifera*
devil's club	*Oploplonax horridus*
red raspberry	*Rubus ideaus*
red elderberry	*Sambucus caerulea*
prickly rose	*Rosa acicularis*
black twinberry	*Lonicera involucrata*
fireweed	*Epilobium angustifolium*
sweet-scented bedstraw	*Galium triflorum*
oak fern	*Gymnocarpium dryopteris*

3.8.4 Evidence of Wildlife Use and Suitability

Table 8b. Identified wildlife use and observations.

WHE 9	
Species	**Sign**
Bear	Scat
Red-tailed hawk	Observation
Woodpecker	Drumming
Songbirds	Foraging in immature hemlock

Songbirds were noted most frequently foraging in the mature timber and within the tops of young hemlock and cedar trees throughout the block. A red-tailed hawk was disturbed within the block, but a nest could not be located within the reserve. Bear scat was noted on several occasions within the shrub habitat. Moose sign was not observed, but moose likely use the area on occasion in search of forage.

Wildlife suitability for ungulates (moose) is considerate moderate although there is a lack of key forage species and a lack of security available. The growing season benchmark for moose is ICH wk, which is located south of the land reserve. Suitability is considered moderate for bears during the growing season, but is considered low during the winter. Grizzly and black bears may forage within Camp Creek riparian zone and utilize the spawning kokanee as a valuable fall food source. Despite the habitat potential, proximity to the highway right-of-way and CN Rail line likely discourages wildlife movement through the reserve.

3.8.5 Management Recommendations

Prior to being harvested, this block would have likely provided suitable forage values and high thermal and shelter values for mule deer, moose and bear. The loss of mature timber has allowed berry shrubs to flourish which lowers the value for deer and moose, but increases bear forage values. Although bear forage is not in short supply, low bear sign was noted along the transect. The WHE should be maintained to provide an extended buffer along the Camp Creek corridor.

3.9 WHE 10

3.9.1 Existing Information

There was limited existing information for this reserve and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify pest infestations within the mapped reserve area for the last seven years. One stream is mapped on the orthophotos, but fish inventory work has not been conducted. This stream flows into Camp Creek approximately 350 meters downstream. The biogeoclimatic zone associated with the reserve is ICHmm.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed.

3.9.2 Access

This land reserve can be accessed by driving south of Valemount 16.2 km and turning west on an unmarked secondary access road at UTM 11. 5840559N 348242 E. A clear span bridge is in place but the approaches have been deactivated to vehicle traffic. The reserve is located approximately 200 meters north through WHE 11.

3.9.3 Vegetation

There were two strata identified for this reserve including forested and disturbed. This forest consists of mature cedar and spruce. Understory vegetation within the mature timber was dominated by devil's club, lady fern and clasping twisted stalk. Dominant vegetation species are presented in Table 9a.

Table 9a Dominant vegetation observed within WHE 10.

WHE 10	
western redcedar	*Thuja plicata*
hybrid white spruce	*Picea engelmannii*
western hemlock	*Tsuga heterophylla*
devil's club	*Oploplanax horridus*
red raspberry	*Rubus ideaus*
oak fern	*Gymnocarpium dryopteris*
lady fern	*Athyrium filix-femina*
clasping twisted stalk	*Streptopus amplexifolius*

3.9.4 Evidence of Wildlife Use and Suitability

This reserve has a small area and is directly adjacent to the CN Rail line which is active with train traffic. Wildlife sign was limited and wildlife suitability is moderate. Grizzly and black bears may use the reserve to forage, to seek shelter, or to move through the area to other food and shelter associated with Camp Creek.

Table 9b. Identified wildlife use and observations.

WHE 10	
Species	**Sign**
Squirrel	Alarm call
Unidentified songbirds	Vocalizations

3.9.5 Trespass Concerns

CN Rail has built a retaining wall structure to stabilize the bank due to seepage issues and potential risk to the rail bed integrity. The wall may be situated along the eastern reserve boundary.

3.9.6 Management Recommendations

This reserve is small and does not appear to provide good value to wildlife as it is directly adjacent to the CN Rail line. This railway is busy and likely restricts wildlife movement at times. The reserve would be better suited in another location adjacent to riparian values along Camp Creek.

3.10 WHE 11

3.10.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify pest infestations within the mapped reserve area for the last seven years. A significant area of the reserve has been disturbed through harvesting activities during the last five years. Two streams are mapped on the orthophotos, but fish inventory work has not been conducted. These streams flow into Camp Creek approximately 100 meters downstream. The biogeoclimatic zone associated with the reserve is ICHmm.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed, but it does not appear to encompass the valley bottom along Camp Creek. The lower boundary is mapped upslope of the rail line and outside all of the WHE reserves in the area.

3.10.2 Access

This land reserve can be accessed by driving south of Valemount 16.2 km and turning west on an unmarked secondary access road at UTM 11. 5840559N 348242 E. A clear span bridge is in place but the approaches have been deactivated to vehicle traffic. The reserve is located approximately 50 meters from Camp Creek.

3.10.3 Vegetation

There were three strata identified for this reserve including forested, harvested and riparian. This reserve is dominated by raspberry plants and other berry shrubs like elderberry and twinberry. Berry producing plants were ripe at the time of the assessment in July. Mature timber patches consisted of cedar, hemlock and spruce with minor components of subalpine fir. Understory vegetation within the mature timber was dominated by devil's club, gooseberry, and rosy twisted stalk. Dominant vegetation species are presented in Table 10a.

Table 10a. Dominant vegetation observed within WHE 11.

WHE 11	
western redcedar	*Thuja plicata*
hybrid white spruce	*Picea engelmanii*
subalpine fir	*Abies lasiocarpa*
western hemlock	*Tsuga heterophylla*
trembling aspen	*Populus tremuloides*
paper birch	*Betula papyrifera*
devil's club	*Oploplanax horridus*
red raspberry	*Rubus ideaus*
red elderberry	*Sambucus caerulea*
prickly rose	*Rosa acicularis*
black twinberry	*Lonicera involucrata*
fireweed	*Epilobium angustifolium*
sweet-scented bedstraw	*Galium triflorum*
oak fern	*Gymnocarpium dryopteris*

3.10.4 Evidence of Wildlife Use and Suitability

Songbirds were noted most frequently foraging in the mature timber and within the tops of young spruce and cedar trees throughout the block. A red-tailed hawk was disturbed within WHE 9 approximately 200 meters north. Bear scat was noted on several occasions within the shrub habitat and on the old access road. Moose sign was not observed, but moose likely use the area on occasion in search of forage.

Table 10b. Identified wildlife use and observations.

WHE 11	
Species	**Sign**
Bear	Scat
Wolf	Scat
American robin	Foraging in red raspberry shrub
Dark-eyed Junco	Foraging in western redcedar

Wildlife suitability for ungulates (moose) is considered moderate, although there appears to be limited forage and a lack of security available. Suitability is considered high for bears during the growing season, but is considered low during the winter. Grizzly and black bears may forage within Camp Creek riparian zone and utilize spawning kokanee as a valuable fall food source. Despite the habitat potential, proximity to the highway right-of-way and CN Rail line likely discourages wildlife movement through the reserve.

3.10.5 Management Recommendations

Prior to being harvested, this block would have likely provided key forage opportunities, and high thermal and shelter values for mule deer, moose and bear. The loss of mature timber has allowed berry shrubs to flourish which lowers the value for deer and moose, but increases bear forage values. Although bear forage is available, low bear sign was noted along the transect. The WHE should be maintained and wildlife habitat capability in mature seral stage emphasized, to provide an extended buffer along the Camp Creek corridor.

3.11 WHE 12

3.11.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify pest infestations within the mapped reserve area for the last seven years. Two streams are mapped on the orthophotos, but fish inventory work has not been conducted. These streams flow into Camp Creek approximately 100 meters downstream. The biogeoclimatic zone associated with the reserve is SBSdh1.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed, but it does not appear to encompass the valley bottom along Camp Creek. The lower boundary is mapped upslope of the rail line and outside all of the WHE reserves in the area.

3.11.2 Access

This land reserve can be accessed by driving south of Valemount 16.2 km and turning west on an unmarked secondary access road at UTM 11. 5840559 N 348242 E. The reserve is located approximately 50 meters south of the parking location.

3.11.3 Vegetation

There were two strata identified for this reserve including forested and riparian. This reserve is dominated by spruce with minor components of cedar, Douglas fir, subalpine fir and lodgepole pine was also present in low densities and MPB attack was noted on the mature trees. Understory species most commonly observed included devils club, thimbleberry, highbush cranberry and wild sarsaparilla. The understory is well established in the mature spruce forest. Dominant vegetation species are presented in Table 11a.

Table 11a. Dominant vegetation observed within WHE 12.

WHE 12	
white spruce	*Picea engelmannii*
western redcedar	*Thuja plicata*
Douglas fir	*Pseudotsuga menziesii*
lodgepole pine	*Pinus contorta*
subalpine fir	*Abies lasiocarpa*
paper birch	*Betula papyrifera*
trembling aspen	*Populus tremuloides*
thimbleberry	*Rubus parviflorus*
devil's club	*Oploplanax horridus*
highbush cranberry	*Viburnum edule*
wild sarsaparilla	*Aralia nudicaulis*
queens cup	*Clintonia uniflora*
mountain ash	*Sorbus sitchensis*
prickly rose	*Rosa acicularis*
black twinberry	*Lonicera involucrata*

3.11.4 Evidence of Wildlife Use and Suitability

Table 11b. Identified wildlife use and observations.

WHE 12	
Species	**Sign**
Moose	Browse and pellets
Deer	Pellets

Moose and deer browse and pellets were noted throughout the reserve, but it did not appear to be used extensively. Spencer Environmental Services Ltd identifies the Camp-Albreda valley along the highway corridor as deer wintering range (Nesbit et al. 2003). This is supported by Safford (2001) who identifies the SBSdh as key mule deer winter range habitat. Grizzly, black bears and bald eagles may forage within Camp Creek riparian zone and utilize the spawning kokanee as a valuable fall food source. Spawning surveys done in October of 2000, counted 32 bald eagles along Camp Creek (Bray 2003), but the actual foraging location was not identified. Despite the habitat potential, proximity to the highway right-of-way and CN Rail line likely discourages wildlife movement through the reserve.

3.11.5 Management Recommendations

The WHE should be maintained to provide an extended buffer along the Camp Creek corridor. This habitat should be retained as potentially valuable winter range habitat.

3.12 WHE 13

3.12.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify pest infestations within he mapped reserve area for the last seven years. One stream (watershed code 370 232300 32300) is mapped on the orthophotos, but fish inventory work has not been conducted. This stream flows into Camp Creek approximately 100 meters downstream. The biogeoclimatic zone associated with the reserve is SBSdh1.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River.

3.12.2 Access

This land reserve can be accessed by driving south of Valemount 16.2 km and turning west on an unmarked secondary access road at UTM 11. 5840559 N 348242 E. The reserve is located approximately 100 meters east of the parking location.

3.12.3 Vegetation

There were three strata identified for this reserve including forested, disturbed (pipeline) and riparian. The pipeline was dominated by alder, willow and thimbleberry typical of disturbed sites with mature spruce, pine and fir composing the adjacent mature timber on the highway side. Upslope of the pipeline (east) the reserve is steep, dry and south facing. This portion is dominated by a uniform stand of Douglas fir with low understory shrub establishment.

A small stream with flow was noted in the middle of the reserve. The location of where it crosses the Highway 5 approximately 150 meters downstream was not located. Limited riparian vegetation was associated with the drainage. Dominant vegetation species are presented in Table 3-23.

Table 12a. Dominant vegetation observed within WHE 13.

WHE 13	
hybrid white spruce	*Picea engelmannii*
lodgepole pine	*Pinus contorta*
western redcedar	*Thuja plicata*
douglas fir	*Pseudotsuga menziesii*
subalpine fir	*Abies lasiocarpa*
trembling aspen	*Populus tremuloides*
thimbleberry	*Rubus parviflorus*
sitka alder	*Alnus crispa*
indian paintbrush	*Castilleja miniata*
willow	*Salix sp.*
pearly everlasting	*Anaphalis margaritacea*
false solomans seal	*Smilacina racemosa*
prince's pine	*Chimaphilla umbellata*
Douglas maple	*Acer glabrum*
bunchberry	*Cornus canadensis*

3.12.4 Evidence of Wildlife Use and Suitability

Table 12b. Identified wildlife use and observations.

WHE 13		
Species	**UTM**	**Sign**
Moose		Browse and pellets
Northern goshawk	11. 5840025 N. 384815 W	Observation
Unidentified		Game trails

A pair of northern goshawks was noted south of this reserve within an open Douglas fir forest (UTM 11. 5840025 N. 384815 W). This feature is marked on the transect map provided in Appendix I. A search for their nest was unsuccessful. The open mid canopy provides suitable flight lines for the forest dwelling raptor. Lodgepole pine habitat east of the reserve may provide nesting and foraging opportunity.

3.12.5 Management Recommendations

The WHE provides suitable value to a variety of species during the growing and winter seasons. Animals may use the reserve as a corridor to Camp Creek. This reserve should be retained to conserve valley bottom habitat. The mature forest component should be considered possible northern goshawk habitat with nesting value.

3.13 WHE 14

3.13.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify pest infestations within the mapped reserve area for the last seven years. The biogeoclimatic zone associated with the reserve is SBSdh1.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River.

3.13.2 Access

This land reserve can be accessed by driving south of Valemount 16.2 km and turning west on an unmarked secondary access road at UTM 11. 5840559 N 348242 E. The reserve is located approximately 50 meters south of the parking location.

3.13.3 Vegetation

There were two strata identified for this reserve including forested and disturbed. This reserve can be separated into two distinct strata; shrub dominated cutblock and mature mixed wood forest. The cut block was less than five years old and was comprised of vaccinium, raspberry gooseberry, Saskatoon and fireweed while the mature mixed wood forest contained abundant vaccinium shrubs, maple and soopolallie. The south slope associated with the southern eastern portion of the reserve consisted of Douglas fir mixed with aspen and lodgepole pine. MPB infestation was noted to be low where pine was present. A talus slope (rock outcropping) is a unique feature associated with the southeast tip of the reserve (UTM 11. N 5839550, W 349270). Dominant vegetation species are presented in Table 13a.

Table 13a. Dominant vegetation observed within WHE 14.

WHE 14	
hybrid white spruce	*Picea engelmannii*
lodgepole pine	*Pinus contorta*
Douglas fir	*Pseudotsuga menziesii*
subalpine fir	*Abies lasiocarpa*
trembling aspen	*Populus tremuloides*
red raspberry	*Rubus ideaus*
blueberry	*Vaccinium sp.*
red-osier dogwood	*Cornus stolonifera*
soopolallie	*Shepherdia canadensis*
fireweed	*Epilobium angustifolium*
mountain ash	*Sorbus stichensis*
black gooseberry	*Ribes lacustre*
wild strawberry	*Fragaria virginiana*
spirea	*Spiraea sp.*
Douglas maple	*Acer glabrum*
bunchberry	*Cornus canadensis*

3.13.4 Evidence of Wildlife Use and Suitability

Table 13b. Identified wildlife use and observations.

WHE 14	
Species	**Sign**
Moose	Browse, pellets
Deer	Pellets
Bear	Scat

Minor browse and pellet groups were noted throughout the cut block but sign was more abundant in the mature timber. The mature timber provides shelter values and thermal values while the cut block provides moderate value for forage (bears or ungulates).

A pair of northern goshawks was flushed in WHE 13 within an open Douglas fir forest (UTM 11. 5840025 N. 384815 W). A nest was not documented within that reserve or WHE 14. Open mid canopy structure provides suitable flight lines for forest dwelling raptors like northern goshawks.

3.13.5 Management Recommendations

The mature timber of WHE 14 provides suitable value to a variety of species during the growing and winter seasons. The cut block however, is relatively young and shrub establishment is low compared to WHE 9 and 11. Although forage is available, the shrubs are small and the lack of shelter may deter animals from using center portions of the reserve. Maintain the WHE and allow the cut block to succeed into a mature forest thereby providing connectivity to the valley bottom.

3.14 WHE 15

3.14.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify pest infestations within the mapped reserve area for the last seven years. There are no tributaries mapped within the reserve, one stream was present flowing through the eastern edge. The channel was aggraded and wide and appeared disturbed by logging activities; however it is considered fish bearing. Bull trout (blue-listed) were captured at UTM 11. 5839358N, 348703W during inventory work conducted in 1997.

The biogeoclimatic zone associated with the reserve is ICHmm and is on the edge of SBSdh1. Part of the reserve was harvested less than 5 years ago based on the age of the seedling planted.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed, but it does not appear to encompass the valley bottom along Camp Creek. The lower boundary is mapped upslope of the rail line and outside all of the WHE reserves in the area.

3.14.2 Access

This land reserve can be accessed by driving south of Valemount 16.2 km and turning west on an unmarked secondary access road at UTM 11. 5840559 N 348242 E. The reserve is located approximately 1.0 km southeast of the parking location on the west side of Camp Creek.

3.14.3 Vegetation

There were three strata identified for this reserve including forested, harvested and riparian. The forest consisted of mature cedar trees to 1.2 m diameter with spruce and devils club understory. Raspberry, elderberry, fireweed and gooseberry make up the ground cover within the harvested portion of the reserve (approximately 40% of the reserve). Dominant vegetation species are presented in Table 14a.

Table 14a. Dominant vegetation observed within WHE 15.

WHE 15	
western redcedar	*Thuja plicata*
hybrid white spruce	*Picea engelmannii*
subalpine fir	*Abies lasiocarpa*
thimbleberry	*Rubus parviflorus*
devils club	*Oploplanax horridus*
red elderberry	*Sambucus caerulea*
rosy twisted stalk	*Streptopus roseus*
red raspberry	*Rubus ideaus*
false Solomans seal	*Smilacina racemosa*
Douglas maple	*Acer glabrum*
bunchberry	*Cornus canadensis*

3.14.4 Evidence of Wildlife Use and Suitability

Table 14b. Identified wildlife use and observations.

WHE 15	
Species	**Sign**
Bear	Scat
Varied thrush	Observation
Moose	Browse

Animal sign was documented infrequently within this reserve. The harvested portion provides forage opportunity for ungulates, but limited browsing was noted. Recent bear scat was observed and appeared to consist of undigested berry seeds. Bears may be using the reserve for foraging opportunities.

3.14.5 Management Recommendations

The WHE provides suitable value to a variety of species during the growing season including raptors, songbirds, bears and ungulates. Animals may use the reserve as a corridor to Camp Creek. This reserve should be retained to conserve valley bottom habitat.

3.15 WHE 16

3.15.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. A search of Forest Health online database did not identify pest infestations within the mapped reserve for the last seven years. Harvesting occurred approximately 5 years ago and tree patches have been retained. Replanted lodgepole pine is 5 years old. There are three tributaries mapped within the reserve. Fish inventory work was conducted on one significant stream in 1997 (watershed code 370-232300-36000) and no fish were caught. The biogeoclimatic zone associated with the reserve is SBSdh1.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River.

3.15.2 Access

This land reserve can be accessed by driving south of Valemount 17.9 km and turning east on an unmarked logging access road at UTM 11. 5840559 N, 348175 E. The reserve is located approximately 500 m southeast of the highway turn off.

3.15.3 Vegetation

There were three strata identified for this reserve including forested, harvested and riparian. The forest consisted of mature aspen with spruce and scattered fir. Understory vegetation consisted of thimbleberry, Douglas maple and immature cedar. Vegetation in the southeast clearing consisted of moisture tolerant plants such as sedges, grass, cattails and horsetail at the toe of the slope. This vegetation is not typical within the reserve. Mature fir and cottonwood were retained during harvesting activities and are now valuable wildlife trees in the northern portion of the block. Raspberry, blueberry, elderberry, fireweed, gooseberry and thimbleberry make up the ground cover within the harvested portion of the reserve (approximately 50% of the reserve). Dominant vegetation species are presented in Table 15a.

Table 15a. Dominant vegetation observed within WHE 16.

WHE 16	
trembling aspen	*Populus tremuloides*
hybrid white spruce	*Picea engelmannii*
paper birch	*Betula papyrifera*
Douglas fir	*Pseudotsuga menziesii*
black cottonwood	*Populus basamifera*
fireweed	*Epilobium angustifolium*
thimbleberry	*Rubus parviflorus*
red elderberry	*Sambucus caerulea*
grass	*Poa sp.*
red raspberry	*Rubus ideaus*
Douglas maple	*Acer glabrum*
bunchberry	*Cornus canadensis*

3.15.4 Evidence of Wildlife Use and Suitability

Table 15b. Identified wildlife use and observations.

WHE 16		
Species	**UTM**	**Sign / feature**
Bear		Scat
Deer		Pellets and tracks
Moose		Browse
Woodpecker		Cavities
varied	11. N5839375 W349665	Wildlife tree

Bear and deer sign were most frequently observed, specifically in the southern portion of the reserve where shelter and forage values appear higher. The harvested portion provides forage opportunity for ungulates, but limited browsing was noted. Recent bear scat was observed and appeared to consist of berry seeds. Bears may be using the reserve for foraging and shelter opportunities. A mosaic of habitat types provides moderate value for wildlife during the growing season. Winter use may be limited due to a lack of mature timber to provide shelter and thermal values.

3.15.5 Management Recommendations

The WHE provides suitable value to a variety of species during the growing season including raptors, songbirds, bears, ungulates, wolves and coyotes, mustelids and rodents. Animals may use the tree patches within the middle of the reserve as a corridor to Camp Creek. This reserve should be retained.

3.16 WHE 17

3.16.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. The WHE has been disturbed through access road development adjacent to the highway. The reserve boundary parallels Camp Creek approximately 50 meters from the stream edge. The significant stream mapped within WHE 16 (watershed code 370-232300-36000) is mapped along the west tip of reserve WHE 17. A search of Forest Health online database did not identify pest infestations. The biogeoclimatic zone associated with the reserve is SBSdh1.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River.

3.16.2 Access

This land reserve can be accessed by driving south of Valemount 18.4 km and turning west on an unmarked access road at UTM 11. 5838682 N, 349661 E. The reserve is located along Highway 5.

3.16.3 Vegetation

There were two strata identified for this reserve including forested and disturbed. The forest consisted of seral aspen and spruce less than 30 centimeters in diameter. Understory vegetation consisted of alder, willow, twinberry and grass. The access road is slightly grown in with alder and grass. Dominant vegetation species are presented in Table 16a.

Table 16a. Dominant vegetation observed within WHE 17.

WHE 17	
trembling aspen	*Populus tremuloides*
hybrid white spruce	*Picea engelmannii*
willow	*Salix sp.*
thimbleberry	*Rubus parviflorus*
black twinberry	*Lonicera involucrata*
grass	*Poa sp.*
sitka alder	*Alnus crispa*

3.16.4 Evidence of Wildlife Use and Suitability

Table 16b. Identified wildlife use and observations.

WHE 17	
Species	**Sign**
Moose/Deer	Browse

A general lack of wildlife sign was noted in this reserve. Proximity to active highway traffic and upslope habitat disturbances likely restricts animal movement into the reserve. A lack of mature timber to provide

shelter and thermal values in the reserve may limit winter use. Adjacent habitat along Camp Creek riparian zone appears valuable to wildlife based on forage opportunities.

3.16.5 Management Recommendations

The WHE provides limited shelter for wildlife in its current seral stage, but serves as an extended buffer on Camp Creek riparian zone. This reserve should be retained to conserve valley bottom habitat. The access road should be deactivated to allow vegetation to re-establish, thereby buffering an important riparian area from highway traffic.

3.17 WHE 18

3.17.1 Existing Information

Existing information for this reserve was limited and most of the preliminary information was obtained from the orthophoto. The reserve encompasses a lower valley slope adjacent to Camp Creek. A lone stream is mapped through the centre of the reserve but a watershed code was not available. This reserve is directly north of WHE 19. A search of Forest Health online database did not identify pest infestations. The biogeoclimatic zone associated with the reserve is SBSdh1.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed, but it does not appear to encompass the valley bottom along Camp Creek. The lower boundary is mapped upslope of the rail line and outside all of the WHE reserves in the area.

3.17.2 Access

This land reserve can be accessed by driving south of Valemount 19.8 km and turning west on an unmarked access road at UTM 11 5838085 N, 350716 W. The bridge crossing has been deactivated, but the stream can be waded across. This crossing location is access to WHE 18-22 which are all within 500 meters. The edge of WHE 18 is at UTM 11. 5838400 N, 350260 E. when accessed from the rail line.

3.17.3 Vegetation

There were two strata identified for this reserve including forested and riparian. The forest consisted of mature spruce and western redcedar, some larger than 75 cm diameter. Understory vegetation consisted of devils club, red-osier dogwood and immature spruce. Dominant vegetation species are presented in Table 17a.

Table 17a. Dominant vegetation observed within WHE 18.

WHE 18	
subalpine fir	*Abies lasiocarpa*
western redcedar	*Thuja plicata*
hybrid white spruce	*Picea engelmannii*
western hemlock	*Tsuga heterophylla*
paper birch	*Betula papyrifera*
devils club	*Oploplonax horridus*
red-osier dogwood	*Cornus stolonifera*
alder	*Alnus sp.*
willow	*Salix sp.*

3.17.4 Evidence of Wildlife Use and Suitability

Table 17b. Identified wildlife use and observations.

WHE 18	
Species	**Sign**
Moose/Deer	Browse, tracks
Wolf	Scat
Unidentified	Game trails

A general lack of wildlife sign was noted along the encounter transect. Proximity to active CN Rail line likely restricts animal movement into the reserve from the south. The slope leading towards Camp Creek and away from the rail line is comprised of mature timber that provides shelter, thermal and forage values, but this strip of timber is less than 100 meters wide. Adjacent habitat along Camp Creek riparian zone appears valuable to wildlife based on forage opportunities and wildlife may use this corridor for travel along the valley bottom.

3.17.5 Management Recommendations

The WHE provides moderate shelter and forage suitability for wildlife and serves as an extended buffer on the Camp Creek riparian zone. This reserve should be retained to conserve valley bottom habitat and provide a buffer to the rail traffic.

3.18 WHE 19

3.18.1 Existing Information

Most of WHE 19 was harvested 20-25 years ago and replanted with lodgepole pine. The reserve is located within a much larger cut block that extends approximately one kilometer from the rail line west. Two streams are mapped through the reserve but watershed codes were not available. The boundaries of the reserve follow the rail line on the north and east sides, while the west and south boundaries do not appear to follow a particular feature. A search of Forest Health online database did not identify pest infestations within the mapped reserve for the last seven years. The biogeoclimatic zone associated with the reserve is ICHmm.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed, but it does not appear to encompass the valley bottom along Camp Creek. The lower boundary is mapped upslope of the rail line and may overlap with some of the southern border of WHE19.

3.18.2 Access

This land reserve can be accessed by driving south of Valemount 19.8 km and turning west on an unmarked access road at UTM 11 5838085 N, 350716 E. The bridge crossing has been deactivated, but the stream can be waded across. This crossing location is access to WHE 18-22 which are all within 500 meters. The point of commencement for the encounter transect is at UTM 11. 5838167 N, 350215 E.

3.18.3 Vegetation

There were three strata identified for this reserve including forested, harvested and disturbed. The replanted forest consisted of immature lodgepole pine, western white pine and trembling aspen pockets. Understory vegetation within the immature forest consisted of oval-leaved blueberry, velvet leaved blueberry, scattered huckleberry, mountain ash, soopolallie and ground cedar. The small patch of mature forest in the south corner was comprised of western redcedar and spruce to one meter diameter. Devils club, false Solomon's seal, oak fern, Douglas maple and club moss comprised the dominant understory species. Dominant vegetation species are presented in Table 18a.

Table 18a. Dominant vegetation observed within WHE 19.

WHE 19	
lodgepole pine	*Pinus contorta*
western redcedar	*Thuja plicata*
hybrid white spruce	*Picea engelmannii*
trembling aspen	*Populus tremuloides*
paper birch	*Betula papyrifera*
devils club	*Oploplonax horridus*
black huckleberry	*Vaccinioum membranaceum*
oval-leaved blueberry	*Vaccinium ovalifolium*
soopolallie	*Shepherdia canadensis*

3.18.4 Evidence of Wildlife Use and Suitability

Table 18b. Identified wildlife use and observations.

WHE 19	
Species	**Sign**
Moose	Browse and pellets
Deer	Tracks
Coyote	Scat
Squirrel	Midden
Hare	Pellets

Wildlife sign was noted more frequently along the access road where vegetation was not well established and within the immature pine forest where browse was noted on mountain ash and vaccinium shrubs. Bear sign was not observed along the transect; however, the abundance of berry shrubs within the immature timber would provide suitable forage during the growing season, but would not provide thermal values. Hare pellets were commonly found in the pine forests. The immature timber does not provide suitable habitat for caribou. The benchmark for Mountain Caribou is ESSFwk for both the growing and winter seasons. These habitats are not located within the Canoe Watershed.

3.18.5 Management Recommendations

The WHE provides moderate shelter and forage suitability for wildlife. The reserve may overlap with protected caribou habitat although the majority of the reserve does not appear highly valued for caribou. The western edge of WHE 19 is composed of mature timber typical of ICH zones and is considered higher value that the rest of the reserve. This reserve should be retained and allowed to mature to optimize its wildlife habitat capability.

3.19 WHE 20

3.19.1 Existing Information

WHE 20 is a small reserve (2 hectares) located within the boundaries of WHE 19. The entire reserve was harvested and planted 15-20 years ago. The reserve is located within a much larger cut block that extends approximately one kilometer from the rail line west. A search of Forest Health online database did not identify pest infestations within the mapped reserve. The biogeoclimatic zone associated with the reserve is ICHmm.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed, but it does not appear to encompass the valley bottom along Camp Creek. The lower boundary is mapped upslope of the rail line and may overlap with some of the southern border of WHE 19.

3.19.2 Access

This land reserve can be accessed by driving south of Valemount 19.8 km and turning west on an unmarked access road at UTM 11 5838085 N, 350716 E. The bridge crossing has been deactivated, but the stream can be waded across. This crossing location is access to WHE 18-22 which are all within 500 meters. WHE 20 is located approximately 350 meters northeast of Camp Creek.

3.19.3 Vegetation

There was one stratum (forested) identified for this reserve. The replanted forest consisted of immature lodgepole pine and western white pine. Understory vegetation within the immature forest consisted of oval-leaved blueberry, velvet leaved blueberry, spirea and scattered beaked hazelnut. Dominant vegetation species are presented in Table 19a.

Table 19a. Dominant vegetation observed within WHE 20.

WHE 20	
lodgepole pine	*Pinus contorta*
western white pine	*Pinus monitcola*
velvet-leaved blueberry	*Vaccinium myrtilloides*
beaked hazelnut	*Corylus cornuta*
birch-leaved spirea	*Spiraea betulifolia*

3.19.4 Evidence of Wildlife Use and Suitability

Five occurrences of sign were noted along the short encounter transect through the reserve. Deer tracks were observed in sandy soil around the immature pine while moose tracks were imprinted in the moss. Other wildlife is assumed to exist within the reserve and adjacent habitat including coyotes and various mustelids and rodents. Wildlife suitability (bears, deer and moose) is considered to be moderate for the growing season and low during the winter.

Table 19b. Identified wildlife use and observations.

WHE 20	
Species	**Sign**
Moose	Browse and pellets
Deer	Pellets and tracks

3.19.5 Management Recommendations

This reserve is situated within WHE 19. The reserve should encompass its own area and not fall within another land reserve.

3.20 WHE 21

3.20.1 Existing Information

WHE 21 is a small reserve (1 hectare) located adjacent to Camp Creek in the valley bottom. The boundaries are approximately 30 meters from the rail line and 50 meters from Camp Creek. The biogeoclimatic zone associated with the reserve is ICHmm.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed, but it does not appear to encompass the valley bottom along Camp Creek.

3.20.2 Access

This land reserve can be accessed by driving south of Valemount 19.8 km and turning west on an unmarked access road at UTM 11 5838085 N, 350716 E. The bridge crossing has been deactivated, but the stream can be waded across. This crossing location is access to WHE 18-22 which are all within 500 meters. WHE 21 is located approximately 50 meters south of the access road on the west side of Camp Creek.

3.20.3 Vegetation

There was one stratum (forested) identified for this reserve. Mixed mature spruce and birch are common in this small area with openings dominated by twinberry, alder and scattered pink spirea shrubs. This is typically vegetation found along the Camp Creek valley. Dominant vegetation species are presented in Table 20a.

Table 20a. Dominant vegetation observed within WHE 21.

WHE 21	
hybrid white spruce	*Picea engelmannii x glauca*
paper birch	*Betula papyrifera*
black twinberry	*Lonicera involucrata*
Alder	*Alnus sp.*
pink spirea	*Spiraea douglassii*
Bunchberry	*Cornus canadensis*
oak fern	*Gymnocarpium dryopteris*

3.20.4 Evidence of Wildlife Use and Suitability

As this reserve is small limited wildlife sign was noted. Bear claw marks on an alder was the most significant sign observed. Wildlife suitability is considered to be moderate for the growing season based on forage availability. Bears and ungulates may use the riparian areas to seek out relief during the summer. Bears may also forage on spawning kokanee within Camp Creek immediately adjacent to the reserve.

Table 20b. Identified wildlife use and observations.

WHE 21	
Species	**Sign**
Moose	browse
Bear	claw marks on alder
songbirds	Vocalizations

3.20.5 Management Recommendations

This reserve is situated within the Camp Creek valley bottom which is valuable for many wildlife species. The habitat provides moderate shelter and forage suitability for wildlife (bears) and should be retained and/or expanded to protect more of the valley bottom habitat.

3.21 WHE 22

3.21.1 Existing Information

WHE 22 is a small reserve (2 hectares) located adjacent to Camp Creek in the valley bottom. The boundaries are approximately 30 meters from the rail line and 50 meters from Camp Creek. The biogeoclimatic zone associated with the reserve is ICHmm.

The Conservation Data Centre has mapped potential caribou (southern mountain population) habitat which includes all of the WHE and RCMA reserves south of Canoe River. An approved ungulate winter range (RC-022) has been established in the Canoe watershed, but it does not appear to encompass the valley bottom along Camp Creek.

3.21.2 Access

This land reserve can be accessed by driving south of Valemount 19.8 km and turning west on an unmarked access road at UTM 11 5838085 N, 350716 E. The bridge crossing has been deactivated, but the stream can be waded across. This crossing location is access to WHE 18-22 which are all within 500 meters. WHE 22 is located approximately 400 meters south of the access road along the rail line on the west side of Camp Creek.

3.21.3 Vegetation

There was one stratum (forested) identified for this reserve. Mixed mature western redcedar and spruce to 1.0 meter diameter are common in this small area with openings dominated by devils club, bracken fern, baneberry and Douglas maple. This is typically vegetation found along the Camp Creek valley within the ICHmm. Dominant vegetation species are presented in Table 21a.

Table 21a. Dominant vegetation observed within WHE 22.

WHE 22	
hybrid white spruce	*Picea engelmannii*
western redcedar	*Thuja plicata*
devils club	*Oploplonax horridus*
bracken fern	*Pteridium aquilinum*
oak fern	*Gymnocarpium dryopteris*
Baneberry	*Actaea rubra*
red elderberry	*Sambucus caerulea*

3.21.4 Evidence of Wildlife Use and Suitability

As this reserve is small and the encounter transect was short, limited wildlife sign was noted (Table 21b). This does not indicate low value however, as the habitat contains valuable forage, shelter and thermal habitat in the growing and winter seasons. Bears and ungulates may use the riparian areas to seek shelter during the summer. Bears may also forage on spawning kokanee within Camp Creek immediately adjacent to the reserve. Although mule deer sign was not observed, deer will utilize the mature cedar habitats in the valley bottom during the winter to avoid deeper snow depths.

Table 21b. Identified wildlife use and observations.

WHE 22	
Species	**Sign**
Songbirds	vocalizations

3.21.5 Management Recommendations

This reserve is situated within the Camp Creek valley bottom which is considered valuable for many wildlife species. The habitat provides moderate shelter, forage and possible thermal suitability for wildlife and should be retained and/or expanded to protect more of the valley bottom habitat.

3.22 RCMA 2

3.22.1 Existing Information

RCMA 2 is approximately 20 hectares in size located on the south side of the Fraser River within Tete Jaune Cache. Orthophoto coverage indicated MPB attack was present in small pockets. Other MPB attack from multiple years has been documented east of the reserve along the Fraser River. No streams are associated with the reserve, but a significant wetland makes up almost 50% of the habitat available. The biogeoclimatic zone associated with the reserve is SBSdh1.

3.22.2 Access

Turn right off Highway 5 at Essen Road and turn left on Blackman Road. Cross over the Fraser River and the reserve boundary is on the west side of the road. The encounter transect point of commencement is approximately 1.3 km from highway turn off.

3.22.3 Vegetation

Two strata (forested and riparian) were identified for this reserve. Within the forested strata there is predominantly lodgepole pine with soopolallie on upland benches and mixed mature coniferous/deciduous with soopolallie and prickly rose adjacent to the wetland. Black spruce with labrador tea was present in the transition zone from upland to wetland. Wetland species included sedges, scrub birch and labrador tea. Dominant vegetation species are presented in Table 22a.

Table 22a. Dominant vegetation observed within RCMA 2.

RCMA 2	
lodgepole pine	*Pinus contorta*
Douglas fir	*Pseudotsuga menziesii*
trembling aspen	*Populus tremuloides*
hybrid white spruce	*Picea engelmannii*
black spruce	*Picea mariana*
soopolallie	*Shepherdia canadensis*
common snowberry	*Symphoricarpos albus*
prince's pine	*Chimaphila umbellata*
sedges	*Carex sp.*
scrub birch	*Betula glandulosa*
labrador tea	*Ledum groenlandicum*

3.22.4 Evidence of Wildlife Use and Suitability

Moose and deer sign was most frequently observed and songbird vocalizations were common throughout the mixed wood forests and wetland habitat (Table 22b). Pellet groups and browse was noted on red-osier dogwood, snowberry, and rose. Moose sign was more common within the wetland and transition zones, while deer appeared to have foraged more in the upland areas. The leg of a white-tailed deer was noted adjacent to the highway, and may have been the result of a vehicle-animal collision (see transect and feature map in Appendix I).

Table 22b. Identified wildlife use and observations.

RCMA 2	
Species	**Sign**
Moose	Pellets, browse tracks
Deer	Pellets, browse, tracks and carcass
Common raven	Vocalizations
Black-capped chickadee	Vocalizations
Ruby-crowned kinglet	Observation
Yellow-rumped warbler	Observation
Dark-eyed junco	vocalizations
Bear	Digs, overturned logs

Currently, there is one candidate mule deer ungulate winter range (UWR) identified near RCMA 2. This UWR is located upslope of the Highway 5 and Highway 16 intersection at Tete Jaune Cache, just south of the Lost Lake Recreational Area. The area was identified as important for mule deer through a study conducted by the Columbia Basin Fish and Wildlife Program.

Wildlife suitability is moderate for this reserve. The variable habitat offers forage, shelter and potential thermal values during summer and winter seasons.

3.22.5 Management Recommendations

This reserve is situated within the Fraser River floodplain, which is considered valuable for many wildlife species. The habitat provides moderate shelter, forage and possible thermal values for wildlife and should be retained and/or expanded to emphasize wildlife values within the valley bottom.

3.23 RCMA 3

3.23.1 Existing Information

RCMA 3 borders the Mclennan River along the west and the Fraser River along the north at an area called Big Eddy or the Bishops Reach. Orthophoto coverage did not indicate a significant MPB infestation. Other MPB attack from multiple years has been documented east and west of the reserve along the Fraser River. Two streams are mapped within the reserve (not present on Fishwizard or Habitat Wizard databases), and a significant wetland makes up almost 40% of the habitat available. The biogeoclimatic zone associated with the reserve is SBSdh1.

3.23.2 Access

From RCMA 2 drive south on Blackman Road and turn west on Old Tete Jaune Road. Drive for 2.5 km and cross the CN Rail tracks to access the southern boundary the site. The start of the encounter transect is at UTM 11. N 5858005, 347219 E.

3.23.3 Vegetation

Three strata (forested, wetland and riparian) were identified for this reserve. Within the forested strata, lodgepole pine with soopolallie and vaccinium dominate on upland benches, and mature white and black spruce and labrador tea dominate adjacent to the wetland. Wetland species included sedges, scrub birch and labrador tea. Dominant vegetation species are presented in Table 23a.

Table 23a. Dominant vegetation observed within RCMA 3.

RCMA 3	
lodgepole pine	*Pinus contorta*
hybrid white spruce	*Picea engelmannii*
black spruce	*Picea mariana*
Soopolallie	*Shepherdia canadensis*
prince's pine	*Chimaphila umbellata*
ground cedar	*Lycopodium complanatum*
prickly rose	*Rosa acicularis*
scouring rush	*Equisetum hyemale*
grey reindeer lichen	*Cladina rangiferina*
step moss	*Hylocomium splendens*
Sedges	*Carex sp.*
Grasses	*Poa sp.*
scrub birch	*Betula glandulosa*
labrador tea	*Ledum groenlandicum*

MPB infestation was evident throughout the pine forests. Small scale salvage has occurred in the south portion of the reserve, but standing green, red and grey trees were evident. The pine stands in the north portion of the reserve appear to have a greater infestation.

3.23.4 Evidence of Wildlife Use and Suitability

Deer sign was most frequently observed and songbird vocalizations were common throughout the wetland and riparian habitat (Table 23b). The carcass of a white-tailed deer observed east of the oxbow may have been the result of predatory attack. An owl pellet was found in a stand of lodgepole pine

approximately 100 meters from the wetland (see transect and feature map in Appendix I). A nest was not located after searching the immediate area. At least four northern harriers were observed in the wetland at the northeast end of the reserve. Bear scat was noted in the wetland.

The MPB infestation and subsequent harvesting has impacted the habitat in the southern half of the reserve by creating openings and reducing shelter. The understory shrubs are not well established and line of sight has been improved. However, pine is only one component of the reserve and the oxbow, wetland and riparian habitat is dominated by spruce and a greater understory.

Table 23b. Identified wildlife use and observations.

RCMA 3	
Species	**Sign**
Moose	Browse, tracks, pellets
Deer	Pellets
Horse	Scat
Bear	Scat
Common raven	Observation
American robin	Observation
Black-capped chickadee	Vocalizations
Red-breasted nuthatch	Vocalizations
Dark-eyed junco	Vocalizations
Hare	Pellets
Owl	Pellet
Grouse	Observation pellets
Northern harrier	Observation in wetland

3.23.5 Management Recommendations

This reserve is situated within the Fraser River floodplain, which is considered valuable for many wildlife species. It was obvious that wildlife utilize the mosaic of habitats within this reserve. The habitat provides moderate shelter, forage and possible thermal values for wildlife and should be retained and/or expanded to emphasize wildlife values within the valley bottom.

3.24 RCMA 4

3.24.1 Existing Information

RCMA 4 is located on the uniform bench upslope of the Mclennan River. A single pole powerline is present along the northern edge outside of the reserve. There are no streams associated with the reserve and Forest Health online database did not identify pest infestations for the area. The biogeoclimatic zone associated with the reserve is SBSdh1.

3.24.2 Access

Eight kilometers south of the Fraser River bridge crossing on Highway 5 turn west on an unnamed road and drive for 350 m. Turn north on Blackman Road and drive for 1.4 km then turn west on Buffalo Road. Drive 1.1 km until a single pole hydro line intersects the road. Drive west another 500 m along hydro line right of way to reach northeast corner of RCMA 4.

3.24.3 Vegetation

Two strata (forested and disturbed) were identified for this reserve using orthophotos. Lodgepole pine of various ages dominates the forest stratum. Understory consisted of soopolallie, vaccinium and kinnikinnick (bear berry). MBP infestation appeared low with few trees showing red or green stage of attack. There is evidence of old harvesting activities towards the north edge of the reserve and a few skid trails were present. Dominant vegetation species are presented in Table 24a.

Table 24a. Dominant vegetation observed within RCMA 4.

RCMA 4	
lodgepole pine	*Pinus contorta*
soopolallie	*Shepherdia canadensis*
blueberry	*Vaccinium sp.*
kinnikinnick	*Arctostaphylos uva-ursi*

3.24.4 Evidence of Wildlife Use and Suitability

Wildlife activity noted along the transect was low. Deer pellets were documented on several occasions and only one moose pellet group was recorded. The young uniform lodgepole pine habitat has limited understory and forage availability. Thermal values provided by the young forest are considered low.

Table 24b. Identified wildlife use and observations.

RCMA 4	
Species	**Sign**
Moose	Browse, tracks and pellets
Deer	Pellets
Grouse	Observation
Piliated woodpecker	Tree cavity

3.24.5 Management Recommendations

This reserve is situated above the Mclennan River, which is considered valuable for many wildlife and fish species. The reserve provides access to the ridgeline associated with RCMA 5 and should be retained for potential recreational and wildlife movement opportunity along Mclennan River.

3.25 RCMA 5

3.25.1 Existing Information

RCMA 5 is located on a bench upslope of the Mclennan River. There are no streams associated with the reserve and Forest Health online database did not identify pest infestations for the area. The reserve lies within biogeoclimatic zone SBSdh1.

3.25.2 Access

Eight kilometers south of the Fraser River bridge crossing on Highway 5 turn west on an unnamed road and drive for 350 m. Turn north on Blackman Road and travel 1.4 km and turn west on Buffalo Road. Drive 2.1 km until a new three pole hydro line intersects the road. Walk 500 m along right of way to reserve edge at 11.N 5865480, 338958 E.

3.25.3 Vegetation

The reserve boundary follows the Mclennan River riparian reserve zone. Two strata (forested and disturbed) were identified for this reserve using orthophotos. Lodgepole pine is present on the dry flat benches above the river while the lower slopes are dominated by spruce. Pine forest understory consisted of immature fir, soopolallie, vaccinium and kinnikinnick. The oxbow present in the south tip of the reserve consisted of thimbleberry, prickly rose and red-osier dogwood. Forest cover was variable along the northern half of the transect. Lodgepole pine was still the dominant species, but pockets of trembling aspen and spruce were noted on slightly wetter micro-sites. Dominant vegetation species are presented in Table 25a.

MBP infestation appeared relatively low through the reserve, however increased infestation was noted in the northern half of the reserve where lodgepole pine were more mature.

Table 25a. Dominant vegetation observed within RCMA 5.

RCMA 5	
lodgepole pine	*Pinus contorta*
Douglas fir	*Pseudotsuga menziesii*
hybrid white spruce	*Picea engelmannii*
trembling aspen	*Populus tremuloides*
wild sarsaparilla	*Aralia nudicaulis*
yarrow	*Achillea millefolium*
thimbleberry	*Rubus parviflorus*
red-osier dogwood	*Cornus stolonifera*
grey reindeer lichen	*Cladina rangiferina*
rough-leaved rice grass	*Oryzopsis asperifolia*
lungwort lichen	*Lobaria pulmonaria*
soopolallie	*Shepherdia canadensis*
blueberry	*Vaccinium sp.*
kinnikinnick	*Arctostaphylos uva-ursi*

There is evidence of old harvesting activities in the northern half of the reserve and few skid trails and log landing sites were present. This disturbance appears to have been a small scale salvage of MPB trees. It was difficult to tell when the logging took place, but small shrubs have established on the landing sites and access roads.

3.25.4 Evidence of Wildlife Use and Suitability

Wildlife sign can be attributed to the various forest cover types. Songbirds were more abundant in the spruce forest and riparian areas associated with the oxbow in the south portion of the reserve. Deer sign was frequently observed in the mixed wood forest and along the new hydro line right-of-way. Moose sign was abundant in the pine flats and transition zone through spruce and into the valley bottom. Limited moose sign was observed in the northern half of the reserve. Two small burrows were observed in the southern portion of the reserve (see transect and feature map in Appendix I).

Table 25b. Identified wildlife use and observations.

RCMA 5	
Species	**Sign**
Moose	Browse, tracks, pellets
White-tailed deer	Observation, pellets
Red squirrel	Observation
Snow shoe hare	Pellets
Gray jay	Observation
Hermit thrush	Singing
American robin	Singing
Grouse	Drumming
Red breasted nuthatch	Signing
Northern flicker	Vocalization
Black-billed magpie	Vocalization
Common snipe	Vocalizations east of reserve

The Mclennan River boasts the furthest traveled spawning population of interior chinook salmon. During spawning season carcasses act to attract many different wildlife species, and those that are not consumed enrich the surrounding lands with nitrogen and other nutrients (Nesbit et al. 2003). Black bears likely key into this event during the fall, and many other species would potentially benefit. Eagles, coyotes, marten, and other opportunistic omnivores may take advantage of this food source. Moose and deer sign of variable age was observed along the encounter transect.

Wildlife suitability is considered moderate. The reserve contains forage, shelter and thermal opportunities for many species in both the growing and winter seasons. Moose sign was noted through the reserve in many different habitats. The benchmark for moose in the Southern Interior Mountains is SBSdh.

3.25.5 Management Recommendations

This reserve is situated above the Mclennan River, which is considered valuable for many wildlife and fish species. The reserve includes habitat along the ridge crest associated with the river and should be

retained. Ridge crests are often used as travel corridors. Management objectives should focus on protecting Mclennan River floodplain and the associated ridge.

3.26 RCMA 6

3.26.1 Existing Information

RCMA 6 is located on bench upslope of the Mclennan River. There are no streams associated with the reserve. The reserve lies within biogeoclimatic zone SBSdh1.

3.26.2 Access

North portion of reserve can be accessed from Valemount by driving north and turning west on Crooked Creek Road. Drive 1.0 km past the Mclennan River bridge crossing to reserve edge at UTM 11. N. 5859563, W.343906. The southern portion of reserve can be accessed by driving north from Valemount and turn west on Jack Adams Road. Drive to the end of the road (UTM 11. N. 5856897, 344662 E).

3.26.3 Vegetation

Four strata were identified for this reserve including forested, harvested, linear disturbance and riparian/wetland. Lodgepole pine is the dominant forest cover through the reserve north of Mclennan River. Forest cover south of the river is composed of a lodgepole pine upland bench near the access road and black spruce/treed wetland in the floodplain. MPB infestation appeared relatively low through the reserve. Harvesting activities have occurred in the northern and southern portion of the reserve. This disturbance appears to have been a small scale salvage of MPB trees. The ILMB Forest Health database identifies a pocket of MPB along Mclennan River (2004). Dominant vegetation species are presented in Table 26a.

Table 26a. Dominant vegetation observed within RCMA 6.

RCMA 6	
lodgepole pine	*Pinus contorta*
black spruce	*Picea mariana*
bunchberry	*Cornus canadensis*
ground pine	*Lycopodium dendroideum*
ground cedar	*Lycopodium complanatum*
soopolallie	*Shepherdia canadensis*
blueberry	*Vaccinium sp.*
kinnikinnick	*Arctostaphylos uva-ursi*
red-osier dogwood	*Cornus stolonifera*
willow	*Salix sp.*
black twinberry	*Lonicera involucrata*
sedges	*Carex sp.*
scrub birch	*Betula glandulosa*
scouring rush	*Equisetum hyemale*

3.26.4 Evidence of Wildlife Use and Suitability

Wildlife sign was documented throughout the entire reserve. Deer sign was frequently observed in the uniform pine stands north of the river, but pellet groups were also noted in the wetland habitat in the south. Moose sign was less frequently noted, but present in all habitats of the transect. Bear scat was documented within the pine forests and within the wetland habitat. Songbirds were more abundant in the spruce forest associated with a small wetland 200 meters north of the river.

Table 26b. Identified wildlife use and observations.

RCMA 6	
Species	**Sign**
Moose	Browse, tracks and pellets
Deer	Numerous pellet groups
Red squirrel	Observations, middens
Bear	Scat, digs
Hare	Pellets
Hermit thrush	Singing
American robin	Singing
Piliated woodpecker	Cavities
Red-breasted nuthatch	Singing
Rodent	Ground tunnels
Unidentified	Game trails
Unidentified	Possible antler rub on lodgepole pine

As identified in RCMA 5, the Mclennan River boasts the furthest traveled spawning population of interior chinook salmon. Black bears likely key into this event during the fall, and many other species would potentially benefit. Eagles, coyotes, marten, and other opportunistic omnivores may take advantage of this food source.

Wildlife suitability is considered moderate. The reserve contains forage, shelter and thermal opportunities for many species throughout the year. The Mclennan River corridor consists of undisturbed habitat that connects to the Fraser River Valley and likely supports a wide variety of wildlife. .

3.26.5 Management Recommendations

This reserve is situated above the Mclennan River, which is considered valuable for many wildlife and fish species. The reserve includes habitat along the ridge crest associated with the river and should be retained. Ridge crests are often used as travel corridors and provide suitable locations for recreation trails. The northern portion of the land reserve is thin and appears to follow the District lot boundaries rather than landscape features. To more appropriately reflect valued wildlife habitat, it is recommended to consider reshaping the reserve to include more of the Mclennan River corridor and associated ridge crest. The portion of the reserve in the north that encompasses uniform pine forests is less of a priority with less recreation and conservation values.

3.27 RCMA 7

3.27.1 Existing Information

RCMA 7 is located adjacent to Highway 5 and Swift Creek immediately north of Valemount, BC. There are no streams within the reserve. Pest inventories have been mapped in adjacent habitat to the northeast including MPB and Western Balsam Bark Beetle, but no pest was known to occur in the reserve. The reserve lies within biogeoclimatic zone SBSdh1 on the floor of the valley bottom. The biogeoclimatic zone associated with the reserve is SBSdh1.

3.27.2 Access

From Valemount drive north on Highway 5 and turn east onto Wilderness Creek Camping Road 300 m after crossing Swift Creek. The access is considered private, but is open up to a private residence.

3.27.3 Vegetation

The forest cover in RCMA 7 is characteristic of riparian zones and areas with increased soil moisture levels. Three strata (forested. disturbed and riparian) were identified using orthophotos. Swift Creek flows around the south side of the reserve and old creek channels were evident. Mature cottonwood, spruce and aspen made up the dominant cover adjacent to Swift Creek and spruce with a minor component of pine has established outside the riparian zone. Understory vegetation was dominated by a few species including red-osier dogwood, willow, highbush cranberry and horsetail. Dominant vegetation species are presented in Table 27a.

Table 27a. Dominant vegetation observed within RCMA 7.

RCMA 7	
hybrid white spruce	*Picea engelmannii*
western redcedar	*Thuja plicata*
subalpine fir	*Abies lasiocarpa*
black cottonwood	*Populus balsamifera*
trembling aspen	*Populus tremuloides*
highbush cranberry	*Viburnum edule*
bunchberry	*Cornus canadensis*
red-osier dogwood	*Cornus stolonifera*
huckleberry	*Vaccinium membranaceum*
willow	*Salix sp.*

3.27.4 Evidence of Wildlife Use and Suitability

Wildlife sign was documented throughout the entire reserve. Anecdotal information from a local landowner indicated an abundance of deer and coyote use the area. Deer sign was frequently observed and moose sign was less frequently noted. Extensive browse was evident on red-osier dogwood, willow and thimbleberry. Hare pellets were documented along the transect. Two dens were observed in a decomposing stump in the middle of the reserve (see transect and feature map in Appendix I). The odor of a deer carcass was prominent near the den and deer hair was spread out on the forest floor.

Table 27b. Identified wildlife use and observations.

RCMA 7	
Species	**Sign**
Moose	Browse, tracks, pellets
Deer	Pellets
Red squirrel	Observations, middens
Hare	Pellets
Unidentified woodpecker	Cavities in snags
Unidentified small mammal	Dens

Wildlife suitability is considered moderate. The reserve contains forage, shelter and thermal opportunities for many species throughout the year. The browse noted on willow and red-osier dogwood appeared to be recent indicating possible winter/early spring value for ungulates.

3.27.5 Trespass Concerns

The campground access road appears to fall within the boundaries of the reserve; however this trespass could be the result of mapping error. During the April assessment the campground gate was closed and access to the east end of the reserve was cut off. No permanent structures were noted within the reserve.

3.27.6 Management Recommendations

The reserve is directly north of urban development and is defined as an RCMA. This reserve is situated near Swift Creek, which is considered valuable for fish species. Recreational values should be retained for this reserve while maintaining fisheries values in Swift Creek and potential ungulate winter range.

3.28 RCMA 8

3.28.1 Existing Information

The reserve encompasses a portion of the upland habitat adjacent to the Robert W. Starratt Wildlife Sanctuary: (also known as Cranberry Marsh). Ducks Unlimted Canada constructed a series of dykes to control water levels and enhance waterfowl habitat. The presence of two blue-listed species in the marsh; the great blue heron and the American bittern were documented by Norecol Environmental Consultants in 1992 (Nesbit et al. 2003). Anecdotal evidence places both species within the marsh, and the great blue heron has been recorded by Ducks Unlimited Canada within biogeoclimatic zone SBSdh1. Selkirk Creek is the main tributary that feeds the marsh (watershed code 100-907400-60700-11000-4690). Fish inventory has not been conducted (FISS 2007).

3.28.2 Access

Take 17th avenue from Highway 5, turn north on Aspen Road then east immediately on McKirdy Road. McKirdy Road is the northern boundary of the reserve.

3.28.3 Vegetation

Three strata (forested, disturbed, and riparian) were identified using orthophotos. The reserve boundary coincides the edge of the marsh except along the east edge. The upland forest is primarily lodgepole pine with a mine component of trembling aspen. Spruce is more common along the edge of the marsh in the wetter zone. The pine forest understory is typical including soopalallie and vaccinium. The transition zone is comprised of Labrador tea and willow. Portions of the marsh within the reserve contained cattails, sedges, waterbirch and immature spruce.

MPB infestations appeared low, but salvage operations have taken place north of McKirdy road. A few green, red and grey stage trees were noted. A small polygon of MPB infestation has been identified immediately north of the reserve. Dominant vegetation species are presented in Table 28a.

Table 28a. Dominant vegetation observed within RCMA 8.

RCMA 8	
lodgepole pine	*Pinus contorta*
trembling aspen	*Populus tremuloides*
hybrid white spruce	*Picea engelmannii*
black spruce	*Picea mariana*
willow	*Salix sp.*
soopolallie	*Shepherdia canadensis*
common juniper	*Juniperus communis*
prickly rose	*Rosa acicularis*
sitka alder	*Alnus crispa*
kinnickinick	*Arctostaphylos uva-ursi*
bunchberry	*Cornus canadensis*
scouring rush	*Equisetum hyemale*
blueberry	*Vaccinium sp.*
labrador tea	*Ledum groenlandicum*
water birch	*Betula occidentalis*
sedges	*Carex sp.*

3.28.4 Evidence of Wildlife Use and Suitability

Wildlife sign was documented throughout the entire reserve with deer pellet groups observed most frequently. Moose sign was low within the reserve. Waterfowl and songbird activity was low, likely due to the time of year (April) and weather (cool, windy and light rain).

Great blue herons (Blue listed) and the American bittern (Upper Fraser Trench-Identified Wildlife) have been documented within the marsh. The wetland complex would support feeding habits of both species and the American Bittern may even breed within the marsh (Nesbit et al. 2003).

Norecol Environmental Consultants conducted a habitat assessment within the Cranberry Marsh in 1992 and documented moose on the south side of Cranberry Marsh. They suggested that black bears utilize the south and west sections of the uplands around the marsh and coyotes were believed to range extensively throughout the marsh and its surrounding area. They also acknowledge many small mammals are likely found within the marsh, including: ermine, long-tailed weasel, muskrat, beaver, chipmunk, porcupine, and various rodents.

Table 28b. Identified wildlife use and observations.

RCMA 8	
Species	**Sign**
Moose	Browse, pellets
Deer	Pellets, browse
Bear	Claw marks on pine
Red squirrel	Observations, middens
Canada goose	Swimming
Raven	Flying
Beaver	Chewed aspen stump
Dark-eyed junco	Observation

Wildlife suitability is considered moderate. The reserve contains forage, shelter and thermal opportunities for many species throughout the year. The marsh and fluctuating littoral zone provides excellent waterfowl habitat and supports both summer and winter foraging opportunities for browsers.

3.28.5 Management Recommendations

This RCMA should be retained for wildlife viewing opportunities. MPB infestations may continue to alter shelter values in the upland forest, but shrub layers may flourish with the new light available. MPB infestations should be assessed regularly. Emphasis on recreational and conservation values along the transition zone (marsh to upland habitat) should be considered.

3.29 RCMA 9

3.29.1 Existing Information

RCMA 9 is located within Cedarside Regional Park which is 18.5 hectare. The park is designated as a day use area for swimming, hiking, wildlife viewing and picnicking. Little Cranberry Lake is part of the Park but not part of the RCMA. Brook trout is the only species of fish documented in Little Cranberry Lake (FISS 2007) and is likely stocked as there does not appear to be an inlet or outlet to the lake. The biogeoclimatic zone associated with the reserve is SBSdh1.

3.29.2 Access

Drive approximately 4.8 km south of Valemount (from Swift Creek Crossing) and turn east at Cedarside Region Park at UTM 11. 5851578 N, 347780 E. The access to the park is within the reserve.

3.29.3 Vegetation

Three strata (forested, disturbed, and riparian) were identified using orthophotos. Forest cover consists of predominantly lodgepole pine with understory including vaccinium and soopolallie. Harvesting has occurred in the north end of the reserve and lodgepole pine seedlings are approximately 10 years old and 2-3 meters tall.

MPB infestations were evident and a rough estimation of attacked trees would be 40%. Approximately 30 trees in the red stage of attack were noted along the transect and many more trees were infested recently (green foliage). ILMB pest inventory did not show infestations within the vicinity of the park. Dominant vegetation species are presented in Table 29a.

Table 29a. Dominant vegetation observed within RCMA 9.

RCMA 9	
lodgepole pine	*Pinus contorta*
willow	*Salix sp.*
soopolallie	*Shepherdia canadensis*
sitka alder	*Alnus crispa*
kinnikinnick	*Arctostaphylos uva-ursi*
blueberry	*Vaccinium sp.*
bunchberry	*Cornus canadensis*
reindeer lichen	*Cladina rangiferina*
sedges	*Carex sp.*
cattail	*Typha latifolia*

3.29.4 Evidence of Wildlife Use and Suitability

Wildlife sign was documented throughout the entire reserve with deer pellet groups observed most frequently between the highway and the lake. Moose sign was noted infrequently within the reserve. Deer sign was abundant compared to other pine forest habitats. Waterfowl was plentiful on the lake and nine species were recorded on the lake during the assessment in April (Table 29b).

Table 29b. Identified wildlife use and observations.

RCMA 9	
Species	**Sign**
Moose	Browse, pellets
Deer	Pellets, browse
Red squirrel	Observations, middens
Coyote	Scat
Common raven	Flying
Northern shoveller	Swimming
Bufflehead	Swimming
Ruddy duck	Swimming
American widgeon	Swimming
Mallard	Swimming
Green-winged teal	Swimming
Lesser scaup	Swimming
American coot	Swimming
Ring-necked duck	Swimming

Wildlife suitability is considered moderate. The reserve contains forage and shelter opportunities for ungulates, specifically deer which appear to be using the reserve frequently. The littoral zone of the lake provides excellent waterfowl, and songbird habitat and supports both summer and winter foraging opportunities for browsers. Significant deer sign indicates a higher than normal use during the winter and shoulder season despite the proximity to Highway 5. The provincial benchmark for mule deer in the Southern Interior Mountains is IDFdm during the winter and ESSFdk during the growing season.

3.29.5 Management Recommendations

This RCMA should be retained for wildlife viewing opportunities. MPB infestations may alter shelter values in the upland forest the pest spreads. Shrub layers may flourish with the new light available if moisture levels are adequate. Infestations should be assessed regularly. Recreational opportunity around the lake should be maintained and conservation of lake shore habitat and ungulate browse potential should be considered during any management considerations of the reserve.

3.30 RCMA 10

3.30.1 Existing Information

RCMA 10 encompasses the forest from West Canoe River Forest Road to Kinbasket Reservoir and is likely the largest RCMA. The east boundary of the reserve is flooded from time to time as reservoir levels change. Low-lying areas in the southern portion of the reserve are impacted more by water level fluctuations as the topography is flatter. Two roads are established in the northern tip of the reserve and a third exists in the centre that provides access to the lake shore. Camping opportunities are available along the lakeshore. Canoe river confluence is located immediately outside the reserve. When lake levels are high the river is floods are large area near the confluence. The biogeoclimatic zone associated with the reserve is ICHmm.

3.30.2 Access

Drive east on Canoe River Forest Road and turn south on West Canoe River Forest Road. The reserve is located on the east side of the road immediately after Canoe River bridge at UTM 11. N. 5848870, E. 352730.

3.30.3 Vegetation

Three strata (forested, disturbed, and riparian) were identified using orthophotos. Forest cover consists of predominantly lodgepole pine with understory including vaccinium and soopolallie. The pine stand varies in age (15-40 cm diameter) and pockets of young pine are present through the reserve. Understory density is relatively low and line of sight is good (50 meters or more). Vegetation changes around the tributaries mapped in the southern third of the block and trembling aspen was more evident with willow, spirea and prickly rose established. MPB infestations were low and only a few individual trees (typically greater than 30 cm diameter) were infested recently. ILMB pest inventory did not show infestations within the vicinity of the park. Dominant vegetation species are presented in Table 30a.

Table 30a. Dominant vegetation observed within RCMA 10.

RCMA 10	
lodgepole pine	*Pinus contorta*
trembling aspen	*Populus tremuloides*
willow	*Salix Sp.*
soopolallie	*Shepherdia canadensis*
alder	*Alnus sp.*
kinnikinnick	*Arctostaphylos uva-ursi*
blueberry	*Vaccinium sp.*
bunchberry	*Cornus canadensis*
grey reindeer lichen	*Cladina rangiferina*

3.30.4 Evidence of Wildlife Use and Suitability

Wildlife sign was documented throughout the entire reserve with deer pellet groups observed most frequently. Moose sign was noted infrequently within the reserve and more so in the southern portion of the reserve adjacent to the riparian habitat. No water or definable channel was observed; however, the stream likely carries overland flow during snow melt. Woodpecker cavities were noted within the mature

dead lodgepole pine on several occasions. Of particular significance was the observation of a striped skunk. The skunk was observed from the road running east within the pine forest.

Table 30b. Identified wildlife use and observations.

RCMA 10	
Species	**Sign**
Moose	Browse, Pellets
Deer	Pellets, browse
Red squirrel	Observations, middens
Coyote	Scat
Raven	Vocalization
Bear	Scat
Striped skunk	Observation
Unidentified woodpecker	Cavities in pine

Wildlife suitability is considered moderate. The open mature pine forest seems to show limited use along the transect except where wildlife appeared to key in on the riparian habitat present in the southern third of the reserve. The reserve contains forage and shelter for deer and moose to a lesser extent. The reserve provides connectivity value to WHE 5 and the East Ponds. Access to the lake shore of RCMA 10 may be limited by low cover and steep banks.

3.30.5 Management Recommendations

This RCMA should be retained for wildlife viewing and recreational opportunities along the lakeshore. MPB infestations may alter shelter values in the upland forest the pest spreads. Shrub layers may flourish with the new light available if moisture levels are adequate. Infestations should be assessed regularly. Habitat connectivity from RCMA 10 to WHE 5 should be maintained to provide access to the East Ponds area known to be used by ungulates for foraging and rutting activities.

3.31 RCMA 11

3.31.1 Existing Information

RCMA 11 is comprised of open pine forests, riparian and wetland areas, including a small lake directly adjacent to Highway 5. A pipeline right-of-way corridor runs north-south along the eastern boundary. Camp Creek flows north less than 100 meters outside of the eastern boundary. Camp Creek is an important fisheries stream. Fish inventories have documented bull trout (blue-listed), rainbow trout, and kokanee and a few other non-sport fish species such as lake chub (FISS 2007). Camp Creek boasts significant spawning kokanee numbers each fall. Several tributaries are mapped within the reserve and are mostly associated with the wetland features. Watershed codes were not assigned to these streams. The biogeoclimatic zone associated with the reserve is SBSdh1.

3.31.2 Access

Drive 8.5 km south of Valemount and use an old, over-grown access road to gain entry to the reserve at UTM 11. N 5846905, E. 347150. Vehicle parking is located at a private driveway approximately 500 meters north of this access point.

3.31.3 Vegetation

Three strata (forested, disturbed, and riparian) were identified using orthophotos. Upland forest cover consists of predominantly lodgepole pine (15-40 cm diameter) with understory including vaccinium and soopolallie. The southern portion of the reserve consists of mixed wood forests with increased presence of trembling aspen, paper birch and immature hemlock. Black spruce and labrador tea is present within the riparian area of a small stagnant drainage in the northeast corner of the reserve. Significant wetland habitat is present with standing water. Sedges, willows, scrub birch and marsh cinquefoil were commonly observed. Dominant vegetation species are presented in Table 31a.

Table 31a. Dominant vegetation observed within RCMA 11.

RCMA 11	
lodgepole pine	*Pinus contorta*
trembling aspen	*Populus tremuloides*
paper birch	*Betula papyrifera*
black spruce	*Picea mariana*
western hemlock	*Tsuga heterophylla*
Sedges	*Carex sp.*
willow	*Salix sp.*
soopolallie	*Shepherdia canadensis*
alder	*Alnus sp.*
kinnikinnick	*Arctostaphylos uva-ursi*
blueberry	*Vaccinium sp.*
bunchberry	*Cornus canadensis*
red-osier dogwood	*Cornus stolonifera*
spreading dogbane	*Apocynum androsaemifolium*
thimbleberry	*Rubus parviflorus*
stiff clubmoss	*Lycopodium annotinum*

MPB infestation appeared to be low and was noted only on a few individual trees (typically greater than 30 cm diameter). Scatted standing dead pine were evident throughout the upland habitat. ILMB pest inventory identified a small pocket of light MPB infestation from 2001 within the vicinity of the reserve.

3.31.4 Evidence of Wildlife Use and Suitability

Wildlife use was more evident around the riparian areas, wetland features and along the pipeline corridor. The exposed soils on the pipeline casts tracks well and was a good location to find pellet groups and scat. Moose, deer and coyote tracks and scat were noted in openings along the pipeline. Woodpecker cavities were noted within the pine forests and grouse pellets were documented on two occasions near riparian areas.

Table 31b. Identified wildlife use and observations.

RCMA 11	
Species	**Sign**
Moose	Browse, pellets, tracks
Deer	Tracks
Red squirrel	Observations, middens
Coyote	Scat, tracks
Bear	Scat
Flycatcher family (possibly Alder)	Foraging around lake/wetland
Gray jay	Observation
Woodpecker	Cavities in mature pine
Mallard	Observation

Wildlife suitability is considered moderate. Less wildlife sign was documented along the transect through the open mature pine forest, while wildlife sign was noted more around the riparian habitat and mixed wood forests in the southern half of the reserve.

Wildlife suitability is considered moderate; the reserve contains forage and shelter for deer, moose and other small mammals, specifically around the wetlands. The wetland and open water provides suitable habitat for waterfowl and passerines that prefer riparian areas, such as flycatcher species.

3.31.5 Management Recommendations

This RCMA should be retained. Wetland habitat and potential linkages to Camp Creek and Kinbasket Reservoir around the north side of Canoe Mountain should be considered during conservation or recreational opportunity planning.

4.0 CONCLUSION

Many of the 31 land reserves assessed have been impacted by some form of disturbance. Small scale logging has been conducted in some areas with MPB attack (RCMA 2-6 and 8) and timber extraction on a larger scale has occurred in the southern land reserves including WHE 2, 5, 6, 9, 11, 14, 16, 19, and 20. Most of the harvesting took place more than three years ago and upwards of 15 years based on the regeneration. The potential for further infestation is relatively high for some reserves that have a significant composition of lodgepole pine, such as WHEs 6, 8, and 19, and RCMAs 2-6 and 8-11. Despite harvesting impacts and active linear disturbances such as rail, pipelines, and highways, wildlife sign was observed in all land reserves and in most habitat types (forested, harvested, linear disturbance and riparian/wetland.

The valley bottom of the Robson Valley should be managed for wildlife habitat to retain connectivity values along major river and creek corridors such as the Mclennan River and Camp Creek. Fisheries values are also protected by retaining riparian areas that maintain healthy stream banks, water quality, and both direct and indirect fish habitat attributes. Connectivity and riparian corridors are two of the dominating habitat features that require protection considering the habitat within these land reserves, and the position of the areas in the landscape.

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APPENDIX I

Transect and Feature Maps

APPENDIX II

Photo CD