

MANCROFT-EBA Consultants

A division of EBA Engineering Consultants Ltd.

B.C. FOREST LAND USE COORDINATION OFFICE RANGE INSPECTION FIELD NOTES

July 12 - 18, 1999

0505-99-50633000

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July 12 – 18, 1999

SUBMITTED TO

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B.C. FOREST LAND USE COORDINATION OFFICE

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INTRODUCTION

In July of 1999, Mancroft-EBA was contracted to carry out range inspections in the Muskwa-Kechika management area. These inspections were carried out in the company of Mr. Steve Amundson, of the B.C. Forest Service, utilizing a helicopter as access.

SCOPE

All observations, including species composition, forage production, acreage estimates, past use, and potential improvement options are based on visual estimates only. These observations are based on a single site visit. Conditions may vary significantly over time and with varying environmental and land use conditions.

Applicability of sites for controlled burns is based on estimated forage response only. No judgements of fire suitability within the ecosystem, or fire safety have been considered in the evaluation of potential for burns on each site.

Carrying capacity (estimated horse days) estimates have been made under several assumptions. These are as follows:

1. One horse is assumed to be 1.5 Animal Units. At an average consumption of 26 pounds of forage per day per animal unit, one horse day is assumed to be approximately 40 lbs of consumed forage.
2. All carrying capacities are based on a maximum utilization of 50% of available forage.
3. All carrying capacities are based on assumptions of good livestock management, including use of wranglers (if necessary) to ensure good livestock distribution.



Bruce Johnson, P.Ag.



SITE #

A1 **Southwest facing lower slopes** – dominated by Bog birch, with willow sub-dominant.

57° 42.007'
124° 06.13' Understory co-dominated by hairy wild rye and Altai fescue. Bearberry is common throughout the area, with sedge common. Strawberry, tall bluebell and fireweed are scattered throughout the area. Occasional steep patches provide poor grazing potential.

Estimated forage production: 50 – 400 lbs./acre. Average = 150 lbs./acre.

Valley bottom – dominated by willow, with dwarf snow willow dominant in the understory. Slender wheat grass is scattered throughout the understory, with patches of hairy wild rye and Altai fescue.

Estimated forage production: 50 lbs./acre

North slopes – similar to southern exposures, except less forage is available. Moss cover is much higher.

Estimated forage production: 50 lbs./acre

No sign of domestic livestock use on site. Site is a large, open valley.
Minimal improvement potential.

Estimated Range Condition: Excellent
Estimated Acreage: 3 – 400 acres

Overall estimated horse days available: **312 horse days**

Photo #1



A2
Camp 1

Wetland valley, with heavy willow dominated uplands. Bog Birch is a sub-dominant species in the overstory. Tall larkspur is scattered throughout the area. Hairy wild rye and Altai fescue are co-dominant in the understory.

57° 33.169'
124° 18.634'

Estimated forage production: 0 – 25 lbs./acre

Small openings are scattered throughout the brushed uplands. These openings are dominated by Altai fescue, with alpine timothy a common, but minor species. Small flowering wood rush is scattered throughout.

Estimated forage production: 300 lbs./acre

Wetland areas are dominated by open sedge meadows. The lower meadows are very wet, and will be of little grazing value. Slightly upslope from these wet meadows are somewhat drier sedge meadows. These meadows are useable for grazing.

Estimated forage production: 400 lbs./acre
Estimated acreage: 7 acres

Open spruce forest, with bog birch scattered throughout the understory. Marsh reed grass and Altai fescue are co-dominant in the understory.

Estimated forage production: 100 lbs./acre
Estimated acreage: 100 acres

Very little sign of use by domestic livestock. Open sedge meadows will be the preferred range. The open spruce will be secondary to the sedge meadows. The brushed uplands will contribute very little forage production. **Very good livestock management will be required to prevent over-utilization of sedge meadows and spruce close to camp.** Minimal improvement potential.

Estimated Range Condition: Excellent
Total Estimated Horse Days: 140 Horse Days (with very good management)
80 – 100 Horse Days (conservative)

Photo #2



A2 **Open shrub/conifer stand.** Small open patches scattered throughout. Similar (Camp 2) composition to the spruce stand in camp 1.

Estimated acreage: 100 acres

Estimated Horse Days: **100 Horse Days**

57° 39.736'
123°
A3 **Shrubland.** Willow dominated, with bog birch and shrubby cinquefoil common throughout. Shrub cover is approximately 2 ft. in height, 40 to 50% cover. Understory is dominated by hairy wild rye and slender wheat grass, with scattered Altai fescue and bearberry. Horse sign is scattered throughout the area, with picket pins evident. Good litter cover remains and area appears in good condition, even around the picket pins. Minimal improvement potential.

Estimated Range Condition: Good to Excellent

Estimated forage production: 500 lbs./acre

Estimated acreage: 200 acres

Estimated Horse Days: **1250 Horse Days**

Photo # 3



A4 **Shrubland**, dominated by willow and bog birch, with shrubby cinquefoil sub-dominant. Shrub cover is 30 to 40%, and approximately 2 feet in height. Understory is dominated by hairy wild rye, with Altai fescue sub-dominant. Bearberry is common. Very good litter accumulation. Very little horse sign. Minimal improvement potential.

Estimated Forage Production: 700 lbs./acre
Estimated Acreage: 100 acres

Second meadow – east of first meadow. Same composition as first.

Estimated Range Condition: Excellent
Estimated acreage: 80 acres

Estimated Horse Days: **1575 Horse Days**

Photo # 4



A6 , **Shrubland**, dominated by willow, with shrubby cinquefoil sub-dominant. Shrub cover is approximately 2 ft in height, and 60 to 70% cover. Understory is dominated by slender wheat grass, with hairy wild rye sub-dominant, and Altai fescue common throughout. Two large meadows. Small amount of horse sign present. Burning may improve forage production.

Estimated forage production: 300 lbs./acre

Open areas throughout the shrubland have Altai fescue abundant, with sedge scattered.

Estimated Range Condition: Excellent

Estimated forage production: 700 lbs./acre.

Estimated acreage: 200 acres

Estimated Horse Days: **750 Horse Days**

Photo # 5



A7

Shrubland, co-dominated by willow and shrubby cinquefoil, with bog birch abundant. Shrub cover is approximately 50%, 2 to 3 ft in height. Understory is dominated by Altai fescue, with hairy wild rye sub-dominant. Sedge is common throughout. Good litter on site. Little horse sign present. Burning may improve forage production.

Estimated Range Condition: Excellent
Estimated forage production: 700 lbs./acre
Estimated acreage: 50 acres

Estimated Horse Days: **430 Horse Days**

Photo #6



A8

Shrubland, with 70 to 80% willow cover, 3 to 8 ft in height. Average willow height is approximately 5 feet. Sedge dominated understory, with Altai fescue scattered. Higher areas are dominated by Marsh reed grass and Altai fescue. Along tree edge, some patches with lower density willow show higher percentage of Altai fescue. Burning may improve forage production.

Estimated Range Condition: Excellent
Estimated forage production: 50 lbs./acre
Estimated acreage: 30 acres

Estimated Horse Days: **20 Horse Days**

Photo #7



A9 **Open shrubland**, dominated by a willow overstory, approximately 10 – 20% cover, averaging 6 ft in height. Understory is dominated by hairy wild rye, with strawberry abundant. Open areas are dominated by hairy wild rye, with Kentucky bluegrass common. Pumpelly brome, geranium, tall larkspur, cow parsnip and Marsh reed grass are common. Scattered slopes are dominated by Altai fescue.

Minimal improvement potential.

Estimated Range Condition:

Good

Estimated forage production:

1000 lbs./acre

Estimated Acreage:

2 acres

Estimated Horse Days:

25 Horse Days

Photo # 8



Photo #9



A10(#1) **Shrubland**, with airstrip. Airstrip dominated by creeping red fescue and Kentucky bluegrass.

57° 38.278'

123° 27.96'

Estimated forage production: 800 lbs./acre

Shrubland dominated by willow, averaging 80% cover, 3 – 8 ft in height. Very little forage available in shrubland. Browsing quite heavy. Small openings in the spruce forest along the shrubland edges are dominated by scattered willow, with Marsh reed grass, Labrador tea and horsetail dominant in the understory.

Burning may improve forage production, but considerable recovery time would probably be required. Not a prime candidate for a burn.

Estimated Range Condition:	Good to Excellent
Estimated forage production:	80 lbs./acre useable
Estimated acreage:	80 acres

Photo #10



Sedge wetland, dominated by sedge, with a willow overstory of approximately 30 – 40% cover, 3- 5 ft in height. Scattered black spruce. Area is very wet, but useable for grazing. Minimal improvement potential.

Estimated Range Condition: Excellent
Estimated forage production: 1500 lbs./acre
Estimated acreage: 25 acres

Total Estimated Horse Days: **550 Horse Days**

Photo # 11



57° 39.168
123° 22.512
A10#2 **Meadow**, with willow and bog birch overstory of approximately 30% cover, 2 – 3 ft in height. Patches with cover of 40 to 50% cover. Understory dominated by hairy wild rye, with slender wheat grass abundant. Strawberry is common throughout. Shrubby cinquefoil scattered. Litter accumulation good. Horse sign abundant.
Marginal site for burning.

Estimated Range Condition: Good
Estimated forage production: 900 lbs./acre
Estimated acreage: 300 acres

Estimated Horse Days: **3300 Horse Days**

Photo #12



A11 **Burned slope**, dominated by hairy wild rye, with Altai fescue and sedge abundant.

57° 33.233' Creamy peavine, American vetch and common rose are common. Regenerating burnt willow, with less than 10% cover. No horse sign evident. Good accumulation of litter.
123° 23.019' Burning could be utilized to maintain shrub cover below 25% level.

Estimated Range Condition: Good
Estimated forage production: 1200 lbs.
Estimated acreage: 80 acres

Estimated Horse Days: **1200 Horse Days**

Photo #13



A12 **Three small meadows** scattered amongst spruce forest. Meadows dominated by Altai fescue, with hairy wild rye and sedge common. Spruce, pine and shrubby cinquefoil scattered. Horse sign on south end of meadows. Litter accumulation good.

Minimal improvement potential.

Estimated Range Condition:	Excellent
Estimated forage production:	2500 lbs./acre
Estimated acreage:	30 acres

Photo #14



Small openings in spruce forest dominated by Marsh reed grass, with sedge sub-dominant.

Estimated forage production:	2500 lbs./acre
Estimated acreage:	20 acres
Total Estimated Horse Days:	1500 Horse Days

Photo #15



A13 **Shrubland** dominated by shrubby cinquefoil, with bog birch sub-dominant. Shrubs average 40% cover, 3 ft in height. Understory co-dominated by Altai fescue and sedge. Hairy wild rye and slender wheat grass scattered. Horse sign throughout the area. Litter accumulation good.
57° 26.59' N
123° 24.613' W
Burning will not be of a major benefit at this time.

Estimated Range Condition: Excellent
Estimated forage production: 1400 lbs./acre
Estimated acres: 30 acres

Estimated Horse Days: **525 Horse Days**

Photo #16



57° 26.613, 123° 30.015
A24 **Shrubland**, dominated by willow, 60 – 70% cover, 3 – 5 ft in height. Significant browsing. Understory dominated by Altai fescue and strawberry, with sedge and slender wheat grass sub-dominant. Hairy wild rye is abundant. Horse sign present. Fescue plants remain healthy. Bluegrass is dominant in patches. Burning may improve forage production.

Estimated Range Condition: Good
Estimated forage production: 600 lbs./acre
Estimated acreage: 10 acres

Estimated horse days: **75 Horse Days**

Photo #17



56° 26.565'
123° 34.863'

A24A **Shrubland**, dominated by willow, 3 to 6 feet in height, approximately 60 % density. Shrubby cinquefoil and bog birch , 1 to 2 feet in height, scattered throughout. Understory dominated by slender wheat grass, with sedge sub-dominant. Hairy wild rye and bluegrass scattered.
Marginal site for burning.

Estimated Range Condition: Good
Estimated forage production: 250 lbs./acre
Estimated acreage: south of river – 30 acres
north of river – 50 acres

Estimated horse days: **185 Horse days**

Photo #18



A23

Shrubland, dominated by willow, 3 to 4 feet in height, approximately 60% density. Patches of approximately 80% density. Altai fescue dominant, with slender wheat grass sub-dominant in the understory. Bearberry dominant in patches. Good litter accumulation. No horse sign over most of meadow – small amount of horse sign on east end. Fescue clumps appear very healthy. Marginal site for burning.

Estimated Range Condition: Good
Estimated forage production: 300 lbs./acre
Estimated acreage: 30 acres in two meadows

Estimated Horse days: **110 Horse days**

Photo #19



A14 **Open meadows** located along slopes. Dominated by Marsh reed grass, with Altai fescue subdominant. Minor forbs, such as harebells and fireweed. Good litter, excellent vigour. Minimal improvement potential.

Estimated Range Condition: Excellent
Estimated forage production: 2500 lbs./acre
Estimated acreage: 60 acres

Photo #20
East of Creek



Photo #21
West of Creek



Valley bottom – dominated by sedge, with open water in patches.

Estimated forage production: 200 lbs./acre
Estimated acreage: 100 acres

Wet hillsides, dominated by bog birch, with willow sub-dominant. Shrubs approximately 1 to 2 feet in height. Labrador tea and heavy moss cover is abundant. Sedge is dominant in the understory. Useable area, but not primary range. Moderate browse noted on the willow.

Minimal improvement potential.

Estimated Range Condition: Excellent
Estimated forage production: 100 lbs.

Estimated Horse days: **2100 Horse days**

A15 **Meadow**, with scattered willow and shrubby cinquefoil, 2 to 3 feet in height. Understory dominated by Altai fescue, with Marsh reed grass subdominant. Good litter accumulation. Very vigorous fescue plants. Horse sign apparent. Burning will not be of a major benefit at this time.

57° 30.677
123° 27.498

Estimated Range Condition: Excellent
Estimated forage production: 2500 lbs./acre
Estimated acreage: 2 acres

Photo #22



Burn, on terrace, with scattered bog birch up to 2 feet in height. Understory dominated by Altai fescue, with scattered patches of hairy wild rye common. Scattered small flowering wood rush. Numerous patches of willow and bog birch, 50% cover, averaging 2 feet in height. Horse and moose sign evident throughout the area. Good litter accumulation. Excellent vigour.

Burning could be utilized to maintain brush cover at a low density. A follow up burn may also be required in order to clean up deadfall as the standing dead trees start to come down.

Estimated Range Condition:	Excellent
Estimated forage production:	1800 lbs./acre
Estimated acreage:	200 acres

Total estimated Horse Days: **4560 Horse Days**

Photo #23



A16 | **Meadow** dominated by Altai fescue and forbs. Forb component dominated by arrowleaf coltsfoot, monkshood, harebell, showy jacob's ladder, and marsh valerian. Wetter areas dominated by sedge. Scattered patches of hairy wild rye and bluegrass. Overstory dominated by willow, with bog birch and shrubby cinquefoil averages approximately one foot in height and covers approximately 10% of the area. Horse sign evident. Good litter accumulation. Very good vigour. Burning will not be of a major benefit at this time.

Estimated Range Condition: Excellent
Estimated forage production: 1800 lbs./acre
Estimated acreage: 15 acres

Photo #24



South-west side of creek:

Meadow dominated by Marsh reed grass, with Altai fescue and small flowering wood rush subdominant. Willow overstory, approximately 11 feet in height, covering less than 20%. Horse sign. Good litter and vigour. Burning will not be of a major benefit at this time.

Estimated Range Condition: Good to Excellent
Estimated forage production: 2000 lbs./acre
Total Estimated Horse Days: 337 Horse Days

Photo #25



57° 35.051
123° 36.086
A17 , **Shrubland**, dominated by willow and bog birch, with shrubby cinquefoil subdominant. Shrub cover 2 to 3 feet in height, 50 – 70% cover. Understory dominated by moss, with Altai fescue subdominant. Bearberry is abundant in patches. Slender wheat grass is scattered and common. Shrub cover heavier in lower areas and lighter on upland terraces. Good vigour and litter. Horse sign throughout. Similar types scattered along length of creek. Marginal site for burning.

Estimated Range Condition:	Good to Excellent
Estimated forage production:	200 lbs./acre
Estimated acreage:	30 acres

Estimated Horse Days:	75 Horse Days
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Photo #26



57° 35.153'
123° 43.450'

A18 **Shrubland**, dominated by willow, with bog birch and shrubby cinquefoil a minor component. Shrub cover 3 to 4 feet in height, approximately 80% cover. Understory dominated by slender wheat grass and Altai fescue, with sedge subdominant. Hairy wild rye scattered throughout. Similar meadows, with slightly less brush cover across creek. Horse sign scattered throughout area. Horses noted at time of inspection. Litter accumulation remains good. Burning may improve forage production.

Estimated Range Condition:	Good
Estimated forage production:	60 lbs./acre
Estimated acreage:	300 acres

Estimated Horse Days:	225 Horse Days
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Photo #27



57° 29.202
123° 51.013
A19 **Meadow**, with willow dominant overstory, 1 to 2 feet in height. Bog birch subdominant in overstory. Shrub layer approximately 20% cover. Understory dominated by hairy wild rye and Altai fescue. Baltic rush common in patches. No horse sign noted. Good litter accumulation. Similar meadows extend up valley. Marginal site for burning.

Estimated Range Condition:	Good
Estimated forage production:	1000 lbs./acre
Estimated acreage:	10 acres

Estimated Horse Days:	125 Horse Days
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Photo #28



A20 **Alpine shrubland**, dominated by willow, with bog birch subdominant. Approximately 70 to 90% shrub cover, 2 to 3 feet in height. Understory dominated by moss, with Altai fescue and sedge. Forbs common, including arrow leafed coltsfoot. Slender wheat grass scattered. Upper terraces, dominated by bog birch, 2 to 3 feet in height, approximately 80% cover. Understory dominated by marsh reed grass and Altai fescue. Minimal improvement potential.

Estimated Range Condition:	Excellent
Estimated forage production:	30 lbs./acre

Open sedge areas scattered. Willow, averaging 1 to 2 feet, with approximately 40% cover. Sedge meadows cover approximately 10% of meadow complex. No horse sign evident. Minimal improvement potential.

Estimated Range Condition:	Excellent
Estimated forage production:	200 lbs./acre
Estimated acreage:	400 acres

Estimated Horse Days:	235 Horse Days
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Photo #29



57° 25' 17.4" A20#1 **Very old camp site.** Small meadow dominated by willow, with horsetail subdominant. No significant forage available.
123° 48' 16.8"

57° 19' 16.82" A21#1 **Meadows near camp** – dominated by bog birch, to 3 feet in height, approximately 60% cover. Willow, to 1 foot in height, scattered. Bearberry is scattered, but common throughout. Understory dominated by slender wheat grass and hairy wild rye, with Altai fescue subdominant. Altai fescue clumps are small, but vigorous. Fair litter from last year. Marginal site for burning.

123° 41' 35.7" Estimated range condition: Fair to Good.

Meadows above camp – similar to near camp, but Altai fescue is healthier. Patches with sedge dominant and Altai fescue subdominant. Small area of sedge and tufted hair grass dominant. Horse sign abundant near camp. Horse sign decreasing significantly as you move out from camp. Marginal site for burning.

Estimated range condition:	Good.
Estimated forage production:	300 lbs./acre
Estimated acreage:	60 acres

Large meadow upstream from camp – dominated by bog birch, with willow and shrubby cinquefoil subdominant. Shrub layer approximately 3 feet in height and 60 – 70% cover. Very hummocky. Understory dominated by sedge and Altai fescue, with slender wheat grass and bearberry common. No horse sign noted. Marginal site for burning.

Estimated Range Condition:	Excellent
Estimated forage production:	100 lbs./acre
Estimated acreage:	300 acres

Total Estimated Horse Days:	600 Horse Days
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Photo #30



A26 **Meadow**, with willow dominant and bog birch subdominant. Shrub cover 2 to 3 feet in height, approximately 50% cover. Open patches scattered throughout. Understory dominated by Altai fescue, with hairy wild rye subdominant. Good litter and vigour. Litter horse sign noted after immediate camp area. Burning will not be of a major benefit at this time.

Estimated Range Condition: Excellent
Estimated forage production: 1000 lbs./acre
Estimated acreage: 80 acres

Estimated Horse Days: **1000 Horse Days**

Photo #31



B12 **Small shrublands** amongst forest – mid way up lake. Dominated by willow, averaging approximately 2 feet in height, 80% cover. Heavy browsing evident. Occasional openings with cow parsnip up to 20% cover. Understory dominated by marsh reed grass. Forage production could be improved by burning.

Estimated Range Condition: Excellent
Estimated forage production: 1000 lbs./acre
Estimated acreage: 15 acres

Estimated Horse Days: **180 Horse Days**

East end of lake -- meadows dominated by willow, 2 to 4 feet in height. Very heavy browsing noted. Understory dominated by cow parsnip, marsh reed grass and hairy wild rye. Bluegrass is scattered. Frequent open patches dominated by marsh reed grass, with hairy wild rye and Altai fescue subdominant. No horse use noted. Forage production could be improved by burning.

Estimated Range Condition:	Good to Excellent
Estimated forage production:	600 lbs./acre
Estimated acreage:	50 acres

Estimated Horse Days:	375 Horse Days
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Photo #32



56° 54.777
173° 47.392
B11 **Shrubland**, dominated by willow, with shrubby cinquefoil and bog birch subdominant. Shrub height averages approximately 3 feet. Shrub density varies, with most being up to 90% cover. Patches dominated by bog birch. Small open areas near center of meadow, along runway. Hummocky ground. Understory on south end dominated by hairy wild rye, with Altai fescue a minor component. North end has Altai fescue and hairy wild rye dominant in understory, with slender wheat grass subdominant. Patches of sedge scattered. Little horse sign. Burning may improve forage production.

Estimated Range Condition:	Excellent
Estimated forage production:	150 lbs./acre
Estimated acreage:	300 acres

Estimated Horse Days:	560 Horse Days
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Photo #33



B10

Side hill below cabin, dominated by bog birch, with shrubby cinquefoil subdominant, and willow minor. Shrub layer has approximately 70% cover, 2 to 3 feet in height. Understory dominated by hairy wild rye, with Altai fescue subdominant.

Meadow, west of cabin, dominated by willow, with shrubby cinquefoil subdominant and bog birch minor. Shrub layer approximately 70% cover, 2 to 3 feet in height. Understory dominated by sedge, Altai fescue and marsh reed grass. Common strawberry is abundant. Meadow is a flood plain. Abundant bison sign noted, at least one year old. No horse sign noted. Fescue clumps show signs of use, but remain healthy. Burning may improve forage production, but recovery time would probably be quite lengthy.

Estimated Range Condition:
Estimated forage production:
Estimated acreage:

Good
50 lbs./acre
60 acres

Estimated Horse Days:

37 Horse Days

Photo #34



Hillside southwest of cabin – relatively open treed hillside, dominated by hairy wild rye, with Altai fescue subdominant and fireweed common. Bog Birch is dominant in the shrub layer, with willow subdominant. Shrub layer averages approximately 3 feet in height, 30 % cover.

Large meadows noted across river, upstream and downstream.

Estimated Range Condition:
Estimated forage production:
Estimated acreage:

Good to Excellent
300 lbs./acre
4 acres

Estimated Horse Days:

15 Horse Days

B9-1 **Meadow** on terrace - approx. 5700 ft.. Heavily dominated by forb species with Altai fescue sub dominant. Small flowered wood rush scattered. No signs of use. Very little forage value. Minimal improvement potential.

Oatgrass and reed grasses noted in main valley. Somewhat more forage available on south facing slopes.

Estimated Range Condition: Excellent

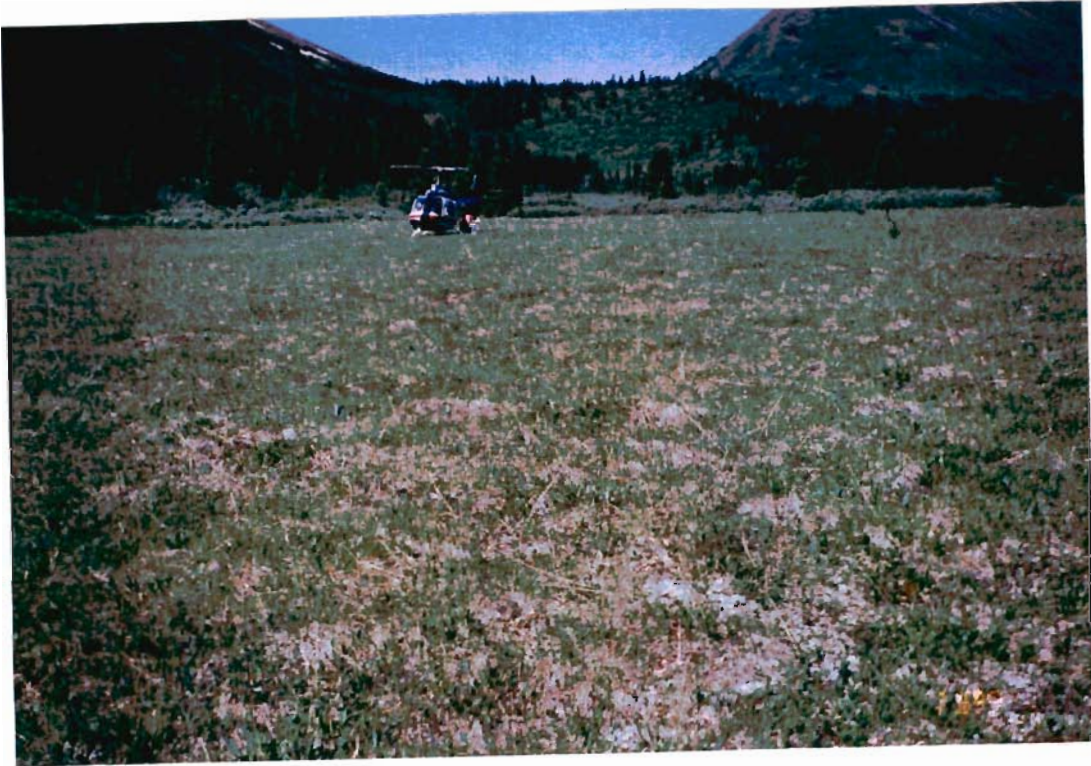
Estimated forage production: 80 lbs./acre

Estimated acreage: 100 acres

* Note. High alpine site. Suggested use level reduced by additional 50%.

Estimated Horse Days: **50 Horse Days – length of valley**

Photo #35



B9#2 **Small meadows** within bog birch and willow dominated brushlands. Brush averages approximately 5 feet in height, 90% cover. Meadows dominated by hairy wild rye, with veiny meadowrue and Altai fescue subdominant. Sedge is abundant in patches. Hillside dominated by hairy wild rye, with Altai fescue and fireweed common. Bluegrass scattered. Bison noted on site. Burning may improve forage production.

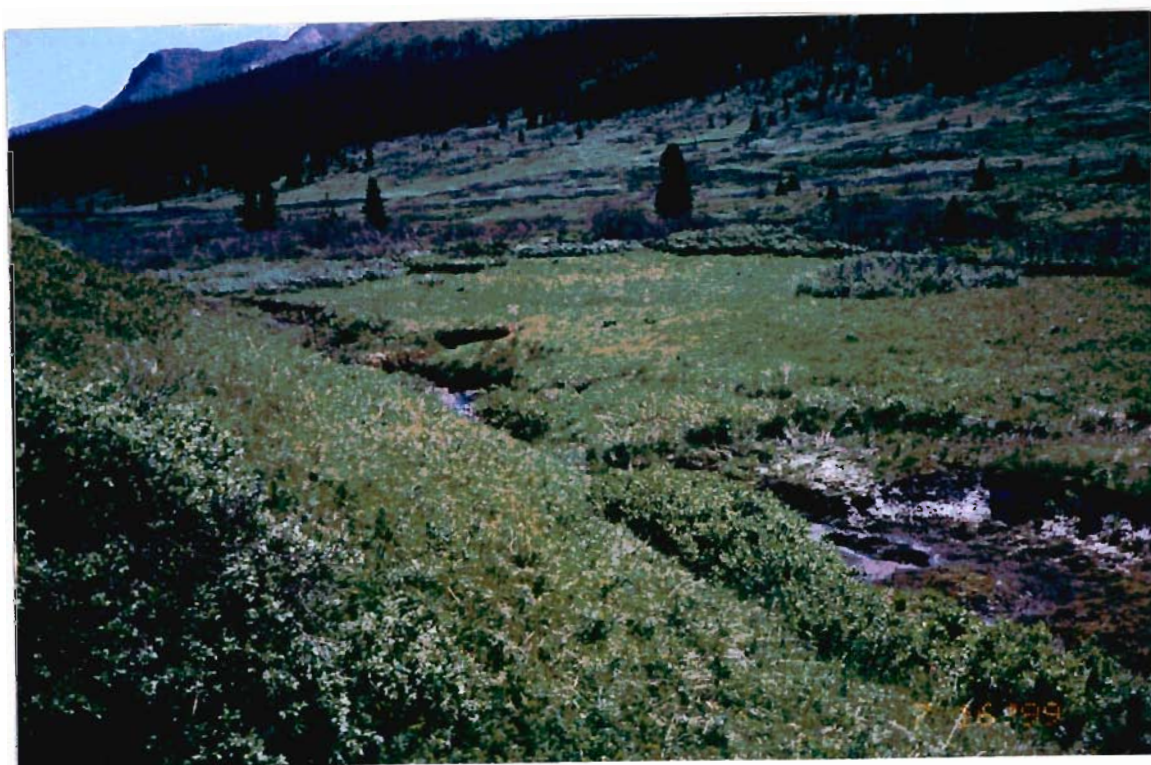
Estimated Range Condition: Fair - Good

Estimated forage production: brushland -50 lbs./acre
meadows - 1800 lbs./acre

Estimated acreage: 4 acres

Estimated Horse Days: **24 Horse Days**

Photo #36



B7 , **Meadow**, dominated by Altai fescue and hairy wild rye. Sedge in scattered patches. Good litter. Vigorous plants. Occasional Bison sign noted. Signs of recent light grazing. Minimal improvement potential.

57° 04.259'
123° 16.841'

Estimated Range Condition:	Excellent
Estimated forage production:	2500 lbs./acre
Estimated acreage:	30 acres
Estimated Horse Days:	938 Horse Days

Photo #38



B6 , **Meadow**, dominated by sedge. Minimal improvement potential.

57° 07.59'
123° 17.761'

Estimated Range Condition:	Excellent
Estimated forage production:	1500 lbs./acre
Estimated acreage:	20 acres
Estimated Horse Days:	375 Horse Days

Photo #39



B5 **Various sites** surrounding Beatty Lake.

57° 11.013'
123° 16.426'

Meadow, dominated by sedge, with tufted hair grass common. Bison sign noted. Minimal improvement potential.

Estimated Range Condition:	Excellent
Estimated forage production:	1800 lbs./acre
Estimated acreage:	15 acres

Estimated Horse Days:	338 Horse Days
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Photo #40



Old burn off east end of lake. Understory dominated by hairy wild rye, with fireweed and horsetail subdominant. Deadfall and slope will hinder use on all but the toe of the slope. Further burning may increase some forage availability through cleaning up of deadfall. However, steep slopes will prevent significant use of this area by horses.

Estimated Range Condition:	Good
Estimated forage production:	450 lbs./acre
Estimated acreage (useable):	5 acres

Estimated Horse Days:	28 Horse Days
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Meadows off north-west corner of lake, dominated by willow, with bog birch common. Shrub cover averages approximately 3 feet in height, with approximately 90% cover. Wet area, with a moss dominated understory. Negligible forage value. Small open areas dominated by sedge. Minimal improvement potential.

Estimated Range Condition:	Excellent
Estimated forage production:	800 lbs./acre
Estimated acreage:	1 acre

Estimated Horse Days:	10 Horse Days
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Open burn in draw off of north-west corner of lake. Dominated by Altai fescue, with hairy wild rye and fireweed common. Terrace and lower slopes. Follow-up burns may be required to clean up blowdown when trees start falling.

Estimated Range Condition:	Excellent
Estimated forage production:	800 lbs./acre
Estimated acreage:	5 acres

Estimated Horse Days:	50 Horse Days
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Photo #41



Wetlands located immediately off of north-west corner of lake – dominated by sedge and moss. Very wet area. Suitability for grazing is limited.

B4 57° 07.693' 123° 13.282' **Meadow**, dominated by sedge, with Altai fescue common. Moss cover is abundant. Good litter accumulation. Fescue clumps have received grazing pressure in the past, but appear vigorous. Slightly elevated areas have a higher proportion of sweetgrass and slender wheatgrass. Lower areas are dominated by sedge and arrowleafed coltsfoot. Large amount of bison sign noted. Area may have received past heavy use from bison. Predominance of Altai fescue may be lower than expected under climax condition. Similar type along valley length. Minimal improvement potential.

Estimated Range Condition:	Good
Estimated forage production:	1800 lbs./acre
Estimated acreage:	80 acres

Estimated Horse Days:	1800 Horse Days
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Photo #42



57° 07.718
123° 08.784
B3 | **Meadow**, dominated by hairy wild rye and marsh reed grass, with sedge and Altai fescue subdominant. American vetch and geranium common. Good litter and vigour. North of airstrip, willow overstory is up to approximately 6 feet in height, with approximately 80% cover. Open patches dominated by Altai fescue, with hairy wild rye subdominant. Bison sign throughout area. Horse sign noted on meadow by airstrip. Forage production could be improved by burning.

Estimated Range Condition:	Good to Excellent
Estimated forage production:	1800 lbs./acre
Estimated acreage:	100 acres total

Estimated Horse Days:	450 Horse Days
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Photo #43



57° 10.823', 123° 11.11'
B2 , **Shrubland**, dominated by willow, with bog birch common. Shrubs average approximately 3 feet in height, with approximately 90% cover. Open patches dominated by hairy wild rye, with sedge and Altai fescue subdominant. Sedge dominant in low lying areas. Litter accumulation fair, vigour fair to good. Burning may improve forage production.

Estimated Range Condition: Good
Estimated forage production: 300 lbs./acre
Estimated acreage: 150 acres

Estimated Horse Days: **560 Horse Days**

Photo #44



56° 53.654', 123° 35.893'
B13 Small meadows scattered in a wet shrubland, dominated by Altai fescue, with hairy wild rye and slender wheatgrass common. Vigorous stand. Bison sign present. No horse sign noted. Minimal improvement potential.

Estimated Range Condition: Excellent
Estimated forage production: 2000 lbs./acre
Estimated acreage: 5 acres

Estimated Horse Days: **125 Horse Days**

Shrubland dominated by willow, with bog birch and shrubby cinquefoil common. Shrubs approximately 3 to 6 feet in height, 90% cover. Hummocky ground, with heavy moss cover. Sedge common in low areas. Scattered Altai fescue throughout. Access through shrubland is poor. Forage value negligible. Minimal improvement potential.

Photo 45



B14 **Shrubland**, with open meadows. Bog birch overstory averaging approximately 3 feet in height, 60 – 70% cover. Scattered willow. Understory dominated by Altai fescue and slender wheatgrass, with marsh reed grass subdominant, and hairy wild rye common. Sedge and many flowered wood rush scattered. Burning may improve forage production.

56° 51.929'
123° 37.641'

Estimated Range Condition:	Excellent
Estimated forage production:	200 lbs./acre
Estimated acreage:	180 acres

Open meadows amongst shrubland, dominated by Altai fescue, with slender wheatgrass common. Forbs, including monkshood, aster, tall larskspur, strawberry and tall bluebell common. Some fescue clumps raised and decadent on main meadows. Small amount of bison sign noted. No evidence of recent use noted. Minimal improvement potential.

Estimated Range Condition:	Good – Excellent
Estimated forage production:	1200 lbs./acre
Estimated acreage:	20 acres

Total Estimated Horse Days:	750 Horse Days
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Photo #46



Photo #47



56° 50.962'
123° 42.889'
B15 **Wet shrubland**, dominated by willow, with bog birch common. Approximately 90% shrub cover. Sedge patches. Scattered slope meadows, dominated by Altai fescue, with marsh reed grass, many flowered wood rush and aster common. Good litter accumulation. No sign of bison or horse use. Moose sign abundant. Minimal improvement potential.

Slope meadows:

Estimated range condition:	Excellent
Estimated forage production:	1200 lbs./acre
Estimated acreage:	3 acres

Sedge openings:

Estimated range condition:	Excellent
Estimated forage production:	2000 lbs./acre
Estimated acreage:	8 acres

Total Estimated Horse Days:	245 Horse Days
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Photo #48



56° 55.396
123° 31.119'
B16 , **Shrubland**, dominated by willow, with bog birch common. Shrub cover up to approximately 6 feet in height, 60 – 70% cover. Open meadows dominated by Altai fescue, with sedge and slender wheatgrass common. Monkshood and veiny meadowrue common throughout the area. Good litter and vigour. Bison sign noted throughout area. Small patches of Altai fescue scattered throughout brush. Forage production could be improved by burning.

Estimated Range Condition:	Good to Excellent
Estimated forage production:	750 lbs./acre
Estimated acreage:	250 acres

Estimated Horse Days:	2340 Horse Days
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Photo #49



B17 **Meadow** in spruce stand, dominated by Altai fescue, with sedge, marsh reed grass and tall bluebell common. Sedge common on south end. Good litter accumulation. Fescue is clumped. No sign of use. Minimal improvement potential.

56° 53.802'
123° 29.422'

Estimated Range Condition: Excellent
Estimated forage production: 1800 lbs./acre
Estimated acreage: 2 acres

Estimated Horse Days: **45 Horse Days**

Photo #50



B18 **Shrubland/meadow** complex. Approximately 80% shrubland and 20% meadow. Shrubland dominated by willow, approximately 70% cover, 3 to 4 feet in height. Understory dominated by cow parsnip, with marsh reed grass subdominant. Heavily browsed. Burning may improve forage production.

56° 51.614'
123° 29.422'

Estimated forage production: 400 lbs./acre

Meadows dominated by marsh reed grass, with Altai fescue, sorrel, and tall bluebell common. Good litter accumulation. No sign of use noted.

Estimated forage production: 3200 lbs./acre

Estimated Range Condition: Excellent
Estimated acreage: 40 acres

Tree fringe, dominated by an open spruce stand, with an understory dominated by Altai fescue and aster. Forbs common.

Estimated forage production:	150 lbs./acre
Estimated acreage:	2 acres

Total Estimated Horse Days:	480 Horse Days
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Photo #51



B19 , **Meadow** on lower slope. Upper slope portion dominated by marsh reed grass and Altai fescue, with fireweed, dock and tall bluebell common. Cow parsnip thick in patches. Fescue heavily clumped. Litter accumulation good. A controlled amount of fire or grazing disturbance would probably enhance this area.

56° 51.485'
123° 28.602'

Estimated Range Condition:	Excellent
Estimated forage production:	2000 lbs./acre
Estimated acreage:	8 acres

Lower slope portions dominated by sedge.

Estimated Range Condition:	Excellent
Estimated forage production:	3000 lbs./acre
Estimated acreage:	8 acres

Shrubland dominated by willow, approximately 80% cover, 2 to 3 feet in height. Sedge understory. No sign of horse or bison use noted. Minimal improvement potential.

Estimated Range Condition:	Excellent
Estimated forage production:	100 lbs./acre
Estimated acreage:	24 acres

Total Estimated Horse Days: **530 Horse Days**

Photo #52



B20#1 **Meadow**, dominated by Altai fescue, with northern anemone subdominant, and small flowered wood rush common. Litter accumulation good. Minimal improvement potential.

56° 47.505'

123° 28.007'

Estimated Range Condition:	Excellent
Estimated forage production:	300 lbs./acre
Estimated acreage:	10 acres

Estimated Horse Days: **37 Horse Days**

B20#2 **Meadow** dominated by sedge, with tall bluebells and tall larkspur common. Picket pins evident. Good litter cover remains. Minimal improvement potential.

56° 50.975'

123° 12.715'

Estimated Range Condition:	Excellent
Estimated forage production:	3000 lbs./acre

Open meadows beside brushland, dominated by willow, approximately 3 feet in height and 50% cover. Understory dominated by hairy wild rye, with slender wheatgrass subdominant, and Altai fescue common. Veiny meadowrue and tall larkspur are scattered and common throughout. Type continues up and down valley. Burning of shrubland may increase forage production.

Estimated Range Condition:	Excellent
Estimated forage production:	500 lbs./acre

Total Estimated Acreage: 50 acres

Total Estimated Horse Days: **780 Horse Days**

Photo #53



B21 **Valley - Shrubland/meadow complex**, dominated by willow, with a sedge understory.
Wet. Minimal improvement potential.

56° 52.506'
123° 24.26'

Estimated Range Condition:	Excellent
Estimated forage production:	750 lbs./acre
Estimated acreage:	Entire Valley area
Estimated Horse Days:	300+ Horse Days

Small meadow upslope, dominated by alati fescue. Heavy litter accumulation.

Estimated forage production:	3000 lbs./acre
Estimated acreage:	5 acres
Estimated Horse Days:	185 Horse Days

Photo #54



Open treed slope, dominated by bog birch, approximately 2 to 3 feet in height, 40 to 60% cover. Understory dominated by Altai fescue, with hairy wild rye common. Significant bison sign noted. Small amount of horse sign noted. Forage production could be improved by burning.

Estimated Range Condition:	Excellent
Estimated forage production:	2000 lbs./acre
Estimated acreage:	20+ acres – along valley edges
Estimated Horse Days:	500 Horse Days

Photo #55



56° 59.483',
123° 21.623' B22 , **Meadows** along valley terraces. Dominated by Altai fescue, with forbs, including monkshood, aster, geranium and bluebells common. Many flowered wood rush is scattered throughout. Good litter accumulation. Bison sign present. Valley bottom dominated by heavy willow cover. Minimal improvement potential.

Estimated Range Condition:	Excellent
Estimated forage production:	2000 lbs./acre
Estimated acreage:	15 acres

Estimated Horse Days:	375 Horse Days
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Photo #56



B23 | **Meadows** located along terraces. Dominated by marsh reed grass and Altai fescue, with scattered hairy wild rye. Good litter accumulation. Old bison sign. No sign of horse use.

56°54.124
123° 14.852

Steep valley, with valley bottom dominated by willow, approximately 30 to 40% cover. Small patches of spruce. Understory dominated by Altai fescue and hairy wild rye. Heavy browsing noted on willow. Minimal improvement potential.

Estimated Range Condition:	Excellent
Estimated forage production:	2000 lbs./acre
Estimated acreage:	2 acres

Estimated Horse Days:	50 Horse Days
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Photo #57



B24

56° 53.497'
123° 09.476'

Shrubland, dominated by willow, approximately 50% cover, 3 feet in height. Understory dominated by marsh reed grass, with hairy wild rye and slender wheatgrass subdominant. Altai fescue, bluegrass, geranium, and tall bluebells are common. Altai fescue is dominant in patches. Meadow adjacent to camp has picket pins and horse sign evident. Fescue remains vigorous. Burning may improve forage production.

Estimated Range Condition:	Excellent
Estimated forage production:	1200 lbs./acre
Estimated acreage:	30 acres

Estimated Horse Conditions:	450 Horse Days
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Photo #58



B20#3 **Shrubland**, dominated by willow, approximately 2 feet in height, 50 to 60% cover.

Understory dominated by Altai fescue, with hairy wild rye subdominant. Sedge scattered in patches. Good litter and vigour. Hummocky and channeled in willows. No sign of use noted. Similar type up and down valley. Burning may improve forage production.

Estimated Range Condition: Excellent
Estimated forage production: 1100 lbs./acre
Estimated acreage: 30 acres

Estimated Horse Days: **410 Horse Days**

Photo #59



APPENDIX A
PLANT SPECIES LIST

PLANT SPECIES LIST

<i>Common Name</i>	<i>Scientific Name</i>
Grasses	
Alpine timothy	<i>Phleum alpinum</i>
Altai fescue	<i>Festuca altaica</i>
Creeping red fescue	<i>Festuca rubra</i>
Hairy wild rye	<i>Leymus innovatus</i>
Kentucky bluegrass	<i>Poa pratensis</i>
Marsh reed grass	<i>Calamagrostis canadensis</i>
Pumpelly brome	<i>Bromus inermis ssp. pumpellianus</i>
Slender wheat grass	<i>Elymus trachycaulus</i>
Sweetgrass	<i>Heirochloe odorata</i>
Tufted hair grass	<i>Deschampsia caespitosa</i>
Reeds and Sedges	
Sedge	<i>Carex sp.</i>
Small flowering wood rush	<i>Luzula parviflora</i>
Shrubs and Trees	
Black spruce	<i>Picea mariana</i>
Bog Birch	<i>Betula glandulosa</i>
Common Rose / Prickly rose	<i>Rosa sp.</i>
Dwarf snow willow	<i>Salix reticulata</i>
Labrador tea	<i>Ledum groenlandicum</i>
Pine	<i>Pinus sp.</i>
Shrubby cinquefoil	<i>Potentilla fruticosa</i>
Spruce	<i>Picea sp.</i>
Willow	<i>Salix sp.</i>
Forbs	
American vetch	<i>Vicia americana</i>
Arrowleaf coltsfoot	<i>Petasites sagittatus</i>
Aster	<i>Aster sp.</i>
Bearberry / Kinnikinnick	<i>Arctostaphylos uva-ursi</i>
Creamy peavine	<i>Lathyrus ochroleucus</i>
Cow parsnip	<i>Heracleum lanatum</i>
Dock	<i>Rumex sp.</i>
Fireweed	<i>Epilobium angustifolium</i>
Geranium	<i>Geranium sp.</i>
Hairbell	<i>Campanula rotundifolia</i>
Horsetail	<i>Equisetum arvense</i>
Monkshood	<i>Aconitum delphinifolium</i>
Northern Anemone	<i>Anemone parviflora</i>
Showy Jacob's ladder	<i>Polemonium pulcherricum</i>
Sorrel	<i>Rumex sp.</i>
Strawberry	<i>Fragaria sp.</i>
Tall larkspur	<i>Delphinium glaucum</i>
Veiny Meadowrue	<i>Thalictrum venulosum</i>

Muskwa-Kechika Range Inspection – July 26 & 27, 1999

Site	Plant Community Description	Horse Grazing Days
Henry Creek NRM 114	<ul style="list-style-type: none"> Picture 6 (campsite area) – site is dominated by willow, bog birch, hairy wildrye, slender wheatgrass and American hedysarum. Area around campsite has received heavy grazing pressure, dominated by Kentucky bluegrass. Picture 7 (meadows) – the site is dominated by bluejoint, fowl bluegrass, sedge, willow, and shrubby cinquefoil. Area is in Good-Excellent Range Condition. 	20
Moose Creek NRM 115	<ul style="list-style-type: none"> Picture 8 (meadow near campsite) – site is dominated by shrubby cinquefoil, altai fescue, sedge, and mountain monkshood. Area is in Excellent Range Condition. Picture 9 (shrub-car along creek) – site is dominated by willows, shrubby cinquefoil with a minor component of fowl bluegrass. Area is in Excellent Range Condition. Minimal grazing value. 	24
Upper Moose Creek NRM 116	<ul style="list-style-type: none"> Picture 10 (area between meadows) – site is dominated by bog birch, willow, bluejoint, moss and sedge. Areas are in Excellent Range Condition. Picture 11 & 13 (meadows) – sites are dominated altai fescue, Jacob's-ladder, luzula, shrubby cinquefoil and tall larkspur. Areas area in Excellent Range Condition. Picture 12 (riparian area close to campsite) – site is dominated by bluejoint, fowl bluegrass, fireweed and Jacob's-ladder. Localized areas of overgrazing dominated by Kentucky bluegrass. Area is in Fair-Good Range Condition. Picture 14 (aerial view of meadows) 	60 This is only available if all meadows are utilized. If grazing takes place only in the meadow near the campsite, there are only 10 horse days.
Toilet Creek NRM 117 NRM 118	<ul style="list-style-type: none"> Picture 20 (riparian area and upland adjacent to creek) – the riparian area is dominated by willow, sedge, and bluejoint. The area is in Excellent Range Condition. The upland area is dominated by willow, scrub birch, altai fescue, luzula, and monkshood. This area is in Excellent Range Condition. Picture 21 (shrub meadow) – the site is dominated by scrub birch, shrubby cinquefoil, altai fescue, luzula, Jacob's-ladder, and monkshood. The area is in Excellent Range Condition. Picture 22 (horse tethering) – impacts of tethering a horse to trees. Picture 23 (meadow near campsite) – site is dominated by altai fescue, scrub birch, alpine bluegrass, and luzula. The area is in Good Range Condition. Picture 24 (meadow) – site is dominated by sedge, alpine timothy, altai fescue, monkshood, and willows. The area is in Excellent 	42

	Range Condition.	
Tetsa NRM 119	<ul style="list-style-type: none"> Picture 1 (campsite) – site is dominated by Kentucky bluegrass, wild strawberry, and hairy wildrye. This area has received very heavy horse use. The area is Poor-Fair Range Condition. Picture 4 (campsite) – sheep are causing some of the impacts at the campsite. Picture 3 (gravel terrace) – site is dominated by scrub birch, shrubby cinquefoil, kinnikinnik, sedge, hairy wildrye, willow, and altai fescue. The site is in Fair-Good Range Condition. 	22
Tetsa Lake NRM 120	<ul style="list-style-type: none"> Picture 9 (potential campsite) - site is dominated by sedge, scrub birch, moss and a minor component of altai fescue. The site is in Excellent Range Condition. This is the only area with grazing available around the lake area. Picture 10 (lake) – site is dominated by scrub birch, moss and a minor component of altai fescue. No grazing available 	12
Dead Dog Flats NRM 121	<ul style="list-style-type: none"> Picture 12 & 13 (flats) – site is dominated by scrub birch, shrubby cinquefoil, hairy wildrye, Kentucky bluegrass, tall larkspur, wild strawberry, yarrow, lupine and a minor component of altai fescue. The area is in Fair Range Condition. There are very heavy grazing pressures from elk and horses. 	2,870 This is the total number of days available for elk and horse combined.
Horse Shoe Mt. NRM 123	<ul style="list-style-type: none"> Picture 14 (riparian) – site is dominated by willow, sedge, luzula, Jacob's-ladder, altai fescue and a minor component of bluejoint. The area is in Excellent Range Condition. The soils are very wet. Picture 15 & 16 (meadow near campsite) – site is dominated by willow, shrubby cinquefoil, altai fescue, alpine timothy, Jacob's-ladder, slender wheatgrass and monkshood. The area is in Good Range Condition. Picture 17 (burn slope above campsite) – site is dominated by hairy wildrye, sedge, Jacob's-ladder, and altai fescue slower on the slope. The area is Excellent Range Condition. 	200 This is the total available if the burn slope close to the campsite is utilized. If only the meadows near the campsite are utilized, there are only 58 horse days.
Halfway Meadow NRM 125	<ul style="list-style-type: none"> Picture 19 (meadow) – site is dominated scrub birch, willow, wild strawberry, lupine, shrubby cinquefoil, awned wheatgrass, rose, Kentucky bluegrass, and a minor component of altai fescue. The area is in Fair Range Condition. The area receives heavy grazing pressure from elk. 	1035 This is the total number of days available for elk and horse combined.

Composite &

Range sites in NRM

NRM 114	2715 A	1 day on Chula east of Hany, CK.
115	2716 A	Moore CK
116	2717 A	Upper Moore CK
117	2717 B	Upper Toilet CK
118	2717 C	Lower Toilet CK
119	2718 A	Big upper Toilet up from N.W. corner, cabin
120	2720 A	Lower Toilet CK
121	2723 A	Deer dog mound
122	2727 B	east of Hany CK
123	2728 A	
124	2728 B	
125	2811 B	- Hany, in section
126	2811 A	- south CK.

At
MHW/

See Perry's Report.

Rango Sitas -1999

Site ID	Latitude	Longitude	Range condition	Horse Grazing Days	Improvement Potential
PRO1A1	57 42.007'	124 06.130'	E	312	M
PRO2A2	57 33.169'	124 18.634'	E	140	M
PRO3A3	57 39.736'	123 52.629'	GE	1250	M
PRO4A4	57 41.235'	123 41.034'	E	1575	G
PRO5A6	57 38.735'	123 31.380'	E	750	G
PRO7A7	57 38.198'	123 28.140'	E	430	G
PRO8A8	57 41.155'	123 24.422'	E	20	G
PRO9A9	57 41.595'	123 19.649'	GE	25	M
PRO10A10-1	57 38.278'	123 22.351'	GE	550	M
PRO11A10-2	57 39.168'	123 22.512'	GE	3300	G
PROA11	57 33.233'	123 23.019'	E	1200	M
PROA12	57 29.324'	123 22.761'	E	1500	M
BHC1A13	57 26.599'	123 24.613'	E	525	N
BHC2A14	57 29.713'	123 23.066'	E	2100	M
PRO13A15	57 30.677'	123 27.498'	E	4560	N
PRO14A16	57 31.546'	123 36.152'	E	337	N
PRO16A17	57 35.051'	123 36.086'	GE	75	N
PRO18A18	57 35.153'	123 43.450'	GE	225	G
PROA19	57 29.202'	123 51.013'	GE	125	N
BHC3A20	57 25' 17.4"	123 48' 16.8"	P	0	N
BHC4A21	57 19.682'	123 41.357'	FGE	600	N
BHC5A23	57 26.487'	123 39.881'	GE	110	N
BHC7A26	57 27.2'	123 19.581'	E	1000	N
BHC8B2	57 10.823'	123 11.111'	G	560	G
BHC9B3	57 07.718'	123 08.784'	GE	450	G
BHCB4	57 07.693'	123 13.282'	G	1800	M
BHC10B5E	57 11.013'	123 16.426'	GE	366	M
BHC11B5W	57 11' 06.3"	123 18' 9.3"	E	60	M
BHCB6	57 07.590'	123 17.761'	E	375	M
BHC12B7	57 04.259'	123 16.841'	E	938	M
BHC14B10	57 54.312'	123 34.414'	GE	52	M
BHC15B11	57 54.737'	123 47.392'	E	560	G
BHC16B12	56.54.198'	123 47.626'	GE	555	G
BHCB13	56.53.654'	123 35.893'	E	125	M
BHC17B14	56 51.929'	123 37.641'	E	750	M
BHC18B15	56.50.962'	123 42.889'	E	245	M

BHC19B16	56 55.396'	123 31.119'	GE	2340	G
BHC17	56.53.802'	123 29.422'	E	45	M
BHC18	56 51.614'	123 29.422'	E	480	G
BHC19	56 51.485'	123 28.602	E	530	M
BHC20	56 47.505	123 28.007	E	37	M
BHC20B20-2	56 50.975'	123 12.715'	E	780	G
BHC21B20-3	56 50.950'	123 11.810'	E	410	G
BHC21	56 52.506'	123 24.260'	E	985	MG
BHC22	56 54.483'	123 21.623'	E	375	M
BHC23	56 54.124'	123 14.852'	E	50	M
BHC22B24	56 53.497'	123 9.476'	E	450	G
NRM114R	58.48896	124.2962	GE	20	N
NRM115R	58.56197	124.33563	E	24	N
NRM116R	58.54152	124.27734	FGE	60	G
NRM117R	58.51858	124.33334	GE	42	G
NRM119R	58.50868	124.5617	PG	22	N
NRM120R	58.44601	124.61428	E	12	N
NRM121R	58.31555	124.00016	FGE	2870	M
NRM123R	58.13413	124.03008	GE	200	N
NRM125R	58.0638	123.96101	FGE	1035	M