Appendix D: Innovative Range Management Techniques

This appendix will provide a menu of range management practices and developments that will be used to achieve the strategies outlined *in Section 4.1 – Grassland Restoration and Management*. This appendix will not attempt to provide the reader with a brief lesson in range management, but will discuss some of the tools to be used by the Ministry of Forests in achieving grassland goals in the Churn Creek Protected Area.

I. Stocking Rates.

Selection of the correct stocking rate is the most important of all grazing management decisions from the standpoint of vegetation, livestock, wildlife, and economic return. The Society for Range Management defines stocking rate as "The number of specific kinds and classes of animals grazing or utilizing a unit of land for a specified time period." It is normally expressed as area of land per animal unit month. In the case of beef cattle an animal unit is consider to be a 454 kg cow with or without a suckling calf at foot.

Appendix E of this plan gives a detailed report of stocking rates and a justification for them relative to the Cariboo-Chilcotin Land-Use plan and proposed use levels.

Historic use of the ranch was 1000 to 1500 cows plus breeding heifers. For many years the ranch also grazed over 100 head of horses through the winter months. The proposed initial stocking rate of 525 cows including bulls is a conservative figure which will provide for a maximum rate of recovery on depleted range sites, while providing an economically viable situation for a ranch operator. The maximum allowed under the plan will be 700 cow/calves including bulls.

II. Livestock Distribution.

The rangelands of the Churn Creek Protected area are a diverse mix of topography, vegetation types, seral stages and water availability. All of these factors combine to create a situation where livestock graze preferred sites and tend to leave less preferred areas without use. Range condition on heavier used preferred sites can be improved by managing livestock away from these areas by various means such as:

1. Water Development

The Empire Valley portion of the Churn Creek Protected Area has many lightly used or non-used sites that could be grazed with the development of livestock watering sites. These can include wells, dugouts, waterlines, to water troughs from existing water sources and spring development. Water development can also protect riparian areas from over use and trampling by livestock, by providing alternate water sources.

Providing stock water in less preferred areas will reduce grazing pressure in preferred sites and may allow improvement in range conditions.

2. Salting Practices

Salt should be placed in locations that will encourage greater use of less preferred grazing areas. Salt should also be removed from an area when planned use has been achieved.

On adequately watered sites that receive little or no use, salt can be placed near water to establish use of the area. Salt locations must then be moved when stock use becomes established.

Cattle should be "salt hungry" when moving to a new pasture or grazing area. Salt can then be used to promote use in less preferred sites.

3. Herding

Because of the diverse terrain, vegetation and general lack of well-dispersed water, livestock use in the CCPA must be attended by two full time riders. Stock can be driven out of the preferred grazing sites and dispersed into lightly used area. Extra herding also benefits conception rates, health care and monitoring of forage use.

4. Fencing

Well-maintained fences are excellent management tools for controlling cattle and confirming them to a particular grazing area for an appropriate time. Fences are useful for:

- Controlling seasonal drift.
- Regulating use among forage types or protecting choice grazing areas for selective use, and protecting critical sites from grazing where required.
- Forcing cattle to graze previously underutilized or new areas; and
- Separating pastures.

Livestock grazing patterns should be observed prior to new fence construction. Fences should promote acceptable levels of grazing on both underused and preferred sites. The splitting of a large pasture into two or more smaller pastures could reduce the grazing period on the individual pastures and improve distribution. Fences may be permanent or temporary (i.e. electric).

5. Trails

Trails can improve livestock distribution on steep terrain by offering livestock modest grades to traverse in order to get to sites not normally used. Trails also will allow stock better movement through thickly forested sites and will make herding more efficient.

Trails along fences will reduce livestock pressure against fences and will also assist in herding.

6. Encroachment Control

Livestock prefer to spend their time on grasslands rather than in forested sites. Because many grassland sites on the Protected Area are being encroached by forest, livestock distribution is being impacted. Control of forest encroachment will improve livestock distribution and overall forage production.

III. Grazing Systems

Grazing systems manipulate livestock use in a systematic and planned manner to achieve objectives through correct stocking, controlling season of use and prescribed rest periods. Grazing systems control the timing, intensity and frequency of grazing, and if properly designed and implemented can improve livestock distribution and range condition. Within the CCPA, development of grazing systems must also include consideration of recreation, critical habitats, rare and endangered species and any other issue that deals with the natural features or use of the area.

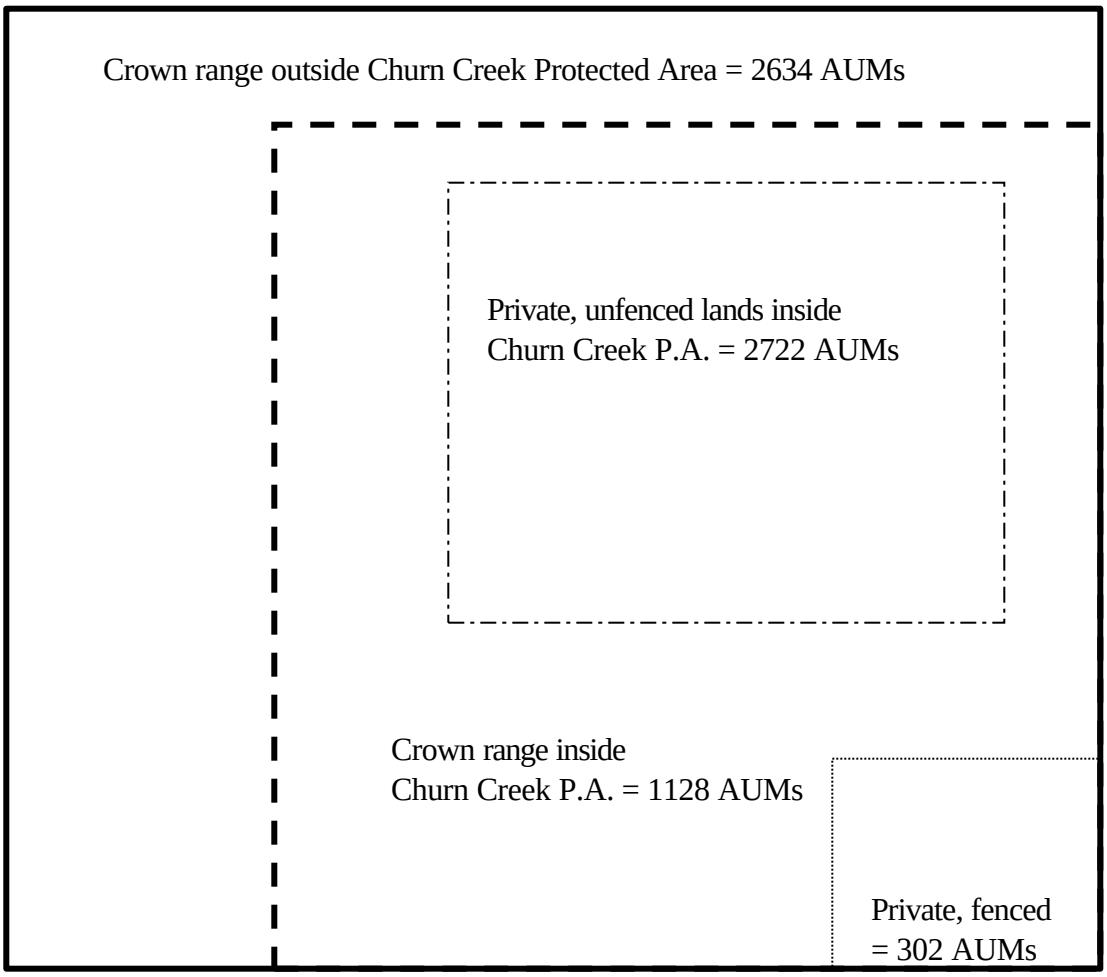
Grazing System Considerations in CCPA

- Develop a rotational system of use on spring ranges which would allow for alternate year use. This will be fully operational only when adequate fencing and water developments have been constructed.
- Dormant season use only, on some depleted range sites.
- Critical habitat and riparian area protection where warranted.
- User flexibility on winter grazing.
- Use of some non-legume hayfields for spring grazing will be considered.
- Expanded use of forested rangelands outside the Protected Area as logging improves access and forage production.

IV. Livestock Management

The operator of Empire Valley Ranch will be restricted to one herd of animals. No separate yearling steer pastures or heifer breeding pastures will be considered. This will allow more flexibility in developing spring use rotations and reduce sites that could be subject to season-long use by yearlings.

Appendix E: AUM's and the Churn Creek Protected Area



Legend

Original total base of the former Empire Valley Ranch. This includes private fenced, private unfenced, Crown range outside what is now Churn Creek Protected Area (i.e. Blackdome mountain) and the Crown range inside what is now the Churn Creek P.A.

Private, *fenced lands* of the former Empire Valley Ranch

Private, *unfenced lands* of the former Empire Valley Ranch

Churn Creek Protected Area

Churn Creek Protected Area and Animal Unit Months: An Explanation

Background

There have been many discussions at the Churn Creek Local Advisory Group about the appropriate number of cows that should be in the Churn Creek Protected Area. The Cariboo Chilcotin Land Use Plan provides the following direction on cattle numbers:

> "The maximum level of animal unit months (AUM's) in protected areas will be set at the existing level of authorized AUM's as of October 24, 1994. The Ministry of Forests will prepare a report that identifies these authorized AUM levels." (page 37, *CCLUP 90 Day Implementation Report*)

An animal unit month (AUM) is the amount of grass a cow and calf will eat in a month.

For example, if a pasture has a permit for 1000 AUMs, then 1000 cow/calves can be in that pasture for one month, 500 cow/calves for two months, or 250 cow/calves for four months.

Calculating AUM's for the Churn Creek area is complex. Instead of having a permit for a certain number of AUM's in a particular pasture (as above), ranchers in the Churn Creek area have always used a "flow chart" system. Since the Empire Valley Ranch (EVR) is the only ranch in the area (EVR is separated from Gang Ranch by Churn Creek), the EVR has had the option of grazing areas differently each year without conflicting with another ranch's cattle. Pastures were rotated to recover grass or to better utilize certain areas. At the beginning of the year, the ranch would plan where it was going to graze for the summer and submit a flow chart to the Forest Service describing where they were going to be and for how long. AUM's would then be calculated based on this flow chart.

For example, if the Empire Valley Ranch took 2 weeks to move 500 cow/calves through China Lake Pasture, then the Ranch would have used a total of 250 AUM's in that pasture (1/2 month x 500 cow/calves = 250 AUM's).

Holdings and Range Permits of the Empire Valley Ranch

The diagram on the previous page shows a simplified version of the holdings and range permit of the former EVR. It is important to note that the EVR used, and still uses range both inside and outside the Churn Creek Protected Area boundary.

The thick black outside line of the diagram ( ) represents the entire range area (holdings and permits) used by the EVR. This thick black line includes unfenced private lands, fenced private lands, Crown range in the mountains, and Crown range inside what is now the Churn Creek Protected Area.

The thick dashed line ( ) represents the Churn Creek Protected Area. Note that the Protected Area only covers a portion of the EVR range permit area.

The thin dashed line ( ) represents the unfenced private lands of the EVR. While these lands were privately owned by the EVR, they still required a range permit from the Forest Service to graze them. This was because the ranch could not guarantee their cows would not wander onto Crown land.

Finally, the small box in the bottom right shown in the dashed line ( ) represents the fenced, private land of the EVR. These are the "Specialty Pastures" described in *Section 4.1 – Grasslands Restoration and Management*. Since these areas were fenced and cows could not wander onto Crown land, Forest Service range permits were not required.

Historic Range Use by the Empire Valley Ranch

At the time of the Cariboo Chilcotin Land Use Plan, the Empire Valley Ranch had 754 cows on their holdings and range permits (inside the thick black line). Those cows were traditionally turned out on rangelands on April 1st and stayed on range until December 31st (nine months). From January 1st to March 31st they are fed baled hay on the hayfields.

9 months x 754 cows = 6,786 AUM's used by the Empire Valley Ranch on all the land inside the thick black line

Next, we break down where those 6,786 AUM's were used:

A. The EVR usually used the summer range in the mountains from July 1 until October 15. That is three and a half months.

3 1/2 months x 754 cows = 2639 AUM's in the mountains outside the Protected Area

B. The EVR had what was called a "Private Land Deduction" for its private, unfenced lands inside the Protected Area. This was a figure that the Forest Service had calculated years ago that showed how many AUM's were associated with the Empire Valley Ranch's private unfenced land. The Forest Service subtracted the "Private Land Deduction" from the bill it sent the EVR for range it used during the year, since the Ranch would not pay for grass it owned. The historic figure Private Land Deduction was 2722 AUM's.

2722 AUM's for EVR's private unfenced lands

C. Crown range inside the Churn Creek Protected Area also had an AUM figure allotted to it by the Forest Service. When the CCLUP was created, the Forest Service was asked to determine their "best guess" of how many AUM's were associated with the non-private range inside the Protected Area. They estimated this at 900 AUM's. The figure has been revised to 1128 AUM's. The switch from 900 to 1128 will be explained in the next page.

1128 AUM's for Crown range inside the Churn Creek Protected Area

D. The EVR also had fenced private land inside what is now the Protected Area. These "Specialty Pastures" did not require a range permit, so an AUM figure was never calculated for them. Therefore, we have to determine AUM's through a process of elimination:

Empire Valley Ranch total estimated AUM's =	6,786
Subtract AUM's for the mountains outside P.A.	- 2,634
Subtract AUM's for private unfenced land	- 2,722
Subtract AUM's for Crown range inside P.A.	- 1,128
= Estimated AUM's for private fenced land	302

302 AUM's for private fenced land

The Empire Valley Ranch and the Cariboo Chilcotin Land Use Plan

In 1998, Forest Renewal BC - following recommendations of the Cariboo Chilcotin Land Use Plan - purchased the private (fenced and unfenced) lands of the Empire Valley Ranch for the purpose of "grasslands conservation." These lands were then added to the Churn Creek Protected Area. The CCLUP was very clear that existing permits would continue to be honoured. Since all the private unfenced lands were covered by a Crown range permit, grazing would continue in these areas. The private fenced lands, however, never had a range permit since it was not required. Grazing on these "Specialty Pastures" was optional, since the CCLUP only directed that existing permits would continue.

The calculations show that there are 302 AUM's associated with the private fenced lands (a.k.a. Specialty Pastures). It has also been shown that cattle, on average, graze on range for nine months and are fed for three months. Cattle graze outside the Protected Area for 3 1/2 months (July 1- October 15) and inside the Protected Area for 5 1/2 months (April 1- June 30 and again from October 15 - December 31).

So, if 302 AUM's are divided by the 5 1/2 months they graze inside the Protected Area (302/5.5) it is clear that 54 cows (302/5.5 = 54) are associated with the private fenced lands.

When the private fenced lands were purchased, grazing was optional, not mandatory. So the option not to graze these private lands was exercised and they were taken out of the grazing land base of the Empire Valley Ranch. The ranch's smaller land base can now support 54 fewer cattle (754 cattle originally - 54 cattle associated with private fenced land).

In order to be consistent with the CCLUP, the Empire Valley Ranch supports 700 cows, not 754 cows.

Cariboo Chilcotin Land Use Plan vs. Proposed Levels of Grazing

(The following is hypothetical scenario to show how AUM targets can be met in the Churn Creek Protected Area. This scenario does not suggest pre-approval for any geographic distribution or timing of domestic livestock grazing)

CCLUP @ 700 Cows		**Proposed @ 525 cow/calves including bulls**	
Spring turn out (April 1- June 30)		Spring turn out (April 1- June 30)	
700 cows x 3 months =	2,100 AUM's (inside P.A.)	525 cows x 3 months =	1,575 AUM's (inside P.A.)
Mountains (July 1 - Oct 15)		Mountains (July 1 - Oct 15)	
700 cows x 3 1/2 months =	2,450 AUM's (outside P.A.)	525 cows x 3 1/2 months =	1,838 AUM's (outside P.A.)
Fall (October 15 - December 31)		Fall (October 15 – December 31)	
700 cows x 2 ½ months =	1,750 AUM's (inside P.A.)	525 cows x 2 1/2 months =	1313 AUM's (inside P.A.)
Total AUM's used by EVR =	[1] 6,300 AUM's	Total AUM's used =	4,726 AUM's
subtract time outside P.A.	- 2450 AUM's	subtract time outside P.A.	- 1,838 AUM's
Target AUM's for P.A. =	[2] **3,850 AUM's**	Base Used in Protected Area =	2,888 AUM's
		Potential Additional Grazing	
		1 week Churn Flat in January	132 AUM's
		2 weeks Clyde Mntn in February	262 AUM's
		1 week early turnout in March	132 AUM's
		Actual AUM's Used	**3,414 AUM's**

[1] difference between 6,786 AUM's and 6,300 AUM's is the 54 cows (54 x 9 = 486) eliminated

[2] There are 3,850 AUM's in the Protected Area. 3,850 AUM's - 2722 AUM's EVR's private unfenced land (Private Land Deduction) = 1128 AUM's, not the 900 earlier estimated. This means AUM target actually increases by 228 in the Protected Area.

Conclusion

The CCLUP target for range use in the Churn Creek Protected Area is 3,850 AUM's. With the range use scenario outlined below, a herd of 525 cow/calves including bulls will use 3,414 AUM's.

Basic grazing in the CCPA		2,888 AUM's
Potential Extra grazing		
- grazing Churn Flats for one week in January =	132 AUM's	
- grazing Clyde Mountain for two weeks in February =	262 AUM's	
- herd turned out a week early this year =	132 AUM's	526 AUM's
Total AUM's Used in CCPA		3,414 AUM's

In summary, 525 cow/calves including bulls, grazed as outlined above, does not meet the exact target of the CCLUP. However, the CCLUP states that 3,850 AUM's is only a "maximum amount of AUM's." The extra 436 AUM's can be reached over time as forage and range quality continues to improve.