

**BREWER RANCH  
REST-ROTATION GRAZING PLAN**

**Montana Department  
of  
Fish, Wildlife & Parks  
Region 7**

Prepared by:

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## BREWER RANCH REST-ROTATION GRAZING PLAN

### I. BACKGROUND

On September 11, 1989, Neil Martin, Wildlife Manager, Region 7, Montana Department of Fish, Wildlife & Parks, Miles City, Montana wrote me as follows:

"Dear Gus,

I happily announce the 50 sections of Brewer property is now in our ownership. We have been instructed to establish a rest-rotation grazing system and would appreciate your guidance and direction .... I would like to arrange a field inspection with you as soon as possible .... "

I examined the ranch with Neil, two of his associates Gregg Risdahl and Bernie Hildebrand, and Mike Moullet the ranch manager on October 10, a month later. The prospect of applying rest-rotation grazing in proper form looked good. I agreed to develop the grazing plan and see it into practice.

The need for rest-rotation grazing on the ranch is great. The vegetation has been heavily deteriorated under past conventional continuous grazing. Desirable plants have been killed out and replaced by undesirable ones. Most serious, the plant cover has been thinned resulting in erosion and reduction in soil production capacity. The yield and quality of all renewable resources - livestock, wildlife, water, recreation, esthetics and the others have been greatly reduced.

Continuous grazing is practiced generally on western range lands - federal, state, Indian and private. It is employed by the Forest Service on the national forests and by the Bureau of Land Management on the public lands. Maintenance of the range with this type of grazing is based on the belief that overstocking is the cause of range deterioration, that with overstocking plants are grazed too closely and killed. Further it is based on the belief that proper

use of plants can be obtained by stocking the range with the proper number of animals. Proper use of plants cannot be obtained by this means or any other for that matter. Livestock graze the range selectively by plant species and areas. They graze preferred plants and areas beyond proper use level under the lightest stocking. Plants around water and in riparian areas are examples. Some plants are killed and the range deteriorated as long as the range is used.

Plants are killed by grazing not because they are grazed too closely but because they are grazed closely continuously. With such use the plant can't make adequate food for sustenance. The plant can be maintained under the closest use, however, if it is periodically rested from use so it has time to make and store a normal supply of food, recover growth capacity and reproduce. Resting is provided with rest-rotation grazing. The range is divided into pastures. Some are grazed each year and others are rested so the plant can carry out its normal life functions undisturbed.

The effect of continuous grazing on the vegetation on the Brewer Ranch and of rest-rotation grazing on five range areas in three states is shown in photographs to follow.

A. Continuous Grazing Brewer Ranch

The ranch is located in the plains region of southeast Montana near the community of Powderville. It is about 34,434 acres in size. Low hills rise 200 to 300 feet above the surrounding gently sloping terrain on about 20 percent of the area. Two intermittent streams Stump Creek and Timber Creek drain the area.

1. Vegetation

Four main types cover the ranch - grassland, sagebrush, conifer and riparian (figs 1,2,3)



September 12, 1990

H 28,783

Figure 1 -- Grassland type covers most of the ranch. Blue grana, hair sedge, buffalo grass, western wheatgrass, Columbia needlegrass and bluebunch wheatgrass were dominant in the plant composition on particular sites at one time.



October 10, 1989

H 29,492

Figure 2 -- The conifer and sagebrush types occupy thin soil areas in drainage ways and on slopes and ridges.



September 12, 1990

H 28,761

Figure 3 -- Riparian type lines stretches of Stump and Timber Creeks.

## 2. Vegetation deterioration

The ranch has been grazed yearlong by cattle on a cow-calf production basis. A few stock horses and milk cows have been involved in the operation. The stock were grazed on eight seasonal grazing areas (SGAs). Particular stock were grazed in particular SGAs continuously year after year. Generally stocking was heavy. The vegetation was heavily deteriorated with this use. Vegetation deterioration can be seen in -

1. Overall reduction in perennial plants.

2. Reduction of fibrous rooted plants - grasses, sedges and the like and replacement by tap or cord-like rooted plants - shrubs, trees and broad leaf herbs; by annuals or by succulents (cactus). These changes are clearly evident in the grassland type (figs 4,5,6,7,8,9,10)



October 10, 1969

H 28,541

Figure 4 -- Sagebrush and rabbitbrush established widely on upland and lowland areas as the grasses were killed out.

October 10, 1989

H 28,529

Figure 5 -- Broadleaf herbs now grow on large portions of some valley areas. They provide poor soil cover.

October 10, 1989

H 28,462

Figure 6 -- Annuals of various kinds increased over the ranch. Cheatgrass forms dense stands in places as here.



September 12, 1990

H 28,781

Figure 7 -- Prickly pear cactus also established widely. It is often masked by taller growing vegetation and not seen.



September 12, 1990

H 28,732

Figure 8 -- Stocking was less than half of normal in 1990, yet the vegetation around reservoirs was grazed far beyond proper-use level.

October 11, 1989

H 28,567

Figure 9 -- The consequence of continuous grazing and trampling.



June 7, 1991

H,28,814

Figure 10 -- The Powder River along the northwest side of the ranch laden with silt from surrounding range and farmlands. Loss of soil is the most serious consequence of continuous grazing on the ranch.

## B. Rest-Rotation Grazing

Results with rest-rotation grazing on five range areas in three states are shown in following photographs.

- |  |            |
|--|------------|
| 1. Harvey Valley Allotment             | California |
| 2. Herd Creek Allotment                | Idaho      |
| 3. Indian Jake Allotment               | Idaho      |
| 4. Sage Creek Allotment                | Montana    |
| 5. Mt. Haggin Wildlife Management Area | Montana    |

All five areas were heavily deteriorated with grazing by both cattle and sheep in the past. Now under rest-rotation grazing they are grazed by cattle only. The vegetation on the areas has improved steadily. Improvement can be seen in -

1. Overall increase in perennial plant cover.
2. Increase in fibrous rooted plants, grasses, sedges and the like, at the expense of other kinds - tap rooted, annuals and succulents.

The vegetation improved more rapidly on wet sites than on dry ones and on non or lightly eroded sites than on more heavily eroded.

Supplement

Brewer Ranch  
Rest-Rotation Grazing Plan

LEADERS

WILDLIFE MANAGEMENT AREA  
Montana Department of Fish, Wildlife & Parks

Rest-rotation grazing started 1982.

July 27, 1979

H 21,923

July 25, 1986

H 27,206

Figure 32 -- Main vegetation types - riparian, grassland, sagebrush, conifer.

October 1, 1960

H 22,804

October 19, 1991

H 29,070

Figure 33 -- Vegetation cover is increasing steadily on upland areas.

October 18, 1979

H 22,333

July 29, 1986

H 27,431

Figure 34 -- This eroded area revegetated well in 4 years.

October 19, 1991

H 29,087

October 19, 1991

H 29,045

Figure 35 -- Vegetation established in the stream channel under the closest use. Herbaceous and woody vegetation are growing and being maintained in a thrifty productive condition.



C. No Other Way

July 29, 1986

H 27,441

Figure 36 -- Heidi Yoman, Department Wildlife biologist viewing the heavy growth of vegetation on the Mt. Haggin area.

Vegetation is the basis of all renewable resources. It can be maintained on the range only by periodically resting the range from use, only by practicing rest-rotation grazing. There is no other way.

With rest-rotation grazing all plants and areas are rested from use. Maximum vegetation is produced controlling soil erosion and enhancing the production of all renewable resources. A greater amount and higher quality vegetation is produced with rest-rotation grazing than with no grazing at all. Biodiversity is maintained. With rest-rotation management livestock can be grazed on rangelands in harmony with other uses and the natural environment indefinitely.

## II. GRAZING PLAN

The plan is not complete at this stage. Some features will not be finalized until after grazing is underway. However, the basic frame work of the plan has been developed. The grazing systems that will be used have been formulated. The location of most of the pasture fences have been determined and construction is under way.

### A. Planning



October 10, 1989

H 28,494

Figure 37 -- Left to right Gregg Risdahl and Neil Martin of the Department. Mike Moullet Brewer Ranch manager, Bernie Hildebrand also of the Department.

These men provided essential information on the resources and operation of the ranch. The plan could not have developed without their input.

### B. Objectives

Two main objectives are sought -

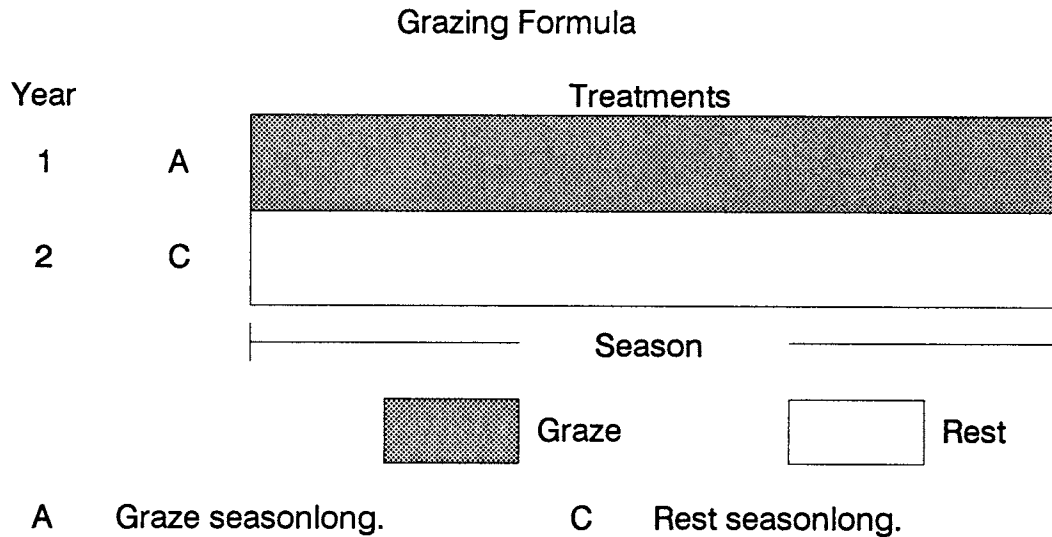
- 1- Restore and maintain the vegetation cover on the range at site capacity.
- 2- Maximize the production of livestock, wildlife and all other renewable resources while accomplishing 1.

C. Grazing Systems

Two grazing systems will be used. A 2-pasture system on areas grazed in winter and spring and a 3-pasture system on areas grazed in summer and fall or yearlong.

2-Pasture System

With this system one pasture is grazed and the other rested through the season each year. Each pasture is grazed one year and rested the next over time. This sequence of treatments constitutes the grazing formula. It is shown below together with a grazing schedule for the pastures over a 6 year period.

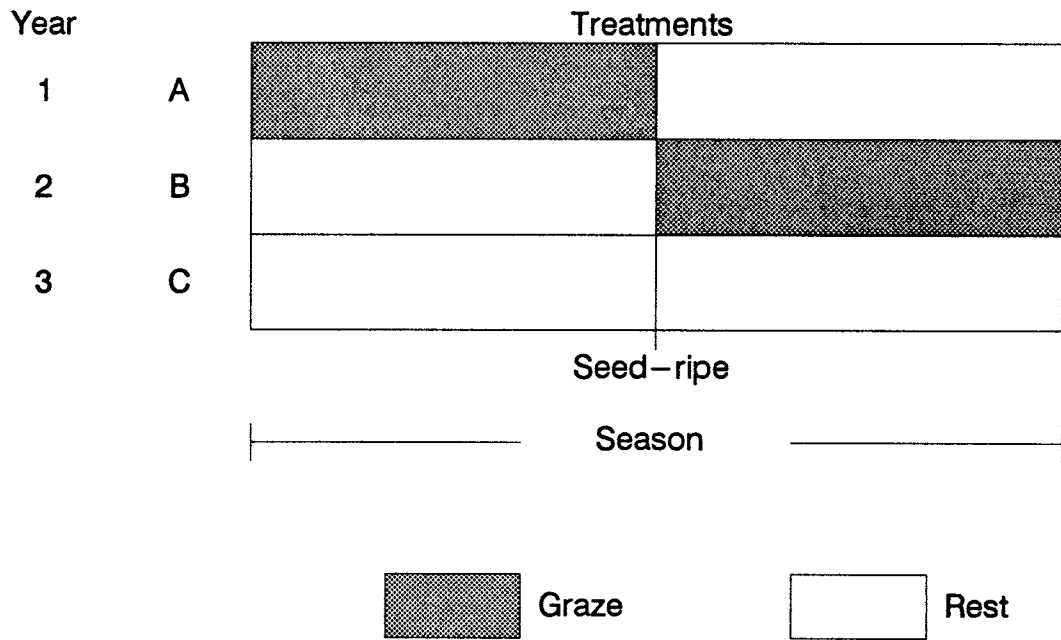


The grazing schedule for the pastures for 6 years is:

Year	Pastures	
	1	2
	Treatments	
1	A	C
2	C	A
3	A	C
4	C	A
5	A	C
6	C	A

### 3-Pasture System

#### Grazing Formula



- A    Graze from beginning of grazing season to seed-ripe time.  
Rest thereafter to end of season.
- B    Rest from beginning of grazing season to seed-ripe time.  
*Graze* thereafter to end of season.
- C    Rest seasonlong.

#### Grazing Schedule

Year	Pastures		
	1	2	3
1	A	B	C
2	B	C	A
3	C	A	B
4	A	B	C
5	B	C	A
6	C	A	B

The systems will be applied on the 8 seasonal grazing areas (SGAs) on the ranch (fig 38) (table 1).

#### Pasture layout

Good results with rest-rotation grazing depend on a grazing formula that provides the resting needed to maintain the vegetation and equally important on a pasture arrangement that facilitates easy and timely application of grazing treatments. If treatments are difficult to apply they may not be applied properly or at all.

With rest-rotation grazing pastures are laid out so they join and stock can move from one to another through gates by themselves. This way treatments are properly applied and stock gain more weight. The cost of rounding up and herding stock into a new pasture is eliminated. The pastures on the ranch are being laid out in this arrangement.

#### Grazing Operation

Stock will be grazed on the 8 SGAs as before but now in designated pastures. On SGAs embracing the growing season, SGAs 2, 4, 6, 7 & 8, the stock will be grazed in one pasture then another during the season. The move of stock between pastures will be affected simply by opening gates.



Figure 38 -- Seasonal Grazing Areas (SGA)

Table 1 – Seasonal Grazing Areas and Grazing Systems

SGA	Grazing System	Stock	Grazing treatment
1	2–Pasture	Cows	A 1/15–6/1 (SFG) ❶
2	3–Pasture	Cows	A 6/1–8/1 (SR) ❷ B 8/1–1/15
3	2–Pasture	Heifers	A 12/15–5/1 (SFG)
4	3–Pasture	Heifers	A 5/1–8/1 (SR) B 8/1–12/15 B 12/15–1/5
5	2–Pasture	Heifers (Calving)	A 1/15–4/15
6	3–Pasture	Milk Cows	A 2/1–8/1 (SR) B 8/1–2/1
7	3–Pasture	Horses	A 2/1–8/1 (SR) B 8/1–2/1
8	3–Pasture	Horses	A 2/1–8/1 (SR) B 8/1–2/1

❶ SFG – Start of fast growth

❷ SR – Seed-ripe

#### D. Yet To Be Done

Some of the things in sight now are -

1. Locate pasture fences in SGAs 5,6,7 and 8. The advice of Mike Moullet and the new ranch manager is needed here.
2. Prepare a salting plan.
3. Prepare a feeding grounds plan.
4. Establish livestock ~~ex~~losures to see results without livestock grazing.
5. Establish photo plots for monitoring vegetation and soil changes. Photographs are invaluable in many ways. They are a means by which the ranch manager can see how he is doing. He can check on the range anytime. He doesn't need word from the "expert" or results from long time studies. It is stimulating to him to see the good he is doing for himself and the environment.

Points 2 to 5 will be tended to the first year of grazing operation.