

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Washington, D. C. 20240

In Reply Refer To:
4112.15 (712a)

January 3, 1966

Instruction Memo No. 66-7
Expires 6/30/66

To: SD's, DM's and SC's

From: Assistant Director, Resource Management

Subject: Inventory of range allotment plan needs FD 2/15/66

The Bureau's long run objective is to require a range management action plan for each allotment within a planning unit (Grazing Administration Manual, Part 4112.15). The development of these action plans is a logical step following the adjudication program. This plan would indicate how the multiple use objectives, as developed in the planning unit analysis, might be carried out in so far as range management is concerned.

The purpose of the memo is to obtain an estimate of the number of separate allotments involved and the extent of existing operation plans, if any. You should assume each range allotment will contain either different land conditions and/or operator(s). Each separate allotment, therefore, will require a different management plan based upon existing conditions. We wish to emphasize that the range management action plan as described in BLM Manual 4112.15B requires a grazing management system be adopted for each area. The manual Part 4112.16 describes several grazing systems that may be employed. The design of any system may be modified to fit the local conditions as long as the physiological requirements of the vegetation are being satisfied..

It is possible that many areas such as the Type IV planning unit will not require management plans in the foreseeable future. These areas should not be included in your inventory. We do not intend for this report to require a lot of your time, particularly field work. The objective is to obtain the best available estimate of the total range management allotment planning needs.

Each district manager should inventory his area of responsibility and submit completed copies of the enclosed form to the State Director. The State Director should then forward one copy for each district to this office (attention 712a) by February 15, 1966. A separate report is requested for "inside" and "outside" the district.

A supply of the format to be used is enclosed. Your narrative comments will be appreciated.


Acting

1 Enclosure (regular distribution plus
10 encl. to ea. SO & DO)

Enclosure 1 - Range Allotment Plan
Needs Inventory

Distribution: w/encl

D&RM - 5
IA - 15
712a - 10
RPM - 5
HE - 1

RANGE ALLOTMENT PLAN NEEDS INVENTORY

Date _____

A Bureau inventory of the total needs for range allotment plans. Each allotment within Type I, II, & III Planning Units is to be covered by a management plan based upon good range management principles.

State _____ District _____

(check one)
 Inside District (Sec. 3) _____
 Outside District (Sec. 15) _____

Individual Area of Use:

<u>Approximate Size (A of public land)</u>	<u>Total No. of Plans Required</u>	<u>No. of Operators Involved</u>	<u>No. of Plans in Operation</u>	<u>No. of Operators Involved in these</u>
0-2000	_____	_____	_____	_____
2,000-6,000	_____	_____	_____	_____
6,000-15,000	_____	_____	_____	_____
15,000-50,000	_____	_____	_____	_____
50,000-250,000	_____	_____	_____	_____
250,000 +	_____	_____	_____	_____
Total	_____	_____	_____	_____

Common Use Areas

<u>Approximate Size</u>	<u>Total No. of Plans Required</u>	<u>No. of Operators Involved</u>	<u>No. of Plans in Operation</u>	<u>No. of Operators Involved in these</u>
0-2000	_____	_____	_____	_____
2,000-6,000	_____	_____	_____	_____
6,000-15,000	_____	_____	_____	_____
15,000-50,000	_____	_____	_____	_____
50,000-250,000	_____	_____	_____	_____
250,000 +	_____	_____	_____	_____
Total	_____	_____	_____	_____

* The number of operators involved may not be the total in the district as many may operate in more than one allotment, individual and/or common. Please use the back for narrative comments.

Dunford

Memorandum

TO : E. B. Dunn, Asst. Reg. Forester, R-5

File No. 4810

FROM : R. D. Ratliff, Project Leader

Date: January 4, 1966

SUBJECT: Range Programs (Outline of Harvey Valley report)

Your reference:

Thank you for your comments on the outline of the Harvey Valley report. Mr. Dunford has asked that I answer the questions you posed in your memo of December 10, 1965. I shall tie my answers to this memo and the report outline.

II A. This section will deal with the history of grazing use (numbers and seasons) on the allotment rather than the research that has been done. We will treat the Burgess Springs work in Section II B.

II C. Yes, we plan to present cost figures in this section. This will likely take the form of a table showing what was done, when it was done, and the costs involved.

IV D. I think you are correct. We were interested in how the cattle gained under the two management systems, not in specific factors influencing their gains.

-2

In reference to your question on browse use by cattle, we have very little information on this subject. Bitterbrush was considered in some of our past utilization work. However, no effort was made to separate use by cattle and deer. I think there is visual evidence to indicate that (in the Harvey Valley area) rest-rotation tends to permit a more open growth form of bitterbrush than does season-long grazing. If this is true, then care must be taken not to extend the idea that rest-rotation favors bitterbrush too far afield. We must remember that Harvey Valley is on summer deer range. As such, bitterbrush in the area is not subjected to large concentrations of deer in the winter. An open growth form may result in greater damage to bitterbrush than a hedged form in heavy deer concentration areas.

Regarding your last question, we can only repeat Dunger's estimate of the expected improvement resulting from management and from cultural work. Our studies at Harvey Valley were not designed to determine the relative contributions of management and cultural practices to range improvement. I wish we could separate their effects, but I see no way of doing so.

Norman



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

1781.1 (712a)

January 6, 1966

Don't

*I told you about this in December
when the Worland District first contacted me
their W.O. is now being. Will handle
this and the F.S. training session in Utah
on the same date*

Plot

Memorandum

To: SD-Wyo

From: Chief, Range Management Staff

Subject: Attendance of Gus Hormay at range management clinic -
Worland District

Mr. Gus Hormay was contacted on January 4 and he has accepted your invitation to attend the range management clinic, February 20-24 in Wyoming. As per your memorandum (weather permitting), Gus will arrive in Worland via Frontier Airlines on February 20. He has been advised that the meetings will be held in Worland, Greybull, and Cody and, District personnel will arrange transportation from Worland.

EJO

The Bureau is fortunate in having Mr. Hormay assist in our range management training program, and you and your staff are to be commended for a range management clinic that will provide the opportunity for the range users to discuss the rest-rotation grazing system.

/s/ Glen D. Fulcher

cc:
Mr. A. L. Hormay
Pacific Southwest Station
1960 Addison Street
P. O. Box 245
Berkeley, Calif



UNITED STATES
DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT
Makotapi Project Office
1004 Fifth Avenue
Belle Fourche, South Dakota

IN REPLY REFER TO:
4412.3

Your Reference
4112.18

January 21, 1966

Mr. A. L. Hormay
Pacific Southwest Forest & Range
Experiment Station
P. O. Box 245
Berkeley, California 94701

Dear Mr. Hormay:

Enclosed is the data for your review, of our Miles City District Rest Rotation grazing system.

The area first selected was in northeastern Montana, but now has been changed to northwestern South Dakota.

Sincerely yours,

Larry M. White
Acting Project Manager

Enclosures:
1 c - Narrative
1 c each -
Enclosures #1-17

CC: DO
SO

Narrative

We have proposed two formulas. Proposal No. 1 is our first choice because it allows $1\frac{1}{2}$ years for seedling establishment. Our only reservation is that perhaps the range and livestock may not do as well because of using one pasture twice in succession for summer use (critical period) before it is rested. Would you please comment on our choice?

The stocking rate for the rest rotation system is the same number and length of time as in the past when the livestock were run on the same area only under continuous grazing. The only change will be increased utilization according to the proposed formula which requires rests.

One of our greatest problems has been the number of pastures. There are, according to our calculations, 720 different possible numbering systems for 6 pastures. Under Proposal No. 1, the rancher says he needs pasture No. 4 or 1 or 5 available for winter use. This has worked out under Proposal No. 1 numbering sequence except for one year; that year pasture No. 6 was available which was alright with the rancher. The reason for the rancher's preference for winter, is the need of protection from winter weather conditions. Last year they lost 10 head of livestock in one night. The numbering sequence of Proposals No. 1 & 2 are deficient one year. It requires that one herd of cows be driven from pasture 3 to pasture 1. We have checked about 30 of the possible numbering sequences and the present sequence is the best we have found thus far. Could you give us any help or suggestions on the numbering sequences? The livestock can move any direction so long as the next pasture is adjacent to the first. There are no topographical limitations.

We want to relocate the minimum amount of fence possible in balancing the capacities of each pasture. If all interior fences were to be rebuilt, the pastures could probably be designed to eliminate driving the one herd. The one new fence will be built this spring; the other two fences will not be relocated until next year after one grazing season.

The dates for flowering, seed ripe, regrowth of leaves and regrowth of flower stalks are some guess work, but we found supporting literature for most of them, from our own state or surrounding states.

One of the minor faults of our system is that we cannot wait to change pastures until after all the warm season grasses have set seed. Our change of pastures is September 1st, and to include all warm season grasses which constitute $\frac{1}{2}$ of 1% of all vegetation, we would need to wait until Oct. 1st. It is possible that to wait the extra 30 days for only $\frac{1}{2}$ of 1% is not justified, and possibly the warm season grasses will still set seed before being grazed off after we turn the livestock into the pasture. It will take a while before the livestock will graze all vegetation and maybe by that time the warm season grasses will have set seed.

We will be glad to accept any suggestions. We regret that this report is late, but it took some time to design the system after it was changed from northeastern Montana to northwestern South Dakota.

UNITED STATES GOVERNMENT

Department of Agriculture—Forest Service
Berkeley, California 94701

Memorandum

TO : Chief

File No. 2200

FROM : John R. McGuire, Director, By

Date: January 21, 1966

SUBJECT: Range

Your reference:

AIRMAIL

Enclosed is a draft of the range training guide prepared by Hormay. During his training courses Hormay presented this material with the aid of 35 mm. Kodachrome slides and illustrations drawn by hand during lectures on easel-mounted paper sheets. Practically no use was made of a blackboard or of hang-up charts. Most tables and graphs as well as range scenes were presented in slides.

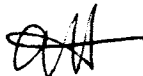
Prospective instructors should be able to round up and prepare locally most of the material they need for teaching, including photographs of local conditions and problems. Most if not all graphs and tables can be obtained from the guide and references. Under separate cover we are sending you 41 slides illustrating the basic grazing management problem and its solution and examples of range reactions to this solution. Comparable photographs may not be available locally. Arrangements can be made to supply duplicates of these and other slides to those needing them.

We would appreciate your comments and suggestions on the guide. If you find it acceptable we can process it locally as a Station release. Kindly give us an estimate of the number of copies that may be needed by National Forest administration, Bureau of Land Management and other agencies.

Separate cover: 41 slides

cc: Parker, W.O. (w/guide and slides)

EGDunford:etm



*Hormay has original
of training guide*



Jan 16/66
Hormay

Kodachrome slides to accompany range
training guide arranged in order
by subjects

Slide No

- Subject - Selective grazing
- 5347 Patchy use of *Poa nevadensis* 1964
- 1936 Close use of Idaho fescue in
forest opening 1947
- 5461 Use in ravine bottom in Juniper
type 1964
- Subject - The grazing management problem
- 1934 Use of Idaho fescue on choice
grazing site 1947
- 6641 Use of *Poa nevadensis* on choice
grazing site 1965
- 4613 " " " " " " 1963
- How rehabilitate such sites?
- Subject - Solution to grazing problem
- 5303 Report of 4613 1964
- Range rested from use to restore vigor
of plants and to produce seed
for reproduction
- 5162 Rest until seed ripens and falls
to the ground. *Stamion hystrix*
and *Poa nevadensis* 1964

Jan 16/66
Hormay

Kodachrome slides cont'd

Slide No

- Subject - Solution to grazing problem cont'd
- 3041 Graze after seed ripe to trample seed into the soil. *Poa nevadensis* 1960
- 2982 Establishment of *Poa nevadensis* seedlings following trampling 1959
- 5314 Without trampling reproduction establishment negligible 1964
- Idaho fescue inside livestock enclosure established 17 years 1964
- 5317 General view inside enclosure shown in 5314 1964
- 6562 Inside enclosure protected from livestock grazing for 35 years. Reproduction negligible 1965
- 6560 Outside enclosure shown in 6562. Idaho fescue and *Stipa occidentalis* reproduction abundant in plant interspaces. Grazed and rested since 1958. 1965
- 3044 Protect seedlings from grazing until firmly rooted so pull-up is minimized. 1960

Jan 16/66
Hormay

Kodachrome slides cont'd

Slide No

Subject - Solutions to grazing problems cont'd

- 5850 Two growing seasons usually needed to anchor seedlings firmly. Two year old *Pea nevadensis* seedlings grazed but pull-up light. 1964
- 6556 Seedlings must be large enough to withstand both pull-up and trampling. Seedlings of *Festuca idahoensis* and *Stipa occidentalis* in plant interspaces 1965
- 6459 Periodic protection from grazing encourages reproduction from rhizomes as well as from seeds 1965
- 6339 During rest periods plant litter is left on the ground to build soil fertility and help arrest soil erosion 1965

Jan 16/66
Hormay

Kodachrome slides cont'd

Slide No

Subject Examples of range reactions
under rest-rotation management
of grazing.

- 6452 Several different age classes of *Stamnis hystrix* and *Pea nevadensis* established on a very heavily grazed site 1965
- 5862 Several age classes of *Deschampsia caespitosa* established on a heavily grazed wet meadow site 1964
- 1746 Condition of preferred meadow grazing area in 1946
- 5103 Repeat of No 1746 in 1964 after 11 years of rest-rotation management. Forage stand denser and more grassy. Bare soil areas covered
- 5301 Productive condition of rich bottom-land site after 12 years of rest rotation grazing 1964
- 3776 Usual degree of forage use on site shown in No 5301. 1962

Jan 16/66
Hormsey

Kodachrome slides cont'd

Slide No

Subject Examples of range reactions
under rest-rotation management
of grazing. Cont'd

- 5006 Litter accumulation on site shown
in Nos 5301 and 3776 1964
- 6455 Spread of rhizomatous species
on productive bottomland site 1965
Agropyron spp.
- 3436 Establishment of *Sitanion hystrix*
and *Stipa occidentalis* repaetation
in opening in timber type 1962
- 3105A Well established stand of grasses
(*Sitanion*, *Stipa*, *Festuca*) in timber opening
- Subject - Soil erosion control 1961
- 2419 Gully in meadow before rest-
rotation management of grazing 1952
- 5397 Near repeat of No 2419 after
12 years of rest-rotation grazing 1964
- 3140 Condition of gully head in 1961
- 5404 Repeat of No 3140 in 1964

Jan 16/66
Hormay

Kodachrome slides cont'd

Slide No

Subject Artificial reseeding and
spraying

- 5075 Condition of stand of *Bromus*
inermis seeded in 1951 after
13 years of rest-rotation grazing 1964
- 3351 Area shown in No 5075. Usual
degree of use when grazed. 1961
- 3018 Near failure reseeded stand of
Bromus inermis and *Phalaris gruel-*
inacea in 1959 Stand sown 1957
- 5036 Area shown in No 3018 in 1964
- 4752 Reseeded stand of *Agropyron*
elongatum 17 years after planting 1963
- 4310 Native forage species becoming
established in bare soil spaces
in thin ^{reseeded} stand of introduced
species. Natives are *Sitanion hystrix*
and *Poa nevadensis* 1963
- 6449 Close up of native species invading
Thin tall wheatgrass stand. Natives
are *Poa nevadensis* and *Sitanion*
hystrix 1965

Jan 16/66
Hormay

Kodachrome Slides Cont'd

Slide No

Subject - Artificial reseeding and
spraying cont'd.

3073

Area sprayed in 1951 to
reduce sagebrush. Sagebrush
reinvaded light and grass stand
vigorous after 15 years of
rest-rotation grazing

1964

T

(7)

Memorandum

TO : E. G. Dunford, Assistant Director

File No. 4210

FROM : R. D. Ratliff, Project Leader

Date: January 21, 1966

SUBJECT: Range Programs (Work plans for Bunchgrass Project for remainder of FY '66 and FY '67) Your reference:

1. Work on comparable plots established during the evaluation of Harvey Valley:

The information we plan to obtain is not necessary to the in-service report due this June. However, we may include the information in our published report. The information is necessary to round out our pictures of a few plots and provide the base for later comparisons.

- a) Obtain plant vigor and herbage yield measurements on 3 pair of low elevation meadow plots. We propose to put up temporary fences (snow type) around 4 of these plots. Two of the plots that will be fenced are in the Lower Pine Creek allotment, one is in Gray's Valley, and the fourth is in Harvey Valley. We will remove the fences by August 1, 1966.
 - b) Obtain plant cover and composition on 5 pair of plots. One of these was done in 1964; however, a great difference in amounts of one species makes remeasurement advisable. Grazing on two pair prevented accurate species determination on the Harvey Valley plots last year. The other two pair are in areas of light use and were placed last in our priorities for measurement.
 - c) Complete measurement of trees on three plots. If completed in time this information will be included in the in-service report.
 - d) Forage utilization checks will be carried out as planned.
2. Removal of excess transect and plot stakes:
 - a) We will remove all of the "density-yield and utilization" transect stakes in Harvey Valley. These transects have no future value.

- b) We will remove all stakes marking the locations of the "yield collection" areas. These areas were marked off by Ratliff in 1957. They haven't been used since.
- c) We will remove the stakes marking the plots established for the study "Rest-rotation vs. season-long management in logged-over ponderosa pine." With the view of moving into new areas of research, this study will be dropped.

3. Cooperation with Agricultural Research Service:

- a) Lynn Hylton of the ARS will determine for us the plant part best suited for determining nitrogen levels in Festuca idahoensis. Also, he will determine the critical level of nitrogen for growth of this species.
- b) We plan a field test of the laboratory results. The test will involve fertilizing a good stand of Festuca idahoensis with 4 levels of nitrogen, including a check. The location of the test area will be worked out with the Lassen National Forest. Fertilizer will be put on in late fall of 1966. Sampling will be completed by August of 1967, and plot markers will be removed at the end of the study.

4. Exclosures in Harvey Valley:

Six of the exclosures in Harvey Valley have "bud-influence" transects in them. I want these maintained until a decision is reached on whether to remeasure, at some future date, using the bud-influence technique. I will make this decision by July of 1967.

I have talked to Phil Lord and Fred Alberico about most of these plans. They see no objections to the temporary fencing of a few plots ^{or} on the work planned with Lynn Hylton. However, they feel the o.k. for this should come down to them through the normal channels so everyone knows what we are doing and why. To this end, please inform the Regional Office of these plans.

Larmay

4210

January 25, 1966

Your reference: 4412.3
1/21

Larry M. White
Acting Project Manager
Makotapi Project Office
Bureau of Land Management
1004 Fifth Avenue
Belle Fourche, South Dakota

Dear Larry:

You have done real well in thinking through a rest-rotation grazing plan for the Crago Brothers Battle Creek allotment. Your plan No. 1 is superior to plan No. 2. As you are well aware the present pasture layout is not ideal but with a slight adjustment in plan No. 1, I think you can get acceptable results in both the range and livestock. I suggest you fit treatment F in between treatments B and C in your plan, graze in treatment B and rest yearlong in treatment D. This will give you the formula shown on an attached sheet. It provides adequately for plant vigor and seed production and provides two growing seasons of rest for seedlings.

It appears that under this plan stock will not have to be moved across fields in any year if the pastures are numbered as I'm suggesting. Also I believe you have enough grazing capacity and sufficient flexibility in the grazing formula to operate without relocating the two fences to even up the grazing capacities of the pastures. I would put in the new fence and then after operating under the most restrictive combination of pastures, decide if relocation is necessary. The seed-ripe date of about September 1 looks satisfactory, everything considered. I'm assuming the stockman is interested not only in having one or more of the three pastures you mentioned (numbers 1, 4 or 5 in Proposal No. 1) available to livestock during winter, but in having largely ungrazed forage in at least one of the fields at the beginning of the winter period.

Management under the suggested plan would proceed as follows:

Split the herd into two groups and graze in pastures receiving treatments A and C. Proportion the number of animals between pastures according to the grazing capacity of the pastures. The animals can be allowed to run

freely between the two pastures in cases where the pastures lie adjacent to each other. As a generality the livestock can be allowed to run freely among all adjoining pastures after the pastures are opened to use. By the beginning of the winter period in this case, the entire area scheduled for grazing during the year could be made available to the animals.

If there is not enough capacity in the A and C pastures to carry the stock until seed-ripe time, open either the pasture receiving treatment F or the pasture receiving treatment B whichever is directly accessible and available for use. Use the F pasture if there is a choice. It is unlikely that either the F or B fields would be needed before flowering time. But if necessary use them. When seed is ripe open the field receiving treatment D to use. Finally at the beginning of the winter period open the fifth field--the one receiving either treatment B or F.

Attached is a set of diagrams showing the pasture layout and disposition of livestock for each year of a grazing cycle starting in 1966. I've set up the sequence so you can operate in 1966 even if the new fence is not finished. Pastures are designated by numbers and grazing treatments by letters. The field rested yearlong is hatched red. The critical fields needed in winter and available to the animals are checked in blue. The field in which the treatment letter is circled is not used until the beginning of the winter period.

The best of luck,

Sincerely yours,

A. L. Hormay

A. L. HORMAY
Range Conservationist

Enclosures

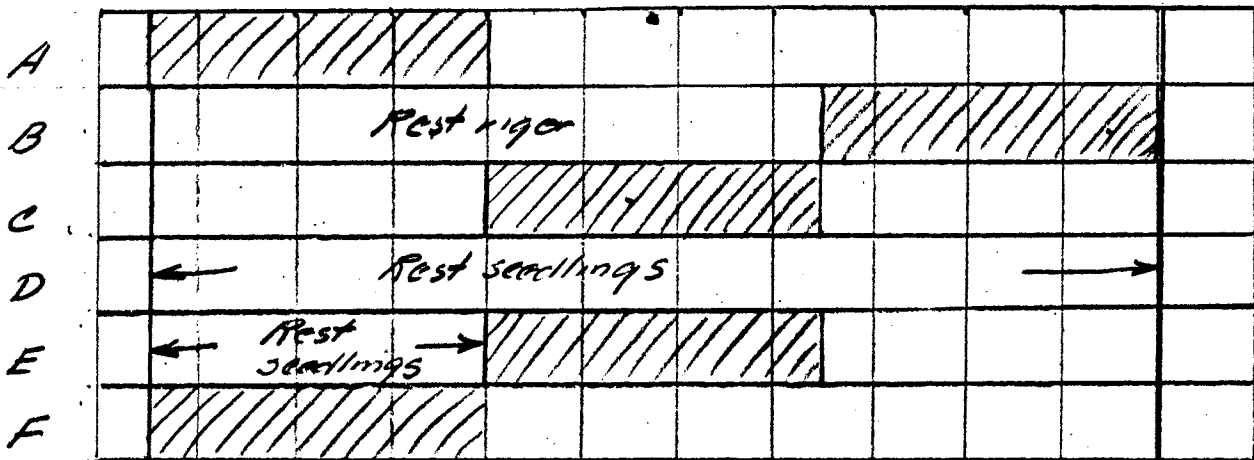
Grazing Formula

State South Dakota Agency BLM District Miles City (M-3) Belle Fourche
 Allotment Crago Brothers Acres 17,910 Kind stock Cattle
Badde Creek 400 Winter 1400 Dec 15 to April 1 3.5
 AU's 600 Summer AUM's 4700 Season May 15 to Dec 15 7.0

Forage use 37% Key species ① Stipa viridula, ② Panicum virgatum

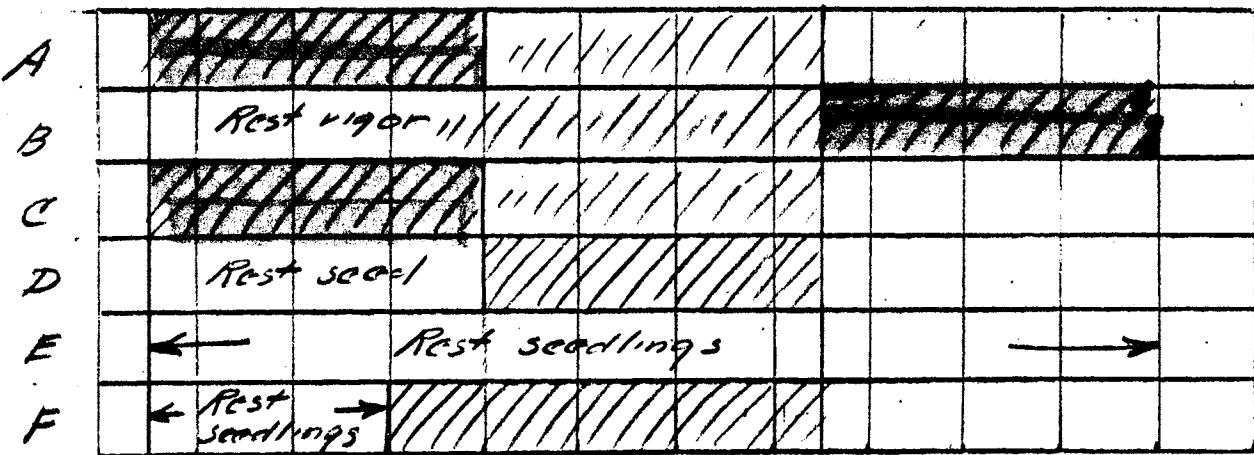
Plant develop.	Start growth	Flowering	Seed ripe	Regrowth (seal)
Date ①	April 1	June 1	July 1-5	May 25
Date ②	May 1	Aug 1	Aug 30 ±	July 25

District Plan - Treatments



Flowering ← seed ripe
 May 5 June 6 July 7 Aug 8 Sept 9 Oct 10 Nov 11 Dec 12 Jan 1 Feb 2 Mar 3 April 4

Suggested Plan - Treatments

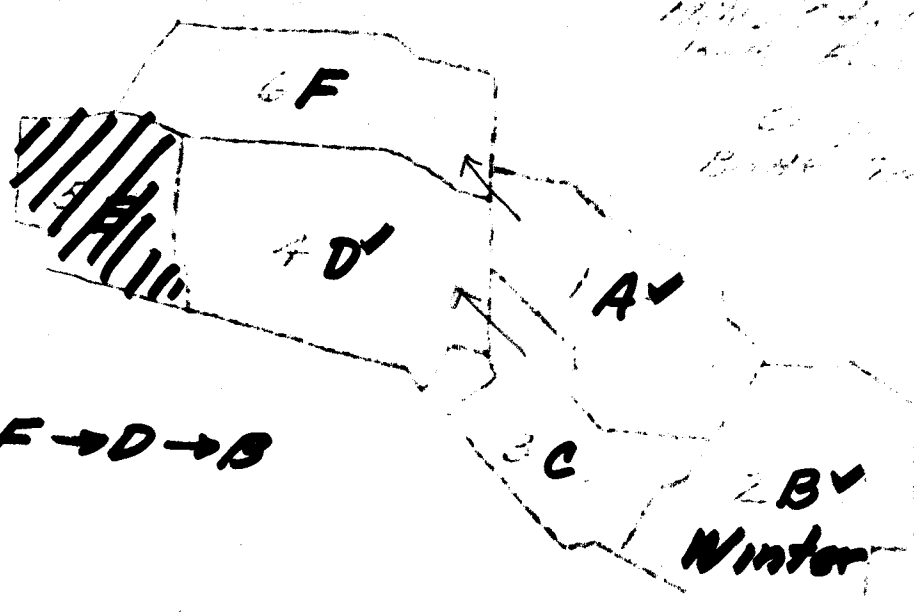


Topography Gently rolling

Date Jan 24 1966

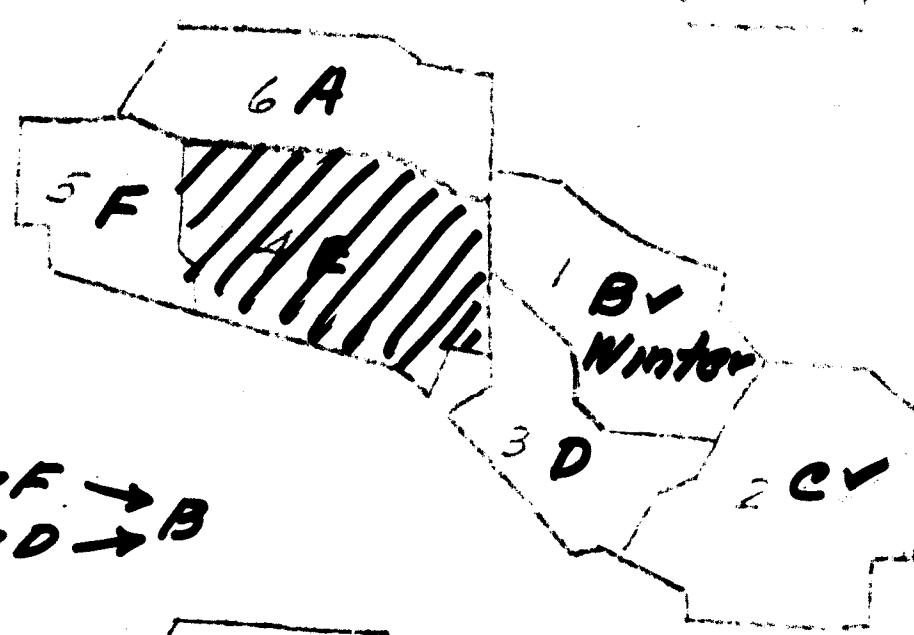
Name Hormay

BLM South District
 1966-1967
 1966-1967
 1966-1967



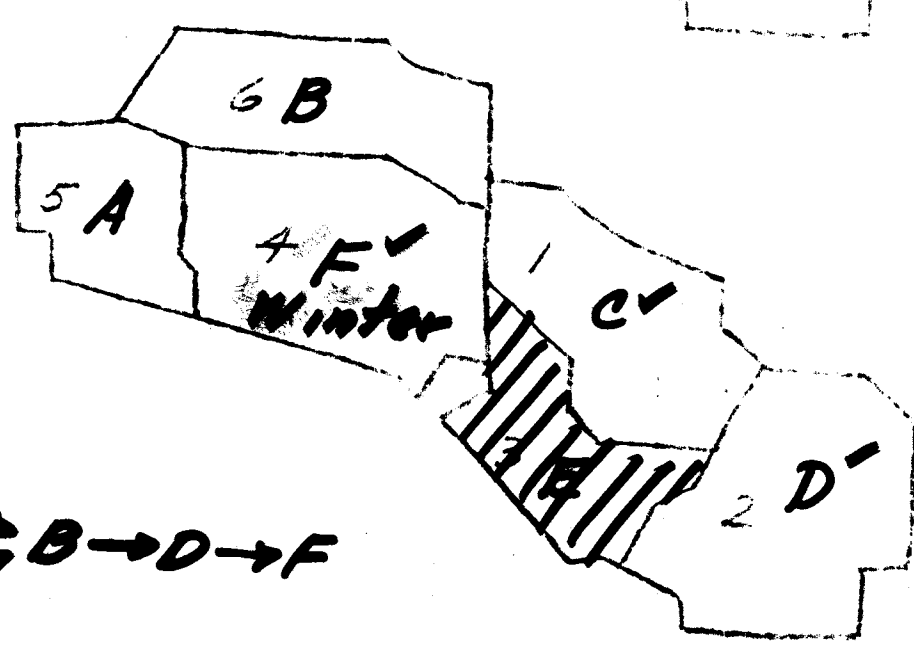
→ A → F → D → B
 → CA

1966



→ A → F → B
 → C → D → B

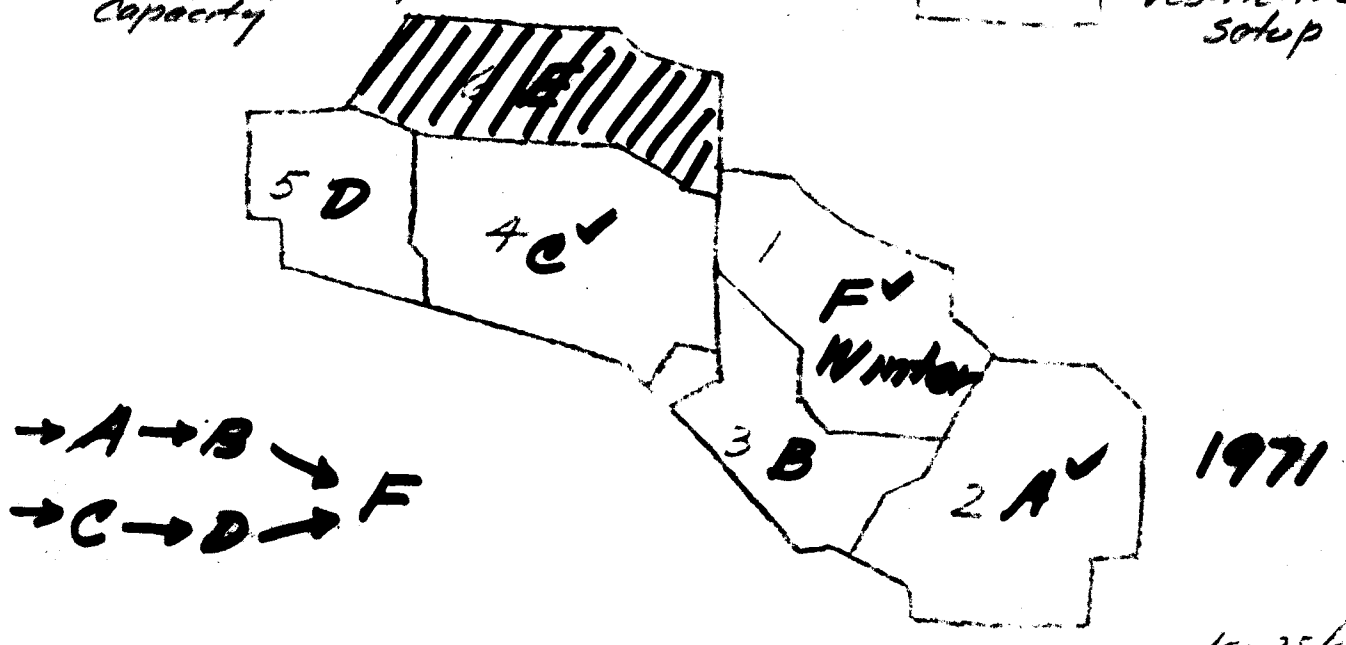
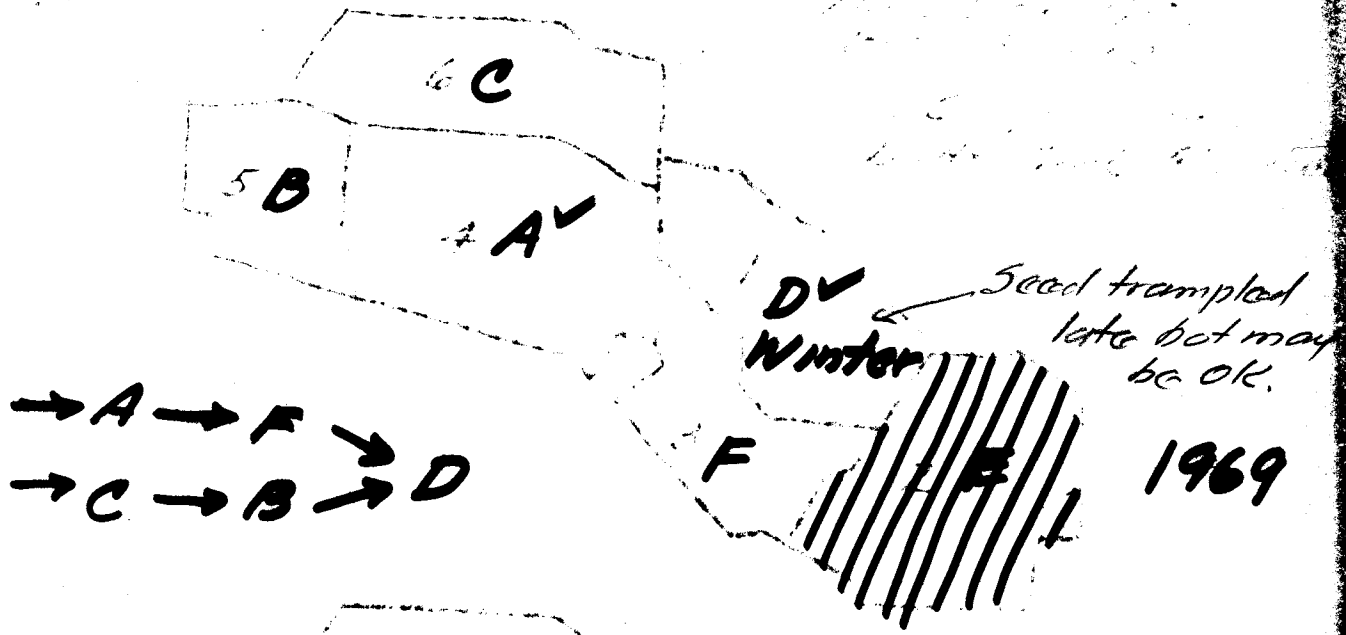
1967



→ A → B → D → F
 → C → B → D → F

1968

Jan 28/68



Sept. 12, 1966

Crago Brothers Battle Creek Allotment

Miles City District, Belle Fourche S.D. Unit

Livestock Cows, calves

Vegetation

- 85% Rhizomatous Ag. smith: Ag. dasy Spartina? Buchloe
- 8 Bunchgrasses Stipa viridula, Panicum, Andropogon
Bet. gracilis? Carex S. I.
- 7 Shrubs Atriplex nuttallii, Chrysothamnus
Artemisia arbuscula

Gentle rolling topog. - not enough protection
for livestock against wind, driving snow, cold.

Season	May 15 - Dec 15	600
10.5 mos	Dec 15 - Mar 31	400
1.5 mos	Apr 1 - May 15	in calving pasture

Start growth Apr. 1

Flowering June 1 - Aug 15 ?

Seed ripe July 1 - Sept 15 ?

Use pattern

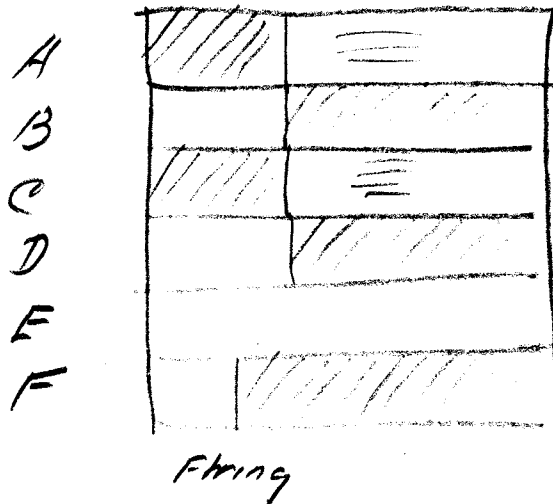
Heavy use drainage ways, patch areas, water
Practically entire range area usable

Management emphasis

- | | | |
|---------------------------|---|---|
| 1. Vigor | } | livestock-erosion
wildlife (waterfowl)
antelope |
| 2. Reproduction from seed | | |
| 3. Browse | | |

Permittees understand rest-rotation principles and grazing formula for allotment. Satisfied

Formula - 6 treatments
Seed



Grassland and saltbush

Species	% comp	Flowering	Seed ripe
<i>Stipa viridula</i>	6	June 1	July 1
<i>Bouteloua gracilis</i>	2	July 15	Aug 30
<i>Panicum virgatum</i>	} 2%	Aug 1	Aug 30
<i>Spartina gracilis</i>		Aug 15	Sept 30
<i>Andropogon scoparius</i> etc.		Aug 15	Sept 15
<i>Artemisia arbuscula</i>		Sept 15	Oct 15
<i>Buchloe dactyloides</i>		July 15	Aug 15

Cover	<u>Grassland</u>	<u>Saltbush</u>
<i>Ag smithii</i>	61%	Grosses 35%
" <i>dasytachium</i>	19	Forbs (poor) 20
<i>Opuntia</i>	<u>10</u>	<i>Atriplex</i> (Ex) 30
	90	<i>Arg</i> (Fair) <u>15</u>
		100

<i>Atriplex</i>	June 1	July 1
<i>Arg</i>	Sept 15	Oct 15

Dunford

Memorandum

TO : Jack H. Reppert, RM

File No. 4200

FROM : Raymond D. Ratliff

Date: January 31, 1966

SUBJECT: Range Research (Travel plans and Harvey
Valley Report)

Your reference:

Dear Jack:

Due to the press of travel restrictions we will have to drop one of your trips out here to work on the Harvey Valley report. From the standpoint of data processing, it would be best to drop your February trip rather than a later one.

In place of this trip, perhaps we can set up a schedule of phone calls to discuss things. Dunford and I will call you on February 8 to talk about this.

I am sending you two sections of the report that I have roughed out. You know what to do with them.

I'll trade you this fog and smog for some of the sun and clean air.

cc: Dunford

ego