Dear Al:

I don't have much information on Antennaria. In 1948 I made a note of 90-percent kill of Antennaria argentea (a semi-wet meadow species) when sprayed with 2,4-D before flower stem elongation. In 1958, in another locality, I observed 100-percent kill of the same species sprayed with 2,4-D when the flower stalks were well developed and the plant ready to flower.

Whether the species you're concerned with will react in this manner is a question. Like many other forbs, Antennaria seems to be vulnerable at early growth stages. I wrote that article in the Journal primarily to get someone interested in getting more information for us on the use of herbicides. As you can see, we know so little.

I am glad to hear you are getting started on the Elkhorn allotment. I know minimum handling of livestock will have appeal to the permittee and will solicit more friendly cooperation. With this in mind, consider the following possible grazing plan. This should cut down stock handling and still be as effective as earlier plans discussed in improving the range.

Note: This chart shows the 5 treatments that would be applied to a unit over a 5-year period. It also shows how the 5 treatments would be applied to 5 units in any given year.
I can't find or don't have a map of the allotment, so will assume the following pasture layout.

```
<table>
<thead>
<tr>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>
```

In this plan stock would go into two units at the beginning of the season and move to a third unit two-thirds of the way through the season. For example, they would go into 1 and 2 and move to 3 in the above layout in one year. The next year they would go into 2 and 3 and move to 4 and so on. Only one move of stock is made in any one year. Also, the stock need not be separated between the first two units. When time comes to move to the third unit, the stock could be allowed through simply by opening the gates. From then on, the stock could run in all 3 units. If you run out of feed in units receiving treatments A and B before seed ripening time, some animals could be moved to the unit receiving treatment E. Think about it.

Best of luck and may you have a good feed year and a good start.

A. L. Hormay

A.L.Hormay's
February 5, 1963

Mr. Will Crandall, President
New Mexico Cattle Growers' Association, Inc.
Room 204 Hilton Hotel
P. O. Box 617
Albuquerque, New Mexico

Dear Mr. Crandall:

I am glad to accept your kind invitation to attend the New Mexico Cattle Growers' annual convention in Albuquerque, New Mexico on March 24 and talk about rest-rotation grazing. I do not propose to use a written text but to talk off-hand on the purpose, basis, and effectiveness of rest-rotation grazing using 35 mm. color slides and illustrate some points.

I expect to be in New Mexico the week of March 18 and can be reached through Forest Service Region 3 headquarters in Albuquerque, if needed. The photograph and biographical information you requested are enclosed.

Sincerely yours,

A. L. Hornby
Range Conservationist

Enclosures: photo

cc: Regional Forester, R-3
    Mr. C. E. McDuff - Wildlife
    and Range Management, R-3
AUGUST L. "GUS" BORMAY
Range Conservationist U. S. Forest Service

1930    B. S. Forestry University of California

1931    to date (32 years) Range and Wildlife Research
        at Pacific Southwest Forest and Range Experiment,
        Berkeley, California (Forest Service Region 5).
        Specialized in management of mountain bunchgrass
        ranges and browse species.

1957    Received Superior Service Award from U. S. Depart-
        ment of Agriculture for developing rest-rotation
        grazing management.

Professional Societies:

American Society of Range Management

Society of American Foresters

Ecological Society of America

California Botanical Society

Fellow, American Association for the Advancement of Science
Jack N. Reppert - R-W, Susanneville

February 5, 1963

E. J. Woolfolk, Assistant Director

Research, Harvey Valley, The "Romey" proposal.

This will acknowledge your report of the meeting we had in Chico on June 22 and the various counter-proposals you and Ratliff had made to the plans suggested by Romeys.

I will have Reed and Romey review this report as you requested and before the end of the month write you concerning our joint consideration of the many points raised. I believe I can tell you with some assurance at this time, however, that Romey's proposal is very likely to be adopted and that our efforts in Harvey Valley will be considerably re-oriented beginning with the 1963 field season. You should not in any circumstances discuss this with anyone on the forest or the permissive until official word has come to these people from the Regional Office.

During the next two years the course of your range management project will include three major items: (1) Evaluation of what has happened in Harvey Valley since 1952. Please note that this does not say that an evaluation of rest-rotation grazing management will be made. The first thing to do is make some appraisal of what has happened to the Evaluation in Harvey Valley under the kind of treatment the allotment has received. (2) Carry to completion an analysis of the situation prevailing on perennial bunchgrass ranges in northeastern California. (3) Develop a research program directed toward the solution of the highest priority problems existing in the perennial range section of California as determined by the project analysis. Development of this program may or may not include parts of the Harvey Valley allotment. While these three steps are being pursued, grazing management as now applied will be continued on the Harvey Valley allotment with the thought that the second evaluation will be made at some future date - perhaps some five to ten years after this first appraisal is finished.

This is about all I can tell you concerning the outcome of many discussions held recently and again I want to make it very clear that this subject is not to be discussed at any time or in any manner with the permittees or anyone on the forest.
Analysis and Plans (Harvey Valley Demonstration Allotment)

On the afternoon of February 1, 1963 a meeting was held at Joe Woolfolk's office to discuss the recent Chico meeting and to decide on the direction and extent of future range management demonstrations in Harvey Valley. Present at the meeting were Kenneth Parker, R. M. DeNio, Frank Smith, Joe Woolfolk, and E. R. Doman.

Subject to approval or further suggestions by the Lassen, the following course of action was agreed to.

1. A research evaluation of vegetative trends will be made in the next two years.

2. A research evaluation of cattle weight gains will also be made in the next two years.

3. During and after the 2-year evaluation the rest rotation system will be continued on the allotment. Also, after the 2-year period, other range management demonstrations, such as revegetation, spraying of sagebrush and undesirable forbs, etc. will be resumed. Weighing of the cattle, at least on a sampling basis, should be continued.

4. The Rovey's proposals for a revised system of management for 1963 will be accepted. (See Bernhard's notes on the Chico meeting.)

5. Following the 2-year evaluation, a re-evaluation of vegetation trends will be made at periodic intervals using the 3-step transects installed by the Lassen as well as other pertinent studies.

6. Inquiries regarding progress in Harvey Valley will be answered to the effect that the effort is currently being evaluated.

7. Lassen will submit improvement project proposals for additional water development in Unit 2 in F.Y. 1964. The use of meager water supplies for road sprinkling, etc. will be discontinued.
It was the feeling of all present that we are extremely fortunate to have the kind of cooperation that we are getting from the Branches. Their suggestions to make this a feasible demonstration from an economic standpoint need to be given careful and full consideration.

cc: Woolfolk, PSW&RES
    DeMio
    Parker

R W DOMAN
E. J. Woolfolk, Assistant Director

Research, Harvey Valley

At the windup of our discussion here the other day, it was agreed that your earlier suggestion to adopt the Roney's proposal for a change in Harvey Valley be followed. A part of your suggestion which concerned the evaluation of what happened in Harvey Valley since 1952 also received favorable consideration. One part of the proposed change in the grazing system is of some concern to us and I hope may receive attention as you prepare a reply to the Harvey Valley permittees. You will recall their proposed change for 1963 placed 15 head of cattle in unit 1 on June 1st, the opening of the grazing season. Other cattle were to be moved into field 1 on July 15th and then a rather sizeable number sold out of this unit on August 15th. From our standpoint, and I would think for the convenience of the permittees and range rider, these 15 animals should go into one of the other units, either 4 or 5, in 1963 rather than into field 1 as indicated. The amount of additional grazing by this number of cattle would be insignificant in a unit intended for grazing, but in a rested unit, such as field 1 this year, would amount to a considerable deviation from the plan. If you concur and would make such a suggested change to the Roneys, I believe the proposed adjustment would be less disturbing than it might otherwise be.

A second point, which incidentally was not discussed at our January 22 meeting, was the collection of animal weight and gain data under the changed procedure. We, of course, want to continue collecting such information, and well ahead of the field season we'll have definite plans for doing so. This point probably also should be raised with the permittees.

E. J. Woolfolk

EJWOOLFOLK: gws
TO: Mr. A. L. Hornay, Range Conservationist  
DATE: February 11, 1963

FROM: Fred H. Kennedy, Regional Forester, By

SUBJECT: Meetings  
Management

It is our understanding you will address the New Mexico Cattlemen at their convention on the evening of March 24. It is also understood you will be able to spend the week preceding the convention with us to explain the rest-rotation systems to some more of our range resource personnel. Attached is the proposed itinerary for your trip.

Due to the number of Forests we hope to have you visit, we are planning only one field inspection; this is on the Smokey Bear District of the Lincoln National Forest. There are a number of small allotments which we feel should be combined for management. Each allotment would become a pasture of a combined "community use" management unit. It is hoped you can inspect several of these allotments so as to give us your recommendations on management.

If you can plan to arrive here on Saturday, March 16 or earlier, we will arrange for a one day or more trip on the Santa Fe or Carson National Forests to familiarize you with that area.

It will be appreciated if you will review the itinerary and then write us of any suggestions you may have. Following receipt of your reply we propose to send the Forests your Range Inventory, Analysis, and Permittee Plan forms so they may secure the information and map similar to that you requested prior to your last visit. For the Cibola you could talk on the Council Rock Allotment which you have seen.

Enclosure
ITINERARY
March 18 - 24, 1963

Monday - 18th:

8:00 A.M. - Drive to Santa Fe

10:00 A.M. - Meet with Carson and Santa Fe
(35 Rangers, Assistant Rangers, Grazing Staffmen,
and Range Conservationists)

Return to Albuquerque

Tuesday - 19th:

7:30 A.M. - Drive to Continental Divide Training Center

10:00 A.M.-12:00 - Meet with Cibola - Rangers Meeting
and
1:00 P.M. - 3:00 - Rangers, Range Conservationists

Return to Albuquerque

Wednesday - 20th:

7:30 A.M. - Drive to Capitan, New Mexico - Smokey Bear R. Dist.
Meet Hud Reynolds (RMFRES, Tempe) and John Hall
of this Division

11:00 A.M. - Inspect several small allotments which need to
be combined into a management unit

Drive to Alamogordo - Spend the night there

Thursday - 21st:

8:00 A.M. - Meet with Lincoln - (Probably 15 in attendance)

Drive to Silver City - Spend the night

Friday - 22nd:

8:00 A.M. - Meet with Gila - (Probably 14 in attendance)

Return to Albuquerque after meeting or on
Saturday morning

Sunday - 24th:

Evening - New Mexico Cattlemen Convention
February 12, 1963

Mr. L. L. Bernhard
U.S. Forest Service
San Francisco 11, California

Dear Mr. Bernhard,

I received the minutes you took at our January meeting in Chico. They are very complete and to the point. However, there are several statements I would like to correct or amend.

No. 3 Statements by Roney

(i) Other allotments with "free choice" of feed produce bloomier and fatter calves than does Harvey Valley with a rest rotation system of grazing.

(j) Harvey Valley yearlings weigh less because they have low weight gains when put in the pasture etc.

(k) For 1962 steer calf weights were 54lbs. heavier in Eagle Lake Allotment and 27 lbs. for the heifer calves in Eagle Lake Allotment than in Harvey. Roneys claim the weight difference on other years was up to 60 lbs. and more.

(l) Facts and costs compiled by Roneys indicate the rest rotation "forced feeding" system of range management is only applicable to maintenance of etc.

(m) I do not agree with this statement. My statement was "We believe an economic study of Harvey Valley should be completed to be sure this system is economically sound. An animal unit can only support a limited amount of capitol outlay in any ranch operation.

No. 4 Questions

(1) They ask for an explanation of R-5 Supplement #167 to FSH 2221.3 and R-5 Supplment #13 to FSH 2211.1 and 2211.32.

(2) They questioned the advisability of extending the rest rotation system to other allotments. They state their figures show forced feeding of saleable cattle will not compete with other range management systems built on the principle of "free choice." (We have not received letters from other cattlemen asking us about rest rotation.)

No. 5 Recommend a revised system of rest rotation for Harvey

(c) would necessitate a longer season of grazing in the fall to get required cow months and "forced feeding".
Good Points

(c) Saleable cattle weights should be up because of (b) and by far the majority of the gain is obtained by this time.

Poor Points

(b) Roneys question the carrying capacity of fields 4 and 5.

No. 6 Roneys recommend the following:

(5) Prepare a range management plan for grazing Harvey Valley in 1963 consistent with the Roney Ranch operation (like the one recommended) and rest rotation.

No. 7 Conclusions

(a) I committed the Division of Range and Wildlife Mgt. to provide $1,500 towards the Harvey Valley rider's salary for 1963. Please eliminate this escape clause "if funds are available.

We feel as though you did very well in compiling these minutes. These corrections however, we deem necessary to make our intention and conclusions proper. If there are any questions concerning the above changes please feel free to contact us.

Sincerely,

Elwin A. Roney
Roney Brothers

cc: Erwin Bosworth, Lassen National Forest
    E. J. Woolfolk, Pacific SW Forest and Range Expt. Sta.
TO: E. J. Woolfolk
FROM: A. L. Hormay

SUBJECT: Research (Harvey Valley, The "Roney" proposal)

Ray Ratliff and Jack Reppert have analyzed the Roney proposal for a change in management on the Harvey Valley allotment in considerable detail. Roney's suggestion and that of Ratliff and Reppert boil down to placing cattle into the deferred unit 2 weeks earlier than under the present plan. This is the only change of consequence.

This change, I believe, will have an adverse effect on range improvement. How much is difficult to say. But I'd be inclined to think it would be more than "very slight" as Jack put it. In any event, none of the proposals appear to be better than the existing plan for improving the range.

No doubt Roney's principal reason for suggesting a change in management is to obtain better weight gains in cattle. I rather doubt that going into the deferred unit 2 weeks earlier will produce the results Elwin anticipates in terms of cattle weights. There is a possibility that cattle will do better during the period July 15 - August 15 because of lighter stocking and greener feed than under the present plan, but I'm not inclined to think so.

C. L. Hormay

Reppert 3/10/63
Management Suggestions

REGION 3 NATIONAL FOREST RANGE ALLOTMENTS

Some of my comments are quite specific, but I'd like you to view them still as suggestions indicating possibilities of management from a rest-rotation grazing viewpoint. I lacked considerable information on some of the allotments, particularly on practical matters like possibilities of livestock handling, so some of my suggestions may be found unworkable at very first glance. However, I believe forest personnel concerned with these allotments have sufficient background in rest-rotation management now to understand the points intended, and can go on and work out satisfactory plans with the permittees. Perhaps I can be of further assistance when I am in the region in March.

I am presenting the write-up of the Hall allotment first because it illustrates many problems in working out a management plan for an allotment.
This allotment has many features that make development of a fully satisfactory rest-rotation grazing plan difficult. Some of these are:

1. The allotment is already fenced into five units which may or may not be the number needed. Also, the fences may not be in the best locations.

2. The allotment is long and narrow. Ideally, it should be compact, squarish or rectangular.

3. The shape of the allotment compels locating pasture units end-to-end in a line, which is the worst possible arrangement.

4. The difference in elevation from top to bottom of the allotment and the arrangement of pastures up and down hill both create problems in forage use and season of grazing.

5. The allotment is heavily stocked, 2776 AUM's or 2.1 acres per AUM. Forest estimate of capacity is 1,429 AUM's. Forage use averages 57 percent and ranges between 60 and 100 percent in key openings.

In spite of these and other difficulties, possibilities exist for reasonably good forms of rest-rotation grazing. One is diagrammed on the attached sheets.

I would start operating the plan with present numbers grazing 4 units out of 5, as indicated (Page "A" Basic Plan) and using the fifth pasture toward the end of the season if necessary.

This probe will give you a fairly firm idea of capacity. You will be down within range of capacity when forage use in four fields averages no more than 60 to 65 percent and one pasture is rested the entire season.

In this plan, cattle are placed in two pastures at the beginning of the season and later are moved to two other pastures for the remainder of the season. Stocking is regulated so group A is moved about midseason and group B at time seed ripens. In three years out of five (1963, 1965, and 1966-Page "B"), the pastures grazed early and late adjoin each other, so all that need be done in transferring cattle between pastures is simply to open the gates between them. The cattle can be allowed to drift across on their own any time they please. If desired, they can be rounded up and driven across. Furthermore, after this time, the cattle can be allowed to graze in both early and late pastures to the end of the season, with gates between pastures open or closed.
Hall Allotment

Because of the end-to-end arrangement of pastures, it becomes necessary to move one group of cattle across three other pastures 2 years out of 5 (1964 and 1967, page "B"). This can be avoided by deviating from the basic plan for a temporary period as follows: (Refer to Schedule XIII 1964 on page "B").

Stock pasture 1 so cattle can be held in this unit the entire season. Put remainder of cattle in pasture 2 and graze until forage is used to desired level, then move the cattle to pasture 3. If pasture 3 does not carry the cattle to the end of the season, graze pasture 4. All these moves to adjoining fields can be handled as described before.

This deviation from plan interferes with seedling establishment in pasture 4. As grazing capacity increases, this problem will be eased and eliminated when there is enough capacity in three fields to carry the stock. Improvement of the range can be expected as the plan is put into operation and as some 2777 additional acres on the allotment are put into grazing use.
Hall Allotment - Apache N.F. Springerville P.D.

MANAGEMENT PLAN

Key type (name) Open grassland
Key species (name) Festuca arizanica (date seed ripe) Sept. 1

Grazing Treatment Plan

Number of treatments and units 5

Basic Plan

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Year or unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>D</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>5</td>
</tr>
</tbody>
</table>

Movement of livestock between units during a given season

- [ ] Grazing period
- [ ] Resting period


Planned use of forage: On most closely grazed unit 71% on allotment 57%

Grazing Schedule for a Grazing Cycle

<table>
<thead>
<tr>
<th>Year</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>5</td>
</tr>
<tr>
<td>1963</td>
<td>4</td>
</tr>
<tr>
<td>1964</td>
<td>3</td>
</tr>
<tr>
<td>1965</td>
<td>2</td>
</tr>
<tr>
<td>1966</td>
<td>1</td>
</tr>
</tbody>
</table>

One cycle, 5 years

Beginning of second cycle

Planned stocking 2776 AUMs. Planned season (dates) June 1 to Oct 15
"B" Yearly Grazing Schedules Hall Allotment Apache N.F.

Treatment
Pasture

I

II

A.L. Harrony
Feb. 13, 1963

1962

1963

1964

1965

1966

1967 (Same as 1962)

1

2

3

4

5

A

B

C

D

E

A

B

C

D

E

A

B

C

D

E

A

B

C

D

E

A

B

C

D

E

A

B

C

D

E

A

B

C

D

E

Deviation from basic plan
Management Suggestions

COUNCIL ROCK ALLOTMENT

Feb. 14, 1963
A. L. Horney

Cibola National Forest
Magdalena Ranger District

I do not have a map of this allotment nor do I recall fencing plans and possibilities or the status of the improvement program. I also feel great need for information on livestock grazing habits and handling methods on this type of range.

However, I am outlining both a 4-unit and a 5-unit grazing plan for your consideration, assuming:

1. The allotment can be subdivided into adjoining areas containing adequate water for the cattle.

2. Cattle are marketed principally in late fall--October or November. (A specific date of November 1 is used in the suggested plan.)

3. Seed of all important species ripens by November 1.

In the 4-unit plan (pages "A" and "B"), 3 units out of 4 are grazed each year. One unit is rested. Animals are placed in two fields from March 1 to October 31 (8 months), and then all are moved to a third field on November 1 and grazed there until the end of February (4 months). The cattle can be allowed to run freely between the two units that are grazed at the same time of year--units receiving treatments A and B. This is possible for all 4 years of the grazing cycle where the four units have a corner in common. The location of fences is important in minimizing stock handling. Where fences are properly located, the unit receiving treatment C can be exposed to grazing simply by opening the gates to the unit.

This plan provides only one year of rest for seedling establishment, which may not be enough for this harsh site. A five-unit plan (pages "C" and "D") is superior and provides two full growing seasons of rest for seedlings and allows use of 80 percent of the range area instead of 75 percent as in the four-unit plan. The grazing year is divided into two 6-month periods, May 1-October 31, November 1-April 30. The pastures should be fenced so two units join three others, as shown in the diagrams on page "D."

In both the 4- and 5-unit plans, stock are moved between units at the time stock are gathered for marketing, and also in the winter-spring period.

Your analysis figures indicate this range is overstocked--estimated capacity 2,000 AUM's and actual stocking 3,600 AUM's. This adds up to 80 percent overstocking. Utilization figures indicate 64 percent overstocking. However, I would start one or the other of the grazing plans with present numbers, striving for no more than 65 percent use of the available forage in each field scheduled for grazing and using all fields, if necessary, so you can get an idea of capacity after the range is fenced up. Then, make needed adjustments later.
**A** - Council Rock  
Cibola N.F.  
Magdalena RD  

**MANAGEMENT PLAN**  
Feb 14 1963  

A Normay  

Key type (name)  
Woodland  

Key species (name)  
Festuca arizonica  
(date seed ripe)  By Nov 1  

**Grazing Treatment Plan**  

Number of treatments and units  

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Year or unit</th>
<th>Season</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Mar 1</td>
<td>hu</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>Nov 1</td>
<td>hu</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td></td>
<td>hu</td>
</tr>
<tr>
<td>D</td>
<td>4</td>
<td>Feb 29</td>
<td></td>
</tr>
</tbody>
</table>

- Movement of livestock between units during a given season  

- Grazing period  

- Resting period  

Date (month)  

Planned use of forage: On most closely grazed unit 73%; on allotment 55%  

**Grazing Schedule for a Grazing Cycle**  

<table>
<thead>
<tr>
<th>Year</th>
<th>Treatments</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1963</td>
<td>A B C D E F</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>2 1964</td>
<td>B C D A</td>
<td></td>
</tr>
<tr>
<td>3 1965</td>
<td>C D A B</td>
<td></td>
</tr>
<tr>
<td>4 1966</td>
<td>D A B C</td>
<td></td>
</tr>
</tbody>
</table>

One cycle, 4 years  

Flanned stocking 3600 AUMs. Planned season (dates) Year long
"B" Council Rock 4 Unit Grazing Schedules  Febr. 14, 1963  Author: N. D. McGregor

Cibola N.F.  Magdalena R.D.

I

A | B
---|---
C | Rest

III

C | Rest
---|---
A | B

1963

II

Rest | A
---|---
B | C

IV

B | C
---|---
Rest | A

1964

1965

1966
Grazing Treatment Plan

Number of treatments and units 5

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Year</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Date (month)

Planned use of forage: On most closely grazed unit ____ %; on allotment ____ %

Grazing Schedule for a Grazing Cycle

<table>
<thead>
<tr>
<th>Units</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1</td>
<td>1963</td>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>1964</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>3</td>
<td>1965</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>A</td>
</tr>
<tr>
<td>4</td>
<td>1966</td>
<td>D</td>
<td>E</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>5</td>
<td>1967</td>
<td>E</td>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
</tbody>
</table>

Planned stocking 3600 AUMs. Planned season (dates) Yearlong to

-9-
Council Rock
"D"
5 Unit Grazing Schedules
Feb. 14/63
Cibola N.F.

A. Hornay

1963

1964

1965

1966

1967
As I remember, the Turkey Mountain allotment is now fenced off into three units and is managed according to the following basic plan:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
</tr>
</tbody>
</table>

Grazing schedule for one year

<table>
<thead>
<tr>
<th>Season</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Schedule for one grazing cycle (3 years)

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963 (1st)</td>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>1964 (2nd)</td>
<td>B</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>1965 (3rd)</td>
<td>C</td>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

This plan provides one season of rest for seedling establishment, but two can be provided. You may be doing this, but I do not recall. Two seasons of rest on seedlings is highly desirable and can be obtained in 3 units as shown in the grazing schedules on page "A." This plan is possible because there is adequate grazing capacity and because seed ripens approximately at midseason. The plan doesn't call for different handling of stock than now. However, after seed-ripe time, both units scheduled for grazing can be grazed to the end of the season, if desired, with the gates between units closed or open.
Grazing schedule for one grazing cycle
Cocamino N.F. Turkey Mt. Allotment

Grazing season: June 1 - Oct 30

1963
Rest

1964
Rest

1965
Rest

1966
Rest

1967
Rest

1968
Rest

Febr. 15/63
Hornay
Management Suggestions

A. L. Noyes
Feb. 15, 1963

RIO DE FLAG, ANGELL, TURKEY TANK and CINDER ALLOTMENTS

Coconino National Forest
Elden Ranger District

I don't have much grasp of these complicated allotments and, therefore, cannot offer more than the broadest suggestions.

The Rio De Flag blocks out pretty well except for the isolated conifer area. The main body of the allotment can probably be managed under a 3-unit plan like that suggested for the Turkey Mountain allotment on the Long Valley District, (attached).

I notice the other allotments combined were blocked out into seven areas or units, indicating that it may be possible to handle stock by these units. Assuming this to be the case, I have outlined a seven-unit design of rest-rotation grazing for consideration as a starter. In this plan, six out of seven units are grazed each year. Most moves of stock within the grazing year, assumed to center on November 1, are to adjoining fields. With further careful study and analysis, I'm sure a practical plan can be developed.
Diagrams of Unit 9, rising plan for The Cinder, Turkey Tank and Angell Combination Allotment

FEBR. 15/68 Hormay

Cocomino N.F. Elden R. Dist.

Note! Only 3 cross-pasture grass moves in 6 years.
Management Suggestions

Coconino National Forest  BLIND LAKE ALLOTMENT  Long Valley Ranger District

As I recall, this allotment is now fenced into 4 units. I believe three are grazed and one is rested each year, as follows:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
</tr>
</tbody>
</table>

All the stock are placed in unit 1 at the beginning of the season. A third of the way through the season, they are moved to unit 2, and two-thirds of the way through the season to unit 3 for the remainder of the season. Unit 4 is rested. This pattern of use is rotated through the 4 units over a 4-year period. I suggest the following plan.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
</tr>
</tbody>
</table>

In this case, half the herd is grazed in unit 1 and half in unit 2, two-thirds of the way through the season or until time of seed ripening of the key forage species. The entire herd can also be grazed in units 1 and 2 with the gates between the units open so the animals can go back and forth as they please. At seed-ripe time, the herd is rounded up and moved into unit 3, or the gates to unit 3 can be opened and the cattle allowed to move into the unit on their own. From seed-ripe time on, the cattle can be grazed in all three units (1, 2, and 3) with gates between units open. This plan is about as effective as the present one in improving the range, but reduces livestock handling and, therefore, should produce higher weight gains.
Management Suggestions

Feb. 15, 1963

LINDEN COMMUNITY C & H ALLOTMENT

Sitgreaves National Forest

The Linden Allotment presents unusual management problems because both summer and winter ranges are included in the allotment. However, I have indicated a rest-rotation grazing possibility using 6 units, 2 on summer range and 4 on winter range.

This plan minimizes stock handling and moving as much as possible and provides quite adequately for range improvement. The plan looks more complicated than it really is but off schedule treatments are necessary because of the presence of summer range. I won't attempt to give the reasoning behind each of the schedules shown on pages "C" and "D." Each follows the basic grazing plan shown on page "A" as far as possible.

The 1963 grazing schedule is about as complex as any. I will describe it so you can read the rest of them more easily. For simplicity I have used 100 AU's as the stocking rate instead of 115 AU's.

First, it is assumed that animals are gathered for marketing sometime in October; October 10 is used for illustration. This date marks the middle of the grazing year as illustrated here. The first half of this year starts April 11 and ends October 9. The second half starts October 10 and ends April 10.

On April 11 the entire herd, which has grazed elsewhere on the allotment the past 6 months, is turned into units 1 and 3. These units lie side by side (page "B"). Fifty head may be grazed in each unit or the 100 head can be allowed to graze in the two units as though the units were a single pasture. On July 10, three months later, the 100 head is turned on to summer range in unit 6. This unit corners on unit 3. At the end of the summer grazing season (October 10) some of the unmarketed animals and replacements are turned back into units 1 and 3, and some are turned into unit 4 as shown. The cattle would go on to ungrazed vegetation produced during the previous principal growing season (July-September). The animals remain in these fields for 6 months until April 10.
Assume 100 animal units stockpiling
200 AUMs capacity

Seasons
April 11 July 10 October

<table>
<thead>
<tr>
<th>3 mos</th>
<th>3 mos</th>
<th>Sept 10 seed rape 6 mos</th>
<th>W 2 Woodlands</th>
</tr>
</thead>
</table>

Oct 11

Number of units 6

Basic Grazing Plan

Units

1 A
2 B
3 C
4 D
5 E
6 F

Layout Allotment Units

Cattle

<table>
<thead>
<tr>
<th>1 W</th>
<th>2 W</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 W</td>
<td>4 W</td>
</tr>
<tr>
<td>5 W</td>
<td>6 Pine Pine</td>
</tr>
</tbody>
</table>

Capacity of a unit 200 AUMs
assuming 35 per cent use of forage

Note! In the above grazing plan animals for treatments D & F can be obtained from units 1 or 3 which ever unit is closest to unit 4 or 6.
Lindon Allton
Sitgroves, M.F.
Pinedale P.D.
Treatments by units by years
1963 - 1968

"B"

1963

1
2
A
B

3
C
D

5
E
F

Winter pastures

1964

1
2
B
C

3
D
E

5
F
A

Summer pastures

1965

1
2
C
D
A

3
E
F

5
A
B

1966

1
2
D
E

3
F
A

5
B
C

1967

1
2
E
F

3
A
B

5
C
D

1968

1
2
F
A

3
B
C

5
D
E

Arrows indicate stock movement
Linden Allotment
Treatments by units by years
1963 - 1965

First figure = animal units. Second figure = months (AU x months)
<table>
<thead>
<tr>
<th>Year</th>
<th>Unit</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1965</td>
<td>1</td>
<td>D 50x6</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>A 100x3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>C 100x3</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>F 50x6</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>1</td>
<td>F 50x6</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>A 100x3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>B 50x6</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>C 100x2</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>D 100x1</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>1968</td>
<td>1</td>
<td>F 50x6</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>A 50x6</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>B 50x6</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>C 50x6</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

*Notes:*
- All schedule cannot apply treatment D in unit 6.
- All schedule cannot apply treatment D in unit 5.
February 15, 1963

Mr. A. L. Hormay
Pacific Southwest Forest and Range Experiment Station
1960 Addison Street
Berkeley 1, California

Dear Gus:

We feel a real need in R-3 for a popular-style publication on intensive grazing management systems which would serve dual purposes:

1. Training and guidance for Forest Officers.
2. Gaining understanding acceptance of intensive management from permittees.

Our proposed approach calls for a two-part booklet, illustrated and printed in attractive form. Part I would deal with basic information on plant physiology and plant responses to grazing under various systems of grazing use. Part II would be devoted to "case histories" in intensive management, showing how systems have worked in actual practice, bring out both disadvantages and benefits.

We propose to gather data for the latter item by means of a questionnaire along the lines of the enclosed rough draft.

It occurs to us that you may be working on something similar as part of your portfolio in your "extension" activities. If so, we'd be interested in hearing about plans and progress. If not, we'd like your frank comments on our proposed approach. If you go along with this in principle, we would appreciate your help on Part I. Anything from outright authorship to raw material or references would be appreciated. Your guidance in selecting outstanding examples of intensive management outside of R-3, and in obtaining case history data would also be most helpful.

The Regional Forester wanted publication last year, but this is the first chance we've had to crystallize our thoughts on the subject.

United States Department of Agriculture
Forest Service
Southwestern Region
517 Gold Avenue, SW
Albuquerque, New Mexico
If a more formal request through channels is required, please let us know.

We're looking forward to having you with us in March.

Sincerely yours,

[Signature]

C. E. McDuff
Assistant Regional Forester
CASE HISTORY QUESTIONNAIRE

Intensive Grazing Management

Date: ___________

Allotment: ________________ Ranger District: ________________ Forest: ________________

Elevation Range: _______ to _______ ft.

Annual Precip. - Total: _______ in.  
|-----------|-----------|-----------|-----------|

Vegetation Types:  

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>Principal Forage Species</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONDITION & CLASSIFICATION - ACRES

<table>
<thead>
<tr>
<th>Primary</th>
<th>Secondary</th>
<th>Non-</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>V.P.</td>
</tr>
<tr>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>V.P.</td>
</tr>
<tr>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>V.P.</td>
</tr>
<tr>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>V.P.</td>
</tr>
</tbody>
</table>

SOILS:  

Erosion Potential

Pre-management Erosion

Current Erosion

Production Potential

Season of use:  

<table>
<thead>
<tr>
<th>Current Year 19</th>
<th>Pre-management 19</th>
</tr>
</thead>
</table>

Kind and class of stock

Total stocking (AUM)
What are the objectives of the system? (Distribution, vigor recovery, seed production, seedling establishment, other).

Name or describe the system briefly:

Number of pastures:

Describe or diagram sequence and pattern of use:
What flexibility is provided?

What supplemental treatments were applied (acreage of seeding, tree control, etc.)

To what extent did these affect results of the grazing system?

What improvements were necessary to implement the system (fences, water, etc.)? Total cost?

What measured or observed changes in vegetation have taken place?

Density:

Composition:

Production:

Utilization:

What effects has the system had on livestock? (Give specific examples and numbers where available).

Weights:

Lamb or calf crops:

Death losses:
Handling costs: 

Operator convenience: 

What are the most important advantages of the system? 

What are the major disadvantages? 

What does the permittee think about it? 

Will the permittee give us a statement of his opinions for publication? 

Name and address of permittee: 

How would you change the system if you were starting over again? 

Other comments and observations:
Use supplemental sheets where space on questionnaire is inadequate. If good illustrative photos are available or can be obtained, prints should be submitted. Suggested subjects:

Livestock grazing or being handled
Photos showing utilization
Before-after sequences
Fence-line contrasts
New improvements under construction or completed
Forest Service personnel and/or permittees examining range or livestock
Photos of individual plants (key spp.)

Return questionnaire to Division of Range and Wildlife Management, USFS, 517 Gold Avenue, SW, Albuquerque, New Mexico.
Mr. Horsey's management suggestions on the range allotments mentioned in Mr. Zane Smith's memorandum of January 30, 1963, are attached.
Regional Forester, R-3
Attention: C. E. McDuff
Keith Arnold, Director, R-3

Management

Mr. Hormay would like very much to spend a day, or whatever time you feel appropriate, on each of the Carson and Santa Fe forests in advance of meeting with personnel from these forests on March 18. Mr. Hormay will be available any time the week of March 11, so kindly let us know when you would like him to report.

The itinerary and program outlined by you for the period March 18 through the 24th is quite satisfactory and promises to be most interesting. In addition to the inventory and analysis information called for on the form furnished you by Mr. Hormay, and a range type and improvement map, it would be most useful to have a map showing degree of forage utilization on different parts of the range. If data is not available for such a map, estimates by the Ranger will suffice.

H. W. Camp

ALHORMAY: gws
TO: Director, PSW Experiment Station

FROM: R. M. DeNio, Director, Division of Range Management

DATE: February 21, 1963

SUBJECT: Management

The following will confirm the discussion with you, Mr. Woolfolk, Mr. Parker, Mr. DeNio and Mr. Smith in Berkeley on February 4, 1963.

It was agreed that the arrangements now in effect with regard to payment of Hormay's salary and travel would be continued without change in F.Y. 1964. It was further agreed that implementation of a training program and publication of a brochure on management systems were the priority jobs for Mr. Hormay this next fiscal year. It was also agreed that, following presentation of the training program to the Regions by Hormay, his services to administration will terminate as far as the current arrangements are concerned. This should be effected by June 30, 1964.

In the discussion of the efforts necessary by Mr. Hormay to produce the training program, it was agreed that the editorial, drafting and art facilities of the Station would be used to implement the job.

We wish to again express our appreciation for the cooperation extended by the PSW personnel in facilitating the Hormay assignment. We hope that we can now climax the effort with a training program adaptable to all National Forest grazing lands. As was discussed, because of the fact that the time required for Hormay to finalize this program may exceed the amount for which he is now financed by this office, it is hoped that your plans for Mr. Hormay can provide adequately for completion of this job in F.Y. 1964.

E. R. Doman's memo to Forest Supervisor, Lassen National Forest, of February 6, 1963, adequately reports our meeting of February 1 in Mr. Woolfolk's office. We have nothing to add.

We have prepared the attached memorandum which outlines our thinking, and confirms our discussion with Mr. Hormay and Mr. Woolfolk on February 1 and February 4, in regard to future action on the brochure and training program.

Enclosure
Mr. C. E. McDuff
Asst. Regional Forester
Southwestern Region
517 Gold Avenue, S. W.
Albuquerque, New Mexico

February 21, 1963

Dear Mac:

A year or so ago the Washington office asked me to prepare a brochure on intensive grazing systems similar to the one you have in mind and to serve essentially the same purpose. After considerable thought, I prepared the brochure which in the end boiled down to a simple illustrated story of rest-rotation grazing. This was not quite what Washington wanted. They were looking for comparisons between grazing systems, illustrated with case examples somewhat like you propose. Although I was aware of this, I just could not get myself to prepare material which I felt is counter to the philosophy of rest-rotation grazing and would hinder rather than promote better range management.

Reference to specific grazing systems, in my opinion, has been and will continue to be one of the greatest deterrents to clear understanding and judicious application of good grazing management. I voiced this opinion a few years back at an in-service meeting in Ogden and have thought this way ever since rest-rotation grazing came into being. A copy of the first page of my statement at Ogden is attached.

I wish I had not given rest-rotation grazing management the name that I did because it implies a specific grazing system—and a similarity to other grazing systems which is misunderstood.

Rest-rotation grazing management, as you know, does not have specific form. It consists of knowledge of principles of range and animal behavior which is shaped like modeling clay to fit the given situation. It has universal application. It cannot be compared with other systems because there is no common ground for comparison. In the final analysis, the specific systems of grazing management cannot be compared either, again because there is no common basis. Each is applicable to different and rather restricted situations.

I cannot explain my thoughts on this matter adequately in a letter.
But I'd like very much to discuss the subject with you in March. I hope you will not feel this is too late.

Sincerely,

A. L. Normay
Range Conservationist

Enclosure
ALMorray:ls
PROPER MANAGEMENT OF CATTLE RANGES

August L. Hormay

Range Conservationist, California Forest and Range
Experiment Station, Forest Service, U. S. Department
of Agriculture, Berkeley, California.

It is exceedingly important to appreciate that proper range management cannot be accomplished by formula. Acceptance of this fact will put an end to the ever-persistent hope that some particular stocking rate, or some simple index or guide will be the answer to proper range management. It will permit focusing attention on the realities of grazing—on principles of plant and animal behavior and on causes and effects.

Proper range management cannot be prescribed in specific terms because every range is different and each requires a different treatment. There is little value in knowing, for example, that a particular stocking rate, season of grazing, or frequency of grazing produces good results in a given situation. The same practices will not necessarily produce good results in another situation.

Proper management rests on an understanding of range and livestock behavior—on understanding such things as how the vegetation grows and develops, the relationship between plant development and livestock weight gains, how the range is grazed, the effect of periodic resting on range improvement, and the effect of stocking on range and livestock condition. Such information together with practical experience and good judgment provide the basis for interpreting range and livestock reactions obtained under grazing use and adjusting grazing factors until desirable results are obtained.

1/ The California Forest and Range Experiment Station is maintained at Berkeley in cooperation with the University of California.