Memorandum

TO: John R. McGuire, Director, PSW
FROM: Neal M. Rahm, Regional Forester
SUBJECT: Training

The Beaverhead and Deerlodge National Forests have scheduled a joint range training session for April 12-16. They will follow Mr. Hormay's guides as suggested in your letter of November 30.

They will appreciate receiving three copies of the training outline being prepared, and single copies of all slides and other visual aids used by Gus at Missoula last year. The material should be mailed directly to the Beaverhead National Forest, Dillon, Montana, 59725. The two Forests will pay any reproduction charges.

The trainers would like this material by the middle of March. They are especially anxious to have the outline by that time.

cc: Deerlodge N.F.
6100

File No. 6140(2200)  Date: February 2, 1965

Your reference:
Mr. Charles H. Steedard, Director  
Bureau of Land Management  
Department of the Interior  

Dear Chuck:

I appreciate your letter of January 8 commenting on the work of Gus Horney. I agree that the research that Horney conducted on rest-rotation grazing and the current program to get the principle applied in the management of public and private ranges are important and impressive. Each year we are getting more of our grazing allotments placed under rest-rotation management, and it is being well accepted by our permittees.

The Forest Service and, I am sure, Gus Horney appreciate the opportunity to work with your people in the extension of this range management development. Although it is true that I have never had an opportunity to see and hear Horney's most recent presentation of this program, I am familiar with it and have gone over the Harvey Valley area with Gus. As you know, this is where he conducted most of the research on this system of management.

I certainly agree that Gus is doing a great job. We are happy to share the results of his work with you.

Sincerely yours,

EDWARD P. CLIFF

EDWARD P. CLIFF, Chief

EPCLiff: FB
TO: George L. Burnett, R-2
FROM: A. L. Horney, Range Conservationist
SUBJECT: Range Programs (Training in Range Mngt.)

In reply to your letter of January 23, I am enclosing a terse subject outline, slide descriptions, and a short list of reference publications for the range training course. A set of slides—approximately 89—will be forwarded to you as soon as they are duplicated.

Enclosures

ALHorney:etr
Abbreviated Outline

I. Introduction
   Purpose and nature of guide

II. Problems and goals of management
   A. Wildlands
   B. Ranges and livestock grazing

III. Vegetation
   A. The cell
   B. Photosynthesis
   C. Synthesis of organic materials
      1. Carbohydrates
      2. Proteins
      3. Fats

IV. Soil
   A. Formation and character
   B. Fertility

V. Plant ecology
   A. Succession and climax
   B. Competition

VI. Plant growth and development
   A. Seasonal trend—shoot and root
   B. Trend food reserves, storage and use
VII Effect of defoliation on
   Growth, yield and reproduction
   — and soil storage

VIII Value of vegetation for livestock
   A. Livestock weight gains — plant development
   B. Season of grazing
   C. Effect moving livestock

IX Characteristics of range use by livestock
   Pattern and degree of use — areas, species

X Consequences of grazing — range condition

XI Concepts of sustained yield grazing management
   A. Continuous grazing — proper degree of use
      Basis and effectiveness
   B. Non-continuous — periodic rest from grazing
      a) Rest-rotation
         Basis and effectiveness
      b) Systems of rotation grazing
         Basis and effectiveness

XII Management of sprayed and resown areas

XIII Yield of other wildland values

End.
Schedule for use of slides in range training course
(See outline of range-training guide for subject and reference number)

Slide sequence by slide numbers

III A The Cell
   ALH The Cell - numerical designation

   [6050] Feb 26 1965

IV A Soil
   ALH 4833 Soil profile

V B Plant comp-
1. ALH 4044 Effect root competition of Brooms worms on surrounding plants
2. ALH 5385 Shunted Salvia chordis, Sphaeraccularia and Festuca idahoensis under competition with Artemisia tridentata. Inside enclosure established 1954
3. ALH 5386 Sprayed area alongside 5385. Grasses released from sagebrush by competition spraying 11 1951
   [6053] Feb 26 1965

VI A Plant Growth
1. ALH Precipitation-temperature (from USDA Production Report No 51
   [6054] Feb 26 1965
2. ALH growth and development of Festuca idahoensis (PR No 51)
3. ALH 3431 Regrowth of Agropyron spicatum and Sipa aster one

1
**VI B Plant growth**

4. ALH 4797 This slide is a reminder to discuss time of root growth in relation to time of shoot growth. Generally root growth completed by time plant flowers. (See Troughton 6057 Feb 26 1965) ALH Trent of plant food reserves in relation to plant growth and cattle weight trends 6061 Feb 26 1965

**III Dedication**

7. Table 10 (PR1651)

6064" Table 7 Feb 26 1965

6068 Feb 26 1965

6069 Feb 26 1965

6072 Feb 26 1965

Page 26

**VIII Value reg.A 1. ALH cattle weight trends Fig 13 (PR1651)**

2. Livestock B 2. Season of grazing Table 16 4-month season (PR1651)

Displaced or lost slide showing just plant growth and seed reserve trends. Ignore cattle weight curve slide here. Use in VIII A 2
IX Range use

1. ALH 5378 California
2. 5977 Arizona
3. 5733 Colorado
4. 2941 California
5. 3348 South Dakota
6. 958 California
7. 923 " "
8. 2187 " "

IX Range condition

1. ALH 3330 California Effects of
   - Concentrated use around water
   - Concentrated use in meadow
2. 7305 " "
3. 2070 " Selective grazing
   resulting in change from grass to
   buttercup
4. 1936 "
5. 4652 " Invasion Chestax
   " Exert stand by big sagebrush
6. 4647 " Chestax exert stand
   almost entirely displaced by sagebrush
5. 78 5440 & 5431 Oregon Agropyron
   Sporadically site replaced by cheatgrass
   and big sagebrush.
X Range condition Cont'd

9. ALH 577 Colorado Grassland site invaded by sagebrush. Grass production potential high. Foreground sprayed

10. ALH 5720 Colorado Hilaria jamesii stand giving way to shrub, sagebrush and other low shrubs

11. ALH 5821 Utah Hilaria jamesii stand replaced by Chrysobalanus

12. ALH 5838 Arizona Hilaria jamesii giving way to Erodium lanata

13. ALH 6030 New Mexico Larrea tridentata and other shrubs invading grassland.

Interior shrubs have invaded or thickened on millions of acres throughout the West as a direct result of livestock grazing.

XI B g) 1. ALH 3658 California Character of Harvey Valley Grazing

Following is a sequence illustrating treatments and results expected under west-railroad grazing

2. ALH 4613 Harvey Valley Close use of...
After reaching the upper level, the observer is struck by the abundance of flora and fauna. The area is rich in biodiversity, with a variety of plant species and bird species. The soil is deep and well-drained, supporting a healthy ecosystem.

The ground is covered with a layer of decomposed organic matter, which helps retain moisture and nutrients. The presence of moss and lichen indicates a stable and moist environment. The area is suitable for various plant species, contributing to the overall biodiversity of the region.

The observer also notes the absence of any significant human activity, allowing the natural ecosystem to thrive undisturbed. The area is a perfect example of how undisturbed natural areas can support a diverse range of life.
12. ALH 3044: Harvey Valley. Do not graze seedlings in first growing season.
13. ALH 5235: " " Firmly established 2 year old seedlings of Poa nevadensis pull up negligible in spite of grazing.
14. ALH 4027: " " Reproduction by rhizomes. Speed rapid because of rest periods.

This next series shows mass reactions on Harvey Valley:

1. ALH 1746: Weedy annual site; some bare soil (1946)
2. ALH 5103: reported 1746 in 1944. More grass, thinner cover
3. ALH 2954: Heavily grazed annual
a series
4. ALH 4714: - becoming more grassy
5. ALH 4715: - in water spots Derhampson (Specia 23 is thickening, fully grass)
6. ALH 5862: Close up of Derhampson reproduction (several age classes) becoming established in dense rush, sedge stand.
7. ALH 3044  Closely grazed stand Stenocles hystrix and Poa nevadensis in drought year.
8. ALH 5160  Report of 3044 in good growing season.
9. ALH 3776  Close use of Poa nevadensis (1963)
10. ALH 5301  Report of 3776 in 1964 after one year of rest from grazing. Density, vigor of stand due to rest periods.
11. ALH 3436  Gross reproduction in timber type
12. ALH 3105A  Gross established in timber openings.
13. ALH 3093  Elymus intricatus spreading over deteriorated Carex exscapa site
14. ALH 5092  Sipho occidentalis and Stenocles hystrix establishing on raw soil of slack water tank.
15. ALH 2419  (1957)
16. ALH 5397  (1964) Report - Erosion control
17. ALH 3033  (1959)
18. ALH 5400  (1964) Report " " "
Management sprayed and resicted areas

1 ALH 2361 Harvey Valley 1951 24 Delayed
2 ALH 5073 " " 1964 Portion of
area sprayed in 2361 showing condition
of grass stand 14 years after spraying
3 ALH 5071 " " Same as 5073
Exlosure established 1954 on left.
4 ALH 5369 Harvey Valley 1964 Stand of
Agropyron intermedium and Agropyron
cristatum 11 years after planting
5 ALH 4370 " " 1963 Margin
of area in 5369 in grazed condition
6 ALH 2933 " " 1955 Stand of
Bromus miliaceus 5 years after planting
Exlosure on right.
7 ALH 3351 " " Grazed
condition of stand shown in 2933 in
1961 Exlosure in right background
8 ALH 5329 " " Close up of exlosure
in 1964
9 ALH 5075 " " Report of 3351

11 ALH 3092 " " 1961 Character of stand shown in 3018 in 1961.

12 ALH 5037 " " Stand shown above in 1961, topped and being grazed.

Slides 1 to 12 under XII show that sprayed and resprouted areas can be brought into production and maintained under the rest-relation management formula prescribed for the native vegetation.

XIII 1. ALH 3496 Harvey Valley Bitterbrush. Other wildland producing twigs during rest period.

ALH 3496 " " Seedlings of Bitterbrush. Several age classes. Some in first year of growth (note cotyledons) result of proper timing rest.
3. At 3467 Harvey Valley. Aspen sprouts. Result of rest. None showing prior to 1951.

4.5 At 2911, At 5000 Harvey Valley. Browse and other sage in rested fields provide food for deer and antelope.

6. At 4757 Harvey Valley. Herbaceous vegetation around stock pond in rested field provide nesting places, food and cover for waterfowl and other birds. Ducks on pond.

7. At 5676 Harvey Valley. Stand of ponderosa and Jeffrey pine planted in 1956 on a burned timber site. Most trees now 3 to 5 feet tall (9 years since planting). Growing vigorously. Field rested 4 dull grazing seasons and 2 growing seasons since planting.

End.
February 10, 1965

Instruction Memo No. 65-78
Expires 12/31/65

To: AFO's

From: Assistant Director, Resource Management

Subject: Rest Rotation Grazing System   FD July 1, 1965

The following instruction and guidelines are established to more effectively implement at least one rest rotation grazing system in each statutory grazing district during the 1966 Fiscal Year. Instruction Memo No. 64-601 specified accomplishment during the 1965 calendar year, however, this will extend the date for implementation.

Mr. Hormay has volunteered to review each and every system which the Bureau initially establishes to insure that the system is properly conceived and analyzed. As you are aware, this welcome gesture by Mr. Hormay will require valuable time from his busy schedule. It is imperative that all submissions to him be well conceived, thoroughly checked on the ground with the rancher and any other interested parties, and properly documented and ready for a final review prior to initiation.

Enclosed are copies of forms prepared by Mr. Hormay with which you are familiar as a result of the various field training sessions. These are to be carefully completed for your analysis of the selected areas preparatory to development of a grazing formula outlining the sequence of treatments.

Mr. Hormay will require a single copy of each of the following items for his review and evaluation. (Machine copies will be satisfactory.)

1. Each of the enclosed forms fully completed.
2. The proposed formula (sequence of treatments) in diagram form.
3. A map of the area showing the vegetative types with all existing and proposed fences (approximate location) required to conduct the grazing system.
4. Key species identified for each vegetative type.
The above data is necessary to establish any rest rotation grazing system and will not result in additional work. The data may be sent directly to Mr. Hormay whenever it is completed. However, all data will be forwarded to him no later than July 1, 1965. Every effort should be made to submit the data prior to this date so that Mr. Hormay will not be engulfed by a deluge of material at one time. Mr. Hormay's address is as follows:

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

The cooperation of every concerned person is solicited in this effort. It is imperative that particular pains be taken in the establishment of these initial systems to insure that they are properly developed as bonafide rest-rotation grazing systems and consideration should be given to implementing the system on existing RCA's. They will have continued utility as demonstration and training areas. It is for these reasons, coupled with our inexperience with the system, that Mr. Hormay's services are so vital.

If you have any problems or questions regarding the establishment of these initial rest rotation grazing systems do not hesitate to contact this office.

[Signature]  
Acting

5 Enclosures
Enclosure 1 - Range Inventory, Analysis, and Management Plan  
Enclosure 2 - Description, Inventory and Analysis of Allotment  
Enclosure 3 - Composition, Value, Use and Development of Plant Species in Natural vegetation type or culturally treated areas  
Enclosure 4 - Estimated utilization of available forage in natural vegetation types and culturally treated area and condition of range  
Enclosure 5 - Effect of planned cultural treatments on grazing capacity

DISTRIBUTION: w/enclosures  
D&RM - 5  
712a - 10  
IA - 15  
RPM - 5  
Mr. Hormay - 1
RANGE INVENTORY, ANALYSIS, AND MANAGEMENT PLAN

Project Number __________ Compiler _________________ Date __________

Allotment ________________________________ Unit ______________________

District _______________________________ State _________________________

Name of Permittee _________________________________________________

Field Examination (Date) ____________________________________________

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Name</th>
<th>Position</th>
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</tbody>
</table>
DESCRIPTION, INVENTORY AND ANALYSIS OF ALLOTMENT

Class of stock __________ Stocking (AUs) __________ (AUMs) __________
Season of grazing (Dates) ______________ to ______________
Character of topography ____________________

Table 1. Area of natural vegetation types and culturally treated areas grazed by livestock and by game

<table>
<thead>
<tr>
<th>Vegetation types and culturally treated areas 1/</th>
<th>Total area of type</th>
<th>Area grazed by livestock at present</th>
<th>Area grazed by livestock 30 years from now 2/</th>
<th>Area grazed by game at present</th>
<th>Area grazed by game 30 years from now 2/</th>
</tr>
</thead>
<tbody>
<tr>
<td>(name)</td>
<td>(acres)</td>
<td>(percent)</td>
<td>(acres)</td>
<td>(acres)</td>
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<tr>
<td>Allocated Total</td>
<td>100</td>
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</tbody>
</table>

1/ List culturally treated areas under appropriate vegetation types.
2/ Under improved management.
Table 2. Composition, value, use and development of plant species in natural vegetation type or culturally treated area

<table>
<thead>
<tr>
<th>Type or treated area (name)</th>
<th>Amount in cover (percent)</th>
<th>Forage value (check one)</th>
<th>Utilization Start</th>
<th>Development</th>
<th>Regrowth 3/</th>
<th>Stalks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grasses &amp; Grass-like</td>
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<td>Total</td>
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<td>Forbs</td>
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<td>Total</td>
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<td>Shrubs and trees 1/</td>
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<td>Total</td>
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<td>Grand Total</td>
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</tbody>
</table>

1/ Including conifers
2/ For trees and shrubs include estimates only for species that can be changed or removed in a range improvement program.
3/ How late in spring can the species be grazed and still produce grazable leaves or twigs or seed-producing flower stalks?
<table>
<thead>
<tr>
<th>Vegetation type or treated area(^1)/</th>
<th>Use of total tonnage of forage in type (percent)</th>
<th>Vigor of forage species (^2)</th>
<th>Ratio of good to poor forage species (percent) (^3)</th>
<th>Density of forage (percent of potential)</th>
<th>Sheet Erosion</th>
<th>Depth (Inches)</th>
<th>Extent (Percent of ground area)</th>
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</table>

Allotment average

\(^1\)/ List treated areas (reseeded, sprayed, etc.) under appropriate vegetation types.
\(^2\)/ L = low, M = moderate, H = high.
\(^3\)/ From Table 2 Excellent and good species = good; fair and poor species = poor.

What percent of the livestock forage on the range is used by game? ________________

What are the principal foraging game animals? ________________
Table 6. **Effect of planned cultural treatments on grazing capacity**

<table>
<thead>
<tr>
<th>Vegetation type to be treated</th>
<th>Area</th>
<th>Capacity at present</th>
<th>Artificial reseeding</th>
<th>Capacity 30 yrs. hence due to:</th>
<th>Effect of cultural treatment (6) minus (4)</th>
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</thead>
<tbody>
<tr>
<td>(name) Acres</td>
<td>Ac/AUM AUMs (1) (2)</td>
<td>Ac/AUM AUMs (3) (4)</td>
<td>Ac/AUM AUMs (5) (6)</td>
<td>AUMs (7)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Grazing management</td>
<td>Cultural treatment</td>
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<tr>
<td>Total</td>
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</tbody>
</table>

**Spraying or other treatment**

|                          |      |                     |                      |                                 |                                           |
| Total                   |      |                     |                      |                                 |                                           |
The attached dope is a little late, but am sending it in case you didn't get the info. elsewhere.

Sheep were on the Willow Cr. allot in vicinity of the plots. In my opinion is heavier than average. I think we should consider the allot as a whole. The center of the allot was, via the drainage with shipping point about 1 mile below. If you need additional info., let me know. Our records go back to 1900 on Long Valley Willow Cr. allot formations.

S ERGIO A.洋

REPLY (Use this space for reply. Sign and date. Return part 2 to sender. Retain part 3)
February 19, 1965

Information Memo No. 65-44
Expires: 6/30/65

To: AFO's (Except Alaska)

From: Chief, Division of Resource Program Management

Subject: 1964 Summary of Range Condition and Trend Reports

Enclosed is a copy of the 1964 Range Condition and Trend Summary Report for your information and use.

Enclosure (1)
Encl. 1 - Summary of Range Condition and Trend Reports

Distribution: (w/encl.)
D&RM - 5
RPM(711) - 10
RM(712a)
<table>
<thead>
<tr>
<th>State</th>
<th>Range Condition Classification (Usable Federal Range)</th>
<th>Trend Classes</th>
<th>Unusable</th>
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<tbody>
<tr>
<td></td>
<td>Excellent</td>
<td>Good</td>
<td>Fair</td>
</tr>
<tr>
<td>Arizona</td>
<td>38,557</td>
<td>1,042,704</td>
<td>4,076,530</td>
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<tr>
<td>California</td>
<td>16,679</td>
<td>359,104</td>
<td>2,366,971</td>
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<tr>
<td>Colorado</td>
<td>24,036</td>
<td>814,341</td>
<td>4,105,634</td>
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<tr>
<td>Idaho</td>
<td>277,399</td>
<td>2,358,941</td>
<td>6,503,277</td>
</tr>
<tr>
<td>Montana</td>
<td>25,306</td>
<td>3,613,024</td>
<td>3,516,716</td>
</tr>
<tr>
<td>Nevada</td>
<td>860,462</td>
<td>6,717,564</td>
<td>24,766,324</td>
</tr>
<tr>
<td>New Mexico</td>
<td>58,784</td>
<td>2,734,821</td>
<td>9,460,705</td>
</tr>
<tr>
<td>Oregon</td>
<td>85,704</td>
<td>1,049,217</td>
<td>5,402,913</td>
</tr>
<tr>
<td>Utah</td>
<td>23,816</td>
<td>1,079,085</td>
<td>10,994,851</td>
</tr>
<tr>
<td>Wyoming</td>
<td>312,553</td>
<td>2,059,928</td>
<td>7,298,478</td>
</tr>
<tr>
<td>All Districts</td>
<td>1,746,290</td>
<td>21,813,075</td>
<td>78,575,433</td>
</tr>
</tbody>
</table>

Enclosure 1

155 063 225
Memorandum

TO: Regional Forester, R-1
FROM: E. G. Dunford, Assistant Director

SUBJECT: Range Program (Training in Range Mgmt.)

This is in reply to Mr. C. A. Miller's memorandum of February 2, in which he requests three copies of the outline being prepared for a range management training guide.

Attached is a copy of a memorandum from Horray to Donald Nelson, Bearhead P.F. It was accompanied by an abbreviated outline of the guide we are preparing. It is unlikely that the guide itself, or a detailed outline of it will be ready by the time you start your training session.

Enclosure

cc: Bearhead P.F.
    Bearlodge P.F. (w/encl)
    Horray

EGDunford:etr

EGDunford/etr

Department of Agriculture—Forest Service
Berkeley, California 94701

File No. 4210(240)

Date: February 26, 1965

Your reference: 6140 2-2