Last summer an inter-agency task force was formed to act as a clearing house for forest fertility work in California. Our first aim is collating existing information--published and unpublished--through a broad survey of workers in the field.

My responsibility lies with research done by the Experiment Station from Creation, to the present. Because there is a fine--and somewhat arbitrary--line between forest and range soils, much of the work you've done may relate to forest conditions, and I'm asking your help in this project.

Please review the enclosed forms and document any work you've done with wildland soils which you feel relates to forest fertility. Completed forms should be returned to Paul Zinke no later than February 13, 1975.

Thanks very much for your help.

ROBERT F. POWERS
Vice Chairman
Task Force on California Forest Fertility

Enclosures
We seek your help in surveying nutritional work to date in California forest lands. Please list, to the best of your knowledge, any of the categories below that apply to your organization from your earliest records to the present, using one form per record. Please return no later than February 13, 1975, to Dr. Paul Zinke, Coll. Nat. Resources, 145 Walter Mulford Hall, University of California, Berkeley, California 94720. Thank you for your cooperation.

Task Force, California Forest Soil Fertility Project.

Name __________________ Mailing Address __________________

Position __________________ Date ____________ 1975 to ____________

Organization __________________

RECORD OF NUTRITION WORK

1. Kind of work done (check one or more).
   a. Fertilization
   b. Soil Analysis
   c. Vegetation Analysis
   d. Bioassay
   e. Photographic Survey
   No work in this field

2. Site Description.
   a. Location: T._____, R._____, Sec._____, Merid.
   b. Vegetation Type
   c. Site Index 100
   d. Stand Age
   e. Stand History
   f. Soil Parent Material
   g. Soil Classification
   h. Soil Depth
   i. Soil Texture
   j. Date Work Began
   k. Principal Investigator

3. Kinds of variables measured or applied (check one or more).
   in plant in soil in fertilizer
   a. N _______ _______ _______
   b. P _______ _______ _______
   c. K _______ _______ _______
   d. S _______ _______ _______
   e. Ca _______ _______ _______
   f. Other (describe) _______ _______ _______
   g. C
   h. CEC
   i. pH
   j. Growth
   k. Animal Damage
   l. Economic Analysis

4. Nutritional Work Planned Over Next Five Years (Describe):____

__________________________________________________________________
January 9, 1975

MEMORANDUM

To : Gus Hormay

From : Chief, Division of Resources, ISO

Subject: Management Facilities for Herd Creek AMP

Per your request we are forwarding a map showing the proposed management facilities for the Herd Creek AMP.

Construction on these facilities will start about June 1, 1975. The fences shown in green should be completed by September 1976.

Management facilities prepared by the Forest Service will be forwarded at a later date.

Attachment
map

Fencing completed in 1976

IRC started 1977
Hormay Travel 1975

January None
February None
March 24-25 Reno, Nevada. Grazing regulations. Kay Wilkes etc
April None
May None
June None
July 14-19 Harvey Valley Condition, trend. Management responses.
August 18-22 Chalk's Planning Unit AMPs review
25-29 Harvey Valley as in July
September 8 Boise District Dave Little Allotment
10-11 SCS workshop
October 7 Harvey Valley
8 Tulelake Allot.
9 AM " "
20-23 Harvey Valley
24 Tulelake Allot.
28-30 Wells Meadow Allot.

November None
December None
Mr. August L. Hormay  
Department of Agriculture  
U. S. Forest Service  
P. O. Box 245  
Berkeley, CA  94701  

Dear Gus,

It is necessary at this time that New Mexico withdraw from the rest-rotation multiple-use land management demonstration program. The decision is based on several factors.

We have many existing AMP's that need updating and revision. A strong possibility exists that environmental impact statement preparation for grazing licensing may make heavy demands on range management time.

The Governor of New Mexico has issued an executive order in regard to grazing management. Future BLM inputs will be required in helping to develop plans for "model" operations where BLM lands are concerned. Since there appears to be great similarity between your effort and the State's ideas, we decided we should give emphasis to their proposal at this time.

We hope as these plans develop we can draw on your expertise for advice from time to time.

We have appreciated your help in New Mexico and extend our thanks.

Sincerely yours,

[Signature]

State Director
TUSSOCK GRASSLANDS AND MOUNTAIN LANDS INSTITUTE

P.O. Box 56, Lincoln College,
Canterbury, New Zealand.

17 January 1975

Dr A.L. Horman,
Bureau of Land Management,
Department of the Interior,
P.O. Box 245,
Berkeley, California 94701,
U.S.A.

Dear Dr Horman,

I am Management Officer (Senior Research Officer) of
this Institute and as part of University refresher leave
will be visiting the United States after attending the
Society of Range Management meeting in Mexico. My special
research interest is in grazing behaviour of, and diet
selection by sheep and cattle but I am also concerned
with investigations into most aspects of the management
and pastoral development of our 10 million acres of high
country grazing lands.

I know something of your work and would appreciate
the opportunity to call on you briefly to discuss aspects
of it with you. I will be arriving in Berkeley on
Sunday 9th March and expect to spend about two days
in your city. If it is not convenient for you to see
me, perhaps you would be willing to refer my name to one
of your colleagues with similar interests. However, in
the meantime I will look forward to the possibility of
meeting you.

I will be leaving New Zealand on 8th February. My
contact address in the United States up to 2nd March will
be c/o Professor J.A. Hayward, Department of Earth Sciences,
School of Forestry and Natural Resources, Colorado State
University.

Yours sincerely,

[Signature]

J.G. Hughes,
Management Officer.
P.O. Box 245
Berkeley, California 94701

January 17, 1975

Arthur W. Zimmerman
State Director
U.S. Post Office and Federal Building
South Federal Place
P.O. Box 1449
Santa Fe, New Mexico 87501

Dear Art,

I'm sure the rest-rotation multiple-use land management demonstration program can be very helpful to you at this time. It will show you how existing AMP's can be strengthened, how to cope with the environmental impact statement problem and how to develop sound management plans and set up "model" operations.

It is very difficult if not impossible to strengthen existing plans and make them practical and durable unless they are based on a sound foundation. The method of developing such a foundation is covered in the demonstration area program.

Sincerely yours,

Range Conservationist

cc:
GDFulcher,
Denver Service Center

ALHORMAY:ng
Memorandum

TO: Chief, Div. Standards and Technology

FROM: Range Conservationist

SUBJECT: Demonstration Area Program, Work Accomplishments, Work Schedule

January 20, 1975

Demonstration Area Program

The status of this program is summarized in the attached table. Five States have participated in the program to date. Five have not. A total of seven areas have been selected as prospective demonstration areas in the five active states. The Tulead area in the Susanville District, California, was selected just this past November 19. The other six areas were selected in 1974 and the first planning sessions for them were completed by December of that year. Please see my memorandum of November 27, 1974, to State Directors, Subject: Status of Rest-rotation Multiple-use Land Management Demonstration Area Program. I sent you a copy. Descriptions of resources and problems on the areas are contained.

Final management plans for these six areas were to be completed in 1975 but several factors, the NRDC suit mainly, prevented it. The districts became obligated with AMP's and EIS's in connection with the suit and had little time for the demonstration area program.

Prospects appear good for completing final management plans for four areas this year—Juniper Mountain, Matador, Tulead, and Pryor Mountain-Mystic. I am planning to see these through. Tulead, the largest and most complex area, should prove to be a very important demonstration area.

It is doubtful that demonstration area planning will proceed on the Hall Creek, West Bellevue and Herd Creek areas in the near future. These are tied up presently in the NRDC EIS program.
Work Accomplishments 1975

I spent most of my time during the past year working on a format for rest-rotation multiple-use management plans. I worked up a first rough draft and sent copies to the districts for review and suggestions. I also did the following:

1. Gathered information and photographs, mainly in Harvey Valley, for use in a procedure for evaluating the results of rest-rotation land management;

2. Helped review AMP's in the Challis Planning Unit, August;

3. Examined the Indian-Jake Allotment on the Boise District, Idaho, on September 8 at the invitation of the Idaho State office. Prepared a report offering suggestions on the management of the allotment. I sent a copy of the report to you about September 29;


5. Examined the Tuledad Allotment in the Susanville District twice in October to appraise its suitability for a demonstration area. Found it satisfactory.

6. Examined the Wells Meadow Allotment, Bishop Resource Area, Bakersfield District October 28-30 for management results and adequacy of management plans. Offered suggestions to Bishop Resource Area and District offices on revising and updating the management plan. Please see my memorandum of November 7, 1975, to the District Manager.

Work plans, January-September 30, 1976

General during period

Continue working on format for rest-rotation multiple-use plans. Continue gathering information for rest-rotation management evaluation procedures.
Continued: Work plans, January-September 30, 1976

Specific jobs by months. (All involve field travel.)

<table>
<thead>
<tr>
<th>Job</th>
<th>Travel cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>January</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>February</strong></td>
<td></td>
</tr>
<tr>
<td>Tuledad management plans</td>
<td>170</td>
</tr>
<tr>
<td>Wells Meadow management plans</td>
<td>200</td>
</tr>
<tr>
<td><strong>March</strong></td>
<td></td>
</tr>
<tr>
<td>Revise Harvey Valley management plan.</td>
<td></td>
</tr>
<tr>
<td>(Lassen National Forest request)</td>
<td>200</td>
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<tr>
<td><strong>April</strong></td>
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<td></td>
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<tr>
<td><strong>May</strong></td>
<td></td>
</tr>
<tr>
<td>Tuledad management plans</td>
<td>230</td>
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<tr>
<td>Wells Meadow, Final planning session</td>
<td>230</td>
</tr>
<tr>
<td><strong>June</strong></td>
<td></td>
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<tr>
<td>Tuledad, First planning session</td>
<td>230</td>
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<tr>
<td>Harvey Valley management</td>
<td>260</td>
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<tr>
<td><strong>July</strong></td>
<td></td>
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<tr>
<td>Juniper Mountain, Final planning session</td>
<td>225</td>
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<tr>
<td>Tuledad, Final planning session</td>
<td>230</td>
</tr>
<tr>
<td><strong>August</strong></td>
<td></td>
</tr>
<tr>
<td>Matador, Final planning session</td>
<td>330</td>
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<tr>
<td>Harvey Valley Management and information</td>
<td>260</td>
</tr>
<tr>
<td><strong>September</strong></td>
<td></td>
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<tr>
<td>Pryor Mt-Mystic, Final planning session</td>
<td>390</td>
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<tr>
<td><strong>Total</strong></td>
<td>$2955</td>
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</table>

A. L. Herman
Status of rest-rotation multiple-use land management
demonstration area program in 10 western states, January 1976

<table>
<thead>
<tr>
<th>State</th>
<th>District</th>
<th>Demonstration Area</th>
<th>Program explained</th>
<th>Area selected</th>
<th>First planning session</th>
<th>Final planning session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td></td>
<td></td>
<td>June 5, 1974</td>
<td>Not participating in program</td>
<td></td>
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<tr>
<td>Colorado</td>
<td></td>
<td></td>
<td>June 4, 1974</td>
<td>Not participating in program</td>
<td></td>
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<tr>
<td>Idaho</td>
<td>Salmon</td>
<td>Herd Creek</td>
<td>May 8, 1974</td>
<td>May 31, 1974</td>
<td>October 22-24, 1974</td>
<td>?</td>
</tr>
<tr>
<td>Nevada</td>
<td></td>
<td></td>
<td>May 9, 1974</td>
<td>Not participating in program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Mexico</td>
<td></td>
<td></td>
<td>June 5, 1974</td>
<td>Not participating in program</td>
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<tr>
<td>Utah</td>
<td></td>
<td></td>
<td></td>
<td>Not participating in program</td>
<td></td>
<td></td>
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<tr>
<td>Wyoming</td>
<td>Rawlins</td>
<td>Hall Creek</td>
<td>May 21, 1974</td>
<td>July 26, 1974</td>
<td>November 12-14, 1974</td>
<td>?</td>
</tr>
</tbody>
</table>
Planning Demonstration Areas

As of Jan 27/76 States

State Area     
California

1. Toledo    Selected area Nov. 19 1975 S.D.

Idaho

2. Hard Creek Not R Held Fisher planning Aug 4 1975 
     State Director

3. West Bellevue
     1 book  No Fisher planning Jan 7 1975 
     Haszler Dist. Agr.

Montana


     Received copy completed forecast plan Jan 1976 Brown Acting

Oregon

     1 book  A K Majors

Wyoming

7. Hall Creek R Fisher planning? Prob not
     2 books F. Wolf Oct 24 1975

Denver Service Center R
     1 book

✓ R= returned  book = RR planning form
Memorandum

TO: Dale Brubaker, A.M. Lander, Wyoming
FROM: August L. Hormay
SUBJECT: Format. Rest-rotation land management plans

I am working up a format for rest-rotation management plans for use in the demonstration area program. It will be shaped into final form later after the participants in the program have opportunity to consider and use it and to offer suggestions for improving it.

I want to illustrate the present version with information from Hall Creek area. I need the information listed below. This information is being used for illustration purposes so it need not necessarily be precise or accurate. Estimates, approximations and even guesses will suffice.

I need the information as soon as I can get it, no later than January 31, 1975. So do not take time to seek information from outside sources. Round up the information that is readily available in your and the district office.

Put the information, including statistics, on letter size maps. Draft a base map of the Hall Creek area for this purpose rather carefully showing the area boundary, township and section lines and the principal drainage channels. Title it Hall Creek Management Area. Please send me six extra copies of this clear base.

Enter all information on a subject on this base, freehand. Prepare a brief statement explaining the subject matter, if necessary. If there is no information available on a subject at the present time, or if the subject is not pertinent, please indicate.

INFORMATION:

State

Letter size map of state showing boundary of state, main highways and towns and locations of the Hall Creek Management Area.
Hall Creek Area

1. Land ownerships (in color)
2. Geologic formations
3. Topography - U.S. G. S. contour
4. Topography - Shaded relief (if available)
5. Topography - Principal drainages (this is the base map.)
6. Vegetation types (in color)
   - Wet meadow
   - Riparian woodland-shrub
   - Grassland 80% grass
   - Sagebrush 80% sagebrush
   - Grassland-sagebrush More than 21% grass or sagebrush
   - Brush or chaparral
   - Aspen
   - Upland woodland-shrub
   - Conifer - juniper
   - Conifer - pine-juniper
   - Other
     Show narrow areas of wet meadow and woodland-shrub type along drainage courses with a line and areas up to a size that can be mapped by an enlarged dot.
7. Plants poisonous to livestock
8. Plants poisonous to wildlife
9. Plants poisonous to/or hazardous (poison ivy) to humans
10. Plants edible by humans
    Information in 7 to 10 above may not be readily displayed on maps. If not, omit maps and prepare tables.
11. Rare and endangered plant species Map or table
    By species
    Population

12. Elk habitat areas
    Summer and winter
    Concentration areas both seasons
    Migration or movement routes onto, on, and off of the Hall Creek Area.
    Numbers of animals, summer and winter

13. Deer habitat areas
    As for elk

14. Antelope habitat areas
    As for elk

15. Sagehen habitat areas
    Population

16. Chukar habitat areas
    Population

17. Waterfowl habitat areas
    By species
    Population

18. Fish habitat areas
    By species
    Population

19. Rare and endangered animals species
    (Birds, mammals, reptiles, fish, etc.)
    Species (Prairie falcon, golden eagle, etc.)
    Population

20. Merchantable timber types
21. Mining
   Claims
   Types of minerals
   Active or not
22. Areas damaged by mining activities
23. Existing water resources
   Live streams
   Impoundments
   Live springs
   Wells
24. Proposed water developments
   Springs
   Wells
   Impoundments
25. Underground water supplies
   Water basins (Area, dept, potential water yield.)
26. Existing improvements
   Roads, trails, transmission lines, fences, cattle guards, buildings
27. Proposed improvements
   Kinds as in 26
28. Refuse dumps
29. Esthetic areas
30. Wild areas
31. Campgrounds and other recreation sites
   Existing
   Proposed
32. Historic values
   Sites, areas, trails, buildings, other structures
33. Archaeological sites
   Kind
   Dates
34. Culturally treated areas
   Reseeded
   Sprayed
   Chained
   Etc.
35. Burned areas
   Date
   Cause - man, lightning, etc., or unknown
36. Insect infestations
   By insect and host
37. Plant diseases
   By disease and host
38. Rodent infestations
   By species
39. Areas damaged by industrial or agricultural air or ground pollutants
40. Off road vehicle trails and damaged areas
41. Rock bounding areas
   Kinds of rocks

42. Unusual, interesting natural sites and recreation areas

Please send any other information you feel is pertinent and significant.
Memorandum

To: Attendees - Rest Rotation - Multiple Use Land Management Demonstration Area Training Program

From: L. K. Brown, Area Manager, Billings District

Subject: Progress Report

Attached is a progress report we recently received from A. L. "Gus" Hormay which outlines the progress being made on Rest Rotation Multiple Use Land Management Demonstration Area Programs. Gus discussed the demonstration area program at our training session in Billings on October 10, 1974, and laid the foundation for further planning and development of the Mystic-Pryor Spur Allotment in the Pryor Mountains as a demonstration area.

The Billings District and Custer National Forest have developed a cooperative agreement for this area and will be working on a draft plan for the allotment. We would again like to extend an invitation to each attendee of the October training session to participate in the development of the Mystic-Pryor Spur Plan.

We would like to complete the first draft of the demonstration area plan by May 30. A copy of this draft will be sent to each attendee for input and suggestions. We then plan on bringing the group together later in the season to finalize the plan.

Enclosures:
List of Attendees
Progress Report

cc: Gus Hormay
January 27, 1975

August L. Hormay  
P. O. Box 245  
Berkeley, CA  94701

Dear Gus:

Enclosed are the maps and tables as per your request received on January 23, 1975. Of the 42 items you requested, the following were not compiled for the stated reasons:

- #4 Topography – shaded relief (unavailable)
- #11 Rare and Endangered Plant Species (none known to occur)
- #25 Underground Water Supplies (unknown)
- #31 Campgrounds (none in area)
- #32 Historic Values (none known)
- #34 Culturally Treated Areas (none in area)
- #35 Burned Areas (none known)
- #36 Insect Infestations (none known)
- #38 Rodent Infestations (none known beyond expected population levels)
- #39 Areas Damaged by Pollutants (none known)

The remainder are as accurate and complete as our present data allows.

Sincerely,

[Signature]

Gary Blincow  
Acting Area Manager

Enclosures
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<th>No</th>
<th>Subject</th>
<th>Prepared by</th>
</tr>
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<td>2</td>
<td>Geology</td>
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<td>3</td>
<td>Topography contours</td>
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<td>4</td>
<td>Topography (shaded relief)</td>
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<tr>
<td>5</td>
<td>Drainage systems</td>
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<td>Vegetation types</td>
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<td>7</td>
<td>Poisonous plants</td>
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<td>8</td>
<td>Wildlife</td>
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<td>9</td>
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<td>Rare &amp; endangered plants</td>
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<td>12</td>
<td>Elk habitat</td>
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<td>Deer</td>
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<td>14</td>
<td>Antelope</td>
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<td>15</td>
<td>Sage grouse</td>
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<td>18</td>
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<td>21</td>
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<td>&quot; disturbance</td>
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<td>24</td>
<td>Proposed water develop</td>
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<td>25</td>
<td>Underground water</td>
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<td>27</td>
<td>Proposed &quot;</td>
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<td>28</td>
<td>&quot; Dump sites</td>
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<td>29</td>
<td>Esthetic areas</td>
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<td>34</td>
<td>Culturally treated areas</td>
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<td>35</td>
<td>Burned areas</td>
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<td>36</td>
<td>Insects</td>
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<td>37</td>
<td>Plant diseases</td>
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<td>38</td>
<td>Rodents</td>
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<td>39</td>
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<td>40</td>
<td>ARV trails</td>
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<td>41</td>
<td>Rock collecting areas</td>
<td>Yes</td>
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<tr>
<td>42</td>
<td>Natural and recreation areas</td>
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</table>
January 29, 1975

Mr. J. G. Hughes,
Management Officer,
Tussock Grasslands and
Mountain Lands Institute,
Post Office Box 56,
Lincoln College,
Canterbury, New Zealand.

Dear Mr. Hughes,

I expect to be in Berkeley the week of March 9 and will be glad to talk to you on matters related to management of rangelands.

My office is in Room 200, Stead Building, 1960 Addison Street. This is on the corner of Milvia and Addison Streets, one block south of University Avenue, a main street running east and west from the San Francisco Bay to The University of California Campus.

I am sending a copy of this letter c/o Professor J. A. Hayward, Colorado State University, should this one not reach you before you leave New Zealand.

Sincerely,

A. L. HORMAY
Information Memorandum No. 75-16
Expires: 6/30/75

To: AFO's

From: Chief, Division of Range

Subject: Western Livestock Journal Article "Rest Rotation, A New Concept in Range Management"

The enclosed article appeared in the January issue of the Western Livestock Journal.

This article is in support of Rest Rotation Grazing and it gives recognition to "Gus" Hormay for his outstanding efforts in the development of this concept.

Acting

Enclosure

Encl. 1—Western Livestock Journal Article "Rest Rotation, A New Concept in Range Management"

Save Energy and You Serve America!
REST ROTATION range management is not a new concept to Western ranchers, but it is still new to August Hormay, the man who developed it more than 25 years ago.

This simple philosophy, based on selective grazing of the West's natural rangeland, grew out of an intimate knowledge of plant life he picked up during 36 years with the Forestry Service. Eight years ago he joined the Bureau of Land Management to educate a growing number of rangeland users who recognized the need for change.

Today, Hormay, Gus to his friends, travels the western states setting up grazing programs, advising and school- ing BLM people in the rest-rotation philosophy. The schedule he follows is a lot like that of a professional sport team in terms of travel.

"Let nature do it" is the basic theme of my work," Hormay exclaims. "This is the foundation of good land management, whatever the case. My concept of rest-rotation is only a part of the total picture of taking care of our land.

"But in managing wildlands, like most of our ranges are today, just letting the land rest is not enough," he continued. "We must improve the land. In many areas rangeland has been overgrazed in the past by cattle and sheep raisers. Our task is now to restore and improve the production capacity of these lands."

Livestock is the key to this, stresses Hormay. Most of this natural rangeland is good for nothing else but producing beef. The use of grazing and trampling by livestock forms a basic part of his rest-rotation program.

### GRAZING PLAN

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GRAZING

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To understand the rest-rotation management philosophy, you have to begin with the soil and the vegetation it produces. Erosion is the first consideration, because it removes soil that it took nature thousands or millions of years to produce, says Hormay.

"Loss of the soil base is critical—it destroys most of the land's production capacity," he explains. "Overgrazing kills out the vegetation that holds the soil and tons of it are blown or washed away each day.

"Soil depth on most of the western rangelands is from one foot to eighteen inches," Hormay continued. "Yet only the top one inch or less on these lands is the really important Horizon A (Horizon A is the vital top layer containing all the necessary organic and mineral nutrients needed for plant life). It takes nature thousands of years to form the soil, weathering it into ever smaller particles from rocks. Plants can only use these particles when they reach the molecular stage."

The vegetation is totally dependent on the soil, and the livestock is totally dependent on the vegetation, continues Hormay, elaborating that "any plant with the top grazed off, defoliated for several years running will die. Perennial plants will refoliate for awhile, but not forever. The plants die because they run out of food. The food they do produce, which is actually glucose, goes first for growth and second for storage in the roots. This food is produced by chlorophyll in the foliage. When this is grazed off no more food can be produced.

"With food production cut-off, the plant must depend on food reserves in its roots. When this is used up, it dies. The reserves usually last a plant for a few seasons, but when they are depleted, the plant dies out."

Grazing in and of itself is not harmful, he emphasizes. "There is a stimulating effect on plants when the old growth is removed and the plant starts anew. Grazing to the ground does not kill the plant, because of the root stores.

"There is a point at the beginning of the growing period when the plant is most palatable—and livestock sense this and eat it then—when grazing is most harmful to the plant. It is important to try to delay grazing in many instances until after the plant reaches this stage and has a chance to restore its food supplies," he said.

"But rest isn't the complete answer either," continued Hormay. "With total

August "Gus" Hormay, the man who developed the rest rotation range management concept, travels the western states advising and schooling BLM people in the rest rotation philosophy.

Soil samples are taken to check erosion on desigated pasture. The basic theme of Hormay's work is "Let nature do it." This, he says, is the foundation of good land management.

The center, or inside of overgrazed native grass dies out, leaving only the crown to grow. Hormay's rest rotation program would prevent this from happening.
rest a plant will improve for a time, but not any more from then on. In fact, it will stagnate and begin to lose ground again. Around the plant its seeds won't sprout because they fall on dry, barren land. Some covering or protective effect is necessary."

He continues: "This is a function of the rest periods though, they do have a place in the rest-rotation scheme. The forage falls and is on the ground after a year. This organic 'litter' builds up on the ground until it is an important sprouting ground for these seeds. It also prevents erosion."

Seed ripe time is the point when the seeds from the plants have been produced and are on the ground. This is an important point in the rest-rotation plan.

"To improve the land you have to do more than just continue the plants that are there," stresses Hormay, "and this means improving the vegetation through natural reseeding. Now this can't be done if livestock graze down the tops of the plants before seed is produced."

"What we are trying to do is inventory all the plant life on the western rangelands we work with," he continued. "Then look at the species most valuable to stock as feed. We find out the seed ripe time of these, then plan to let livestock into these areas after this point. This way we assure the seed will be on the ground, and also take advantage of the valuable vegetation there."

Another basic concept of the program is seed trampling. Study has shown that seeds on the surface of these lands do not grow or effectively reseed. It needs to be covered with dirt.

"'Timely trampling is the key,' says Hormay. "The trampling effect is not like drilling the seed into the ground for effectiveness, but is sure helps. Cattle hooves do poke and cover the seeds and the seeding effect really works. These are areas where it is not economically feasible nor often even physically possible to mechanically do these things."

Its simply "No trample, no reproduction," says Hormay. "And the timing on this trampling is important. It must come when the important plant species have their seeds on the ground, but before insects, rodents and birds have a chance to get at the seeds."

The tendency on these lands as they deteriorate is toward a desert condition, noted Hormay. The loss of soil, less plant life and a trend toward lessened water reserves all contribute to this change. Tap rooted plants and sage brush move in where fibrous-rooted valuable grasses have died off.

Water resource development is vital on rangelands, he feels, for "without the water, vegetation is of little use to livestock." Basic to all the rest-rotation programs he has worked on for the BLM are water resource developments. Study of the land and natural seeps and springs is vital on many of these ranges where there are no live water sources.

Development of reservoirs and small dams to collect water for livestock use, as well as recreational use, is vital, Hormay feels. And there is another important benefit.

"The rising water table we are working to achieve will drive out the sagebrush. This plant needs dry conditions and too much water will drive it out and make way for grasses and other livestock feed plants," Hormay said.

"But when you get down to it, livestock grazing is the thing that makes rest-rotation work," Hormay stressed. "It is not just a way to improve the land, but the only way. There is no way you could effectively help this land by letting it rest, you can't come in and drill seeds in these rough areas."
Fertilizer is out—and there isn't much water."

The basic philosophy of rest-rotation management is a simple rotation of pasture use. A typical system might be set up using three pastures, A, B and C. These need to be fenced to provide definite areas.

The first year pasture A would be grazed all summer, while pasture C would be rested all summer. Meanwhile pasture B would be resting the first part of the season, until seed ripe time, then the gate would be opened into this pasture. At this time the forage in pasture A would be well grazed and B would be an inviting meal. Both pastures would be left open for the rest of the season.

The second year pasture A, which had been utilized the full previous year, would rest. Pasture B would be opened at the beginning of the season and grazed the full time. At seed ripe time, pasture C would be opened to the cattle.

The third year pasture C would be grazed the full time, pasture A opened at seed ripe time and pasture B rested the full season.

This is a very simple outline, stresses Hormay, and there are many individual management decisions to be made along the way to counter minor problems. Each program must be "tailored to the individual area and situation, he stresses.

A sample program is one that was set up by Hormay for the Juniper Mountain allotment in Southern Oregon. This 90,000-acre area is characterized by a mountainous area, where there is some forage, but the cattle rarely went because of the lack of water. And there is low desert and high desert. Water is sparse and there are no live sources.

The plan for this allotment called for dividing the area into three large pastures. But to utilize the mountainous areas, as well as the intermediate and low desert areas, the fencing had to be planned according to contours. Hormay wanted to lay out the pastures so a little of each land type area was included in the fenced area. The pastures tended to take on a kidney shape.

This was done for several reasons, says Hormay: "First, because the forage naturally ripens earlier in the lower areas. The cattle come into this area first and follow up the ripening forage. Secondly, we wanted all the pastures to have a common fence point so we could easily open the gates and the cattle along the fences would find the openings and move in much quicker. With these pastures we also can take better advantage of what water sources we have and better plan where to develop new ones.

Implementation of the program would cause a few changes in the way the cattleman on the allotment was running his cattle. He normally has gone onto the range on April 1, and off on July 1. But since seed ripe time in the area is July 15, he would have to extend his grazing time. At least one month of trampling is necessary to do a good job.

"In this case we were faced with the forage being exhausted before the seed ripe time," Hormay said. "So not knowing quite the stocking rate to run we would go in with the same number of cattle he had been running on the whole allotment. If the forage ran out early we would go ahead and open the next pasture a little early the first year.

"This isn't sticking to the plan, but it takes an adjustment," he continued. "The forage in the second pasture, after having been rested several months would still be in great shape and probably carry through the season. Then you still have the third pasture resting and recovering.

"To date we have never had to reduce the number of cattle on an allotment after going into this system on a
BLM range," Hormay commented.

Some cattlemen have reported problems with having the cattle move into the next pasture at seed ripe time.

Hormay counters, "Well, if it takes a little push to get them going, go out and drive them a time or two. Cattle are creatures of habit and once they get the idea they will move."

Another opinion voiced about Hormay's program is the lack of cultural treatments, like spraying, seeding or controlled burns. "These," he contends, "are simply adjuncts to my plan. They can be useful, but you can't depend on them to do the whole thing. Why discount management?" he asks. "It's really the simplest and most effective way to go about this. Treatments have a place, when used on special problem areas, but not as a basis for working with an entire area."

As a testament to the rest-rotation management program, it has now become the basic policy on BLM's wildland grazing areas in the West. Yet it requires expensive fencing, costing as much as $1000 a mile on the Oregon allotment, to implement; and this financing will take time.

"It's very gratifying to me, the number of cattlemen that own their own land who come up to me and want to know more," comments Hormay. "We are not doing this just for Public Lands, but we are public servants and here to help anyone.

"Many older ranchers who have done things the same way all their lives have come to one of our sessions, just as stubborn as a rock. Later when they get home and think about rest-rotation, they soften a little bit, and the next thing you know they are back wanting to know more," Hormay muses.

The rest-rotation philosophy has come a long way since he first came up with it in 1948, and later tested and proved it in 1952. In 1957 he was presented with the USDA Superior Service Award in recognition of the program. In 1969 Nevadans honored him as "Range Man of the Year" and in 1971 he got the USDA Distinguished Service Award. The Society of Range Management presented him with his latest honor, the "Outstanding Achievement and Service Award" in 1972.

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