TO: Gus Hormay, B-4 Baker
FROM: Jack N. Reppert, Susanville

SUBJECT: Research, Bunchgrass Project, Harvey Valley Evaluation

Once again, Gus, I need your help. In order to complete an objective and thorough "mid-term" evaluation of rest-rotation grazing at Harvey Valley, I need livestock weight records on an individual animal basis. I would like these records in order to make tests of the significance of average weight responses. Will you please assist by sending complete individual weight records of any and all classes observed from 1954 through 1959. If you feel you must offer these records in person, I will plan on obtaining them in mid-January in Berkeley.

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Seasons Greetings.

Jack N. Reppert
R. M. Dehio, Director, Division of Range Management, W. O.

John R. McGuire, Director, By

Management (Training Program in Range Management)

AIRMAIL

Reference is made to your memorandum of November 21, 1963.

Outlines for both the range management training course and the grazing systems brochure are enclosed. Any comments or suggestions you may have will be appreciated. Hormay will need all the time between now and the first range training session (Feb. 10, Ogden) to finish assembling material for the course. Further work here on the systems brochure will have to be delayed until after the range training sessions are completed April 10.

Enclosures

AL Hormay:etr

Fred W. Bacon

WR
Outline of grazing systems brochures

LIVESTOCK GRAZING SYSTEMS ON THE NATIONAL FORESTS

I. Introduction.

A. General character of national forest ranges (1 paragraph, 2 photographs)
   1. Extent
   2. Vegetation
   3. Topography
   4. Time of use (seasonal, year long)
   5. Livestock (kind, numbers)
   6. Value to livestock producers
   7. Other wildland values

B. Objectives of management of national forest ranges (1 paragraph, 2 or 3 photographs)
   1. Multiple use.
   2. Maximum sustained yield all values.

C. Condition of ranges and cause (1 paragraph, 2 or 3 photographs)
   1. How ranges are grazed
   2. Plant, soil and animal requirements

D. Specific objectives of grazing systems (1 paragraph)
   1. Maintain high plant vigor (yield)
   2. Maintain high plant reproduction rate
   3. Maintain adequate cover of vegetation and litter to:
      a) Control soil erosion
      b) Maintain soil fertility
4. Produce maximum forage for maximum grazing capacity
5. Utilization of forage when has highest grazing value
6. Graze forage efficiently with minimum disturbance to livestock for maximum livestock production

II. Grazing systems used on the national forests (2 paragraphs)

A. Types
   1. Continuous
   2. Rotation
      a) Straight rotation
      b) Deferred-rotation
      c) Rest-rotation

B. Principles of systems for achieving management goals
   1. Continuous grazing
      Proper degree of use of vegetation
   2. Rotation grazing
      Periodic resting of the range from grazing

C. Role of grazing factors in systems
   1. Stocking
   2. Season of grazing
   3. Livestock distribution

D. Relative needs and costs of systems
   1. Management facilities
      Fences, water, etc.
   2. Livestock handling
III. Descriptions of systems (Assume same season and moderate degree of forage use)

A. Continuous grazing (1 paragraph)
   1. Design (description)
   2. Merits and deficiencies
      a) Low cost, practical
      b) Maximum yearly livestock production
      c) Does not prevent over use of key species and key areas nor decline of grazing capacity

B. Rotation systems
   Main differences in systems
      Amount and time of resting
      1. Straight rotation grazing (1 paragraph, 1 diagram)
         a) Design
            (1) Number of units
            (2) System of using units
               (Diagram)
         b) Merits and deficiencies
            (1) System rigid, mechanical. Amount and time of rest fixed by design and not by soil, plant, and livestock requirements. Rest usually inadequate.
            2. Fits the needs of the individual range largely by chance.
               Benefits uncertain
            3. No direct consideration of livestock production. Production usually below maximum
            4. Cost of management high (fencing, water, livestock handling, etc.)
C. Deferred-rotation grazing  (1 paragraph, 1 diagram)

Like straight rotation grazing. However, range requirements
meet more fully but not necessarily adequately. No direct
consideration to livestock production.

1. Design
   a) Number of units
   b) System of using units
      (Diagram)

2. Merits and deficiencies
   a) Direct provision made for seed ripening and reproduction
      establishment
   b) Indirect provision for range maintenance
   c) Design mechanical. Does not provide enough rest to fully
      meet range and livestock requirements. Benefits uncertain.
      (1) Entire range grazed each year
      (2) Close use of key species and key area not avoided
      (3) Deterioration key areas not arrested
   d) Livestock production below maximum
   e) Management costs high

D. Rest-rotation grazing  (2 paragraphs, 1 diagram, 1 table,
2 or 3 photographs)

System based on direct consideration of plant, soil, and livestock
requirements of the individual range. Rest, prescribed objectively
to meet these requirements. Management formulated to insure
recovery and maintenance of key species and key areas, hence the
range as a whole.
1. Design
   a) Number of units
   b) System of using units
      (Diagram)

2. Merits and deficiencies
   a) Insures recovery and maintenance of range
   b) Within limitation of range requirements maximizes livestock production
   c) Cost of management high because of need of management facilities

3. Other features of system (1 paragraph, 1 photograph)
   a) Forage reserves
   b) Integration cultural practices
      Artificial reseeding
      Spraying

E. History of use of grazing systems on national forests and present status
   (1 paragraph)

Approximate size of brochure
Number of --

Paragraphs 14
Photographs 11
Diagrams & tables 4
Outline of range management training course

for Forest Service personnel

I. Character and scope of course

A. Seminar discussion type--guided by subject matter outline

B. Emphasis--grazing management

C. Coverage
   1. Review of basic facts--soil, plant, livestock
   2. Interpretation of facts
   3. Practice paper application interpretations

D. Training course atmosphere
   1. Status of knowledge of subject by trainees
   2. Receptive attitude of trainees

II. Goals and responsibilities of Forest Service on national forest ranges

A. Multiple use

B. Maximum sustained yield and wildland values

C. Consideration public and private interests

III. Importance and influence of vegetation on wildland values

A. Forage

B. Timber

C. Watershed

D. Recreation

E. Wildlife
IV. Importance of grazing compared with other factors on wildland values

A. Relative areas affected

B. Range deterioration
   1.Extent, western ranges
   2. Characteristics
      a. General
      b. Specific
         Vegetation
         Soil
      c. Meaning of condition

V. Objectives of grazing management

A. General
   Restoration of range concurrent with maximum sustained livestock production

B. Specific
   1. Maximum forage
      a. Plant composition
      b. Forage plant vigor
      c. Forage plant density
   2. Soil fertility
      a. Plant cover ) Erosion control
      b. Litter )
      c. Organic matter
   3. Livestock
      a. Weight gain per head
      b. Weight gain per acre
      c. Reproduction, health
VI. Forage production and maintenance of soil fertility

A. Biological facts

1. Soil
   a. Definition
   b. Formation
   c. Profile characteristics
   d. Colloidal properties
   e. Biological nature
   f. Fertility
      (1) Mineral elements
      (2) Nitrogen and organic matter
      (3) Physical condition, erosion
      (4) Water
      (5) Acidity, alkalinity
      (6) Plant indicators

2. Vegetation
   a. Forms (annuals, perennials, shrubs, grasses, etc.)
   b. Growth and development of forms
      (1) Shoot (stem, leaves, flowers, seeds)
      (2) Root
   c. Physiology
      (1) Photosynthesis
      (2) Food materials of plant
         Kinds
         Storage and use
d. Plant succession
   
   (1) Development of climax
       climate, soil
   
   (2) Plant competition

   Factors influencing

VII. Range utilization by livestock

A. Selection species and areas

B. Factors determining pattern of use

   (Study utilization maps and data assembled by Region)

VIII. Grazing management systems

   (Refer to management objectives section V)

A. Continuous grazing

   1. Underlying principle—proper degree of use

   2. Definition proper use

   3. Proper use standards

      a. How determined

      b. Purpose

      c. How used

         Role of stocking, season

         Livestock distribution

   4. Results of application

B. Rotation grazing

   1. Underlying principle—periodic rest from grazing

   2. Types of rotation systems

      a. Straight rotation (alternate)

      b. Deferred rotation

      c. Rest-rotation
3. Use standard -- amount rest to meet plant, soil requirements. Role of stocking, season, livestock distribution

4. Design, merits, and deficiencies of systems

5. Results of application

C. Integration cultural practices in grazing systems

1. Artificial reseeding

2. Spraying

D. Grazing capacity under systems

Significance and determination

E. Appraisal management results

1. Range trend (productivity)

2. Grazing capacity

IX. Preparation grazing plans for selected Region allotments

Information for planning assembled by Region

Trainee practice

X. Livestock production

A. Biological facts

1. Nutritional requirements
   a. Minerals
   b. Carbohydrates, fats, oils
   c. Protein
   d. Vitamins

2. Seasonal trend in forage values
   a. Chemical analyses
   b. Livestock weights

-5-
3. Effect plant growth stage use on vegetation (and livestock) production
   (See clipping results VI A2 C)

4. Effect moving and handling livestock during grazing season on weight gains

B. Significance of facts
   1. Season of grazing
   2. Stocking
   3. Livestock distribution, handling
   4. Pasture layout

XI. Integration livestock information in grazing plans developed in IX

Trainee practice

XII. Considerations and steps in planning grazing management

A. Multiple use
B. Grazing area
C. Range inventory
   Character and potential of range
D. Objectives of management
E. Grazing plan and cultural treatment program
F. Cooperation permittee

Trainee practice -- Review allotment plans in light of above

XIII. Other subjects for possible discussion

A. Wildlife management
   1. Big game
   2. Other fish, birds, fur bearers, etc.
B. Watershed values
   1. Erosion
   2. Water yield
C. Timber production--grazing conflict
D. Recreation--camp sites
E. Sharing costs of grazing controls with other range interests
F. Status of use of grazing systems in Region
G. Questions on training course
Approximate time schedule for range training course

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<th>Time of day</th>
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<td>3 - 10</td>
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<td>10 - 5</td>
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<td>VI B</td>
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Gus Hornay, R-W Berkeley

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Seasons Greetings.
SPEED-MEMO

TO
A.L. Hormay
R.W. Berkeley

FROM
R.D. Ratliff
Rd. Susanneville

DATE
Dec. 13, 1963

SUBJECT
Publication

MESSAGE (Write concise message. Sign and forward parts 1 and 2 to addressee. Retain part 3)

Dear:

If you have an extra copy of the following publication please send it to me.


No number was given in the citation, and we can't find a copy of it here.

Thank you.

SIGNATURE
Ratliff

REPLY (Use this space for reply. Sign and date. Return part 1 to sender. Retain part two)

Please return. This is the only copy I have.

Att
Reference is made to your memorandum of December 11, 1963.

As you know I have been working for the past three years rounding up results of my studies on range management and rest-rotation grazing in northeastern California for publication. I'm striving to publish these results, including the cattle data you request, at the earliest possible date.

Ray Ratliff requested the cattle data several months ago. I wrote him of my publication plans at that time. It disturbs me that you request these data again now and feel it proper to interpret and publish results of someone else's research.