An Introduction to Range Management

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In 1963, the Range Management Education Council began a project to standardize university coursework in range management. The Council, composed of representatives from every American university granting a degree in range management, felt a need for unification of names and content in range coursework. The objectives were: 1) to facilitate analysis of curricula and student transcripts among universities, 2) to help schools and professors in developing new courses in range management, and 3) to aid Civil Service and employing agencies in determining what coursework a student has completed.

The first such course approved by the Council was a beginning course in range management. This outline is designed to serve for both a terminal course for students not majoring in range and a first-course for range majors. Emphasis given various phases might differ depending upon which group of students is involved.

Since this course covers the entire subject, the outline has the interesting additional value of constituting a sort of definition of range management which will be of interest to members of the Society as well as to students who may contemplate a career in range management.

Students taking the course will preferably have had coursework in native plant identification and in the science of plant ecology. The course, outlined below, should be accompanied by laboratory work in the field.

Beginning Range Management

I. Introduction
  A. Definitions and terms
  B. Economic importance of ranges and range products
  C. Application of the science of range management
    1. Public land administration and management
    2. Game management
    3. Ranching
  D. Professional opportunities in range management

II. The range resource and its use
  A. Major grazing lands of the world
    1. Physical nature of the range resource
    2. History of grazing
    3. Present use and management
  B. American grazing lands
    1. Physical nature of the range resource
      a. Climate
      b. Soil
      c. Vegetation
    2. History of grazing
      a. Wild animals
      b. Livestock introduction
      c. Development of land use and ownership patterns
      d. Land laws and policies
      e. Present public land administration and use
    3. Present livestock grazing patterns and practices

III. Plant physiology in relation to grazing
  A. Requirements for plant growth and reproduction
  B. Details of plant food synthesis and storage
  C. Effect of intensity and season of grazing upon:
    1. Herbage production and regrowth
    2. Root development
    3. Seed quantity and quality
    4. Asexual reproduction

IV. Grazing as an ecological factor
  A. Plant—animal—soil relationships in the natural ecosystem
    1. Grazing as a factor determining climax flora
    2. Change in animal species and animal numbers — its effect on succession and nature of the flora
  B. Details of grazing successions
  C. Use of plant indicators in range management

V. Range inventory and appraisal
  A. Vegetation mapping
  B. Vegetation sampling
    1. Methods available
    2. Statistical reliability of samples
    3. Plot size and shape
  C. Forage utilization
    1. Factors affecting
      a. Topography
      b. Forage preferences of animals
    2. The use factor
    3. Methods of measuring utilization
    4. Key species and key area concept
  D. Range condition and trend
  E. Range capability classification
  F. Grazing capacity estimation
    1. Problems relating to annual fluctuation in forage production
    2. Effects of animal distribution and other management factors

VI. Increasing range production
  A. Artificial seeding
    1. Seeding methods
    2. Season to seed
    3. Adapted species

4. Need for protection
5. Economics

B. Controlling undesirable species
1. Burning
2. Mechanical methods
3. Chemical methods

C. Fertilizing
D. Water spreading and terracing
E. Range rodent control

VII. Range improvements
A. Water development
1. Amount required
2. Methods available and comparable costs
3. Storage facilities
4. Hauling water

B. Fencing
1. Function in management
2. Types available and comparable costs

C. Trail and driveway construction

VIII. Livestock and grazing management
A. Kinds and breeds—their adaptations
1. Livestock quality
2. Exchange ratios
3. Common-use grazing

B. Livestock breeding
C. Factors affecting calf and lamb crop
D. Calving and lambing
E. Supplemental feeding, including salt
1. Kinds available
2. Ways to supply on the range
3. Effects of kind of vegetation on nutrition
4. Effects of season of year on vegetation quality

F. Effect of intensity of grazing on livestock production
G. Livestock marketing
H. Animal Disease and insect problems
I. Predator problems
J. Management to avoid poisoning
K. Securing proper distribution of livestock
1. Grazing systems
2. Use of water, salt, trails, fences, and herding

L. Ranch management planning

IX. Multiple use relationships on range land
A. Big game
1. Forage habits and adaptations
2. Conflicts with domestic stock

B. Timber production and livestock grazing
C. Watershed management
1. Water as a land product
2. Hydrological cycle
3. Soil erosion control