

Course Outline
ECOLOGY AND MANAGEMENT OF GRAZING
(An Online Course in Grazing Animal Management)
MODULE 1: ECOSYSTEMS AND THE EFFECTS OF GRAZING

Presentation 1-Characteristics of Grazed Ecosystems

- A) Terminology
 - 1) Rangeland
 - 2) Grazing
 - 3) Pasture
 - 4) Forage Crop
- B) Rangeland Biomes of World, U.S. and California
 - 1) Deserts
 - 2) Grasslands
 - 3) Other grazed vegetation types
- C) Comparison of Rangeland and Pasture

Presentation 2-Importance of Grazing and Grazinglands

- A) Ecosystem Services
 - 1) Provisioning services
 - 2) Regulating services
 - 3) Supporting services
 - 4) Cultural services
 - 5) Preserving services
- B) Importance to Cultures
- C) Importance to Industry

Presentation 3-Rangeland Ecosystems

- A) Terminology
 - 1) Ecosystem
 - 2) Structure
 - 3) Function
 - 4) Abiotic
 - 5) Biotic
- B) Scale and Hierarchy
 - 1) Levels large to small
 - 2) Examples
 - 3) Foothill Hierarchy
 - 4) Interactions
 - 5) Grazing and scale
- C) Abiotic Components
 - 1) Solar radiation
 - 2) Climate/Weather
 - 3) Soil
 - 4) Topography
- D) Biotic Components
 - 1) Plants (Producers)
 - 2) Herbivores (Primary Consumers)

- 3) Carnivore (Secondary Consumers)
- 4) Decomposers
- E) Ecosystem Processes
 - 1) Energy
 - 2) Water
 - 3) Nutrients
- F) Community dynamics
 - 1) Succession
 - a) Primary
 - b) Secondary
 - c) Climax/Stability
 - d) Examples
 - (1) forest
 - (2) prairie
 - (3) non-linear
 - (4) state and transition models
 - 2) Ecological Sites

Presentation 4-Effects of Grazing on Plants

- A) Grass life cycle
 - 1) Annual
 - 2) Perennial
- B) Grass growth
- C) Grazing effects
 - 1) Direct
 - a) plant physiology
 - b) morphology
 - c) defoliation
 - d) trampling
- D) Indirect
 - 1) Microclimate
 - 2) Soil Properties
 - 3) Competitive Interactions
 - 4) Examples
- E) Grazing resistance
 - 1) Avoidance
 - 2) Tolerance

Presentation 5-Effects of Grazing on Communities

- A) Effects of grazing and other disturbances on succession
 - 1) Succession
 - 2) Retrogression
- B) Altered States/State and Transition Models
 - 1) Great Basin altered stable states
 - 2) California grassland altered states

Presentation 6-Effects of Grazing on Ecosystems

- A) Hydrologic Cycle
 - 1) Infiltration and Runoff

- a) Pollutant transport
- b) Surface water pollution
 - (1) sediment
 - (2) nutrients
 - (3) pathogens
 - (4) heat
- B) Nutrient cycling
 - 1) Nutrient Movement
 - 2) Nutrient Loss
 - 3) Nutrient Redistribution
- C) Targeted Grazing
- D) Fuel reduction
- E) Weed management
- F) Shrub management
- G) Wildlife habitat
 - 1) Annual Grassland Thatch Reduction
 - 2) Vernal Pools
 - 3) Bay Checkerspot Butterfly

Assignments

- A) Text Chapter 1-An Ecological Perspective (M1)
- B) Grazing in Arid North America (M1, P1)
- C) Transhumance (M1, P2)
- D) Pastoralism (M1, P2)
- E) Global CRSP 3rd World Nutrition (M1, P2)
- F) FRRAP Report (M1, P2)
- G) Rangeland Mapping and Information (M1, P3)
- H) Stages of Maturity (Phenological Stages) Document (M1, P4)
- I) How Grass Grows (M1, P4)
- J) Grass Growth (M1, P4)
- K) Nutrient Cycling in Pastures (M1, P6)
- L) Oak-Woodland Nutrient Cycle (M1, P6)
- M) California Rangeland Coalition (M1, P4)

Links to Additional Resources

- A) Rangeland Acreage Spreadsheet (M1, P1)
- B) Grass brochure
- C) <http://forages.oregonstate.edu/projects/regrowth/main.cfm?PageID=35>
- D) <http://forages.oregonstate.edu/index.cfm>
- E) Plant Succession
- F) Herbivory Matrix
- G) Mod1.Effects of Grazing Bibliography (M1)