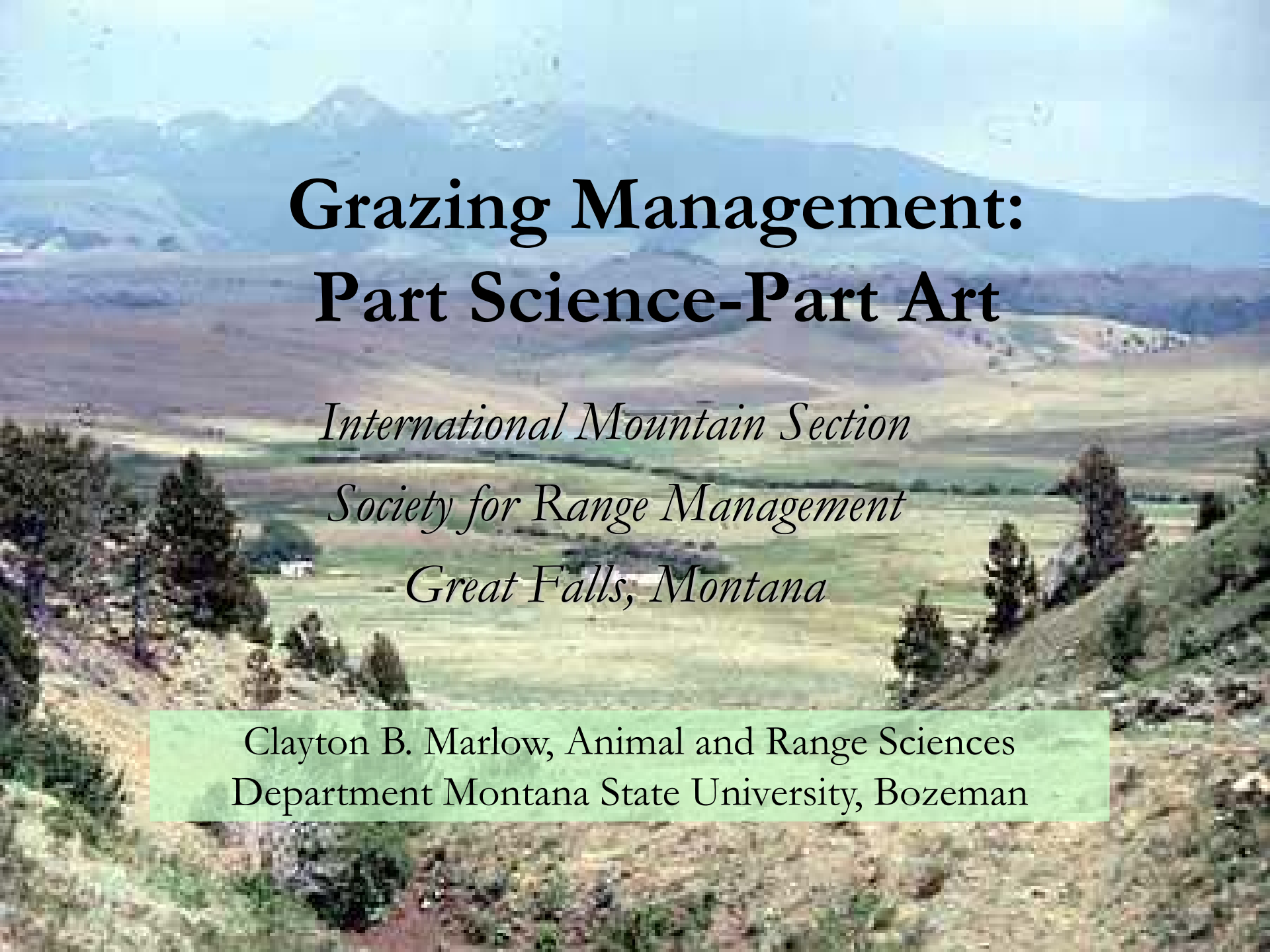


Grazing Management: Part Science-Part Art

International Mountain Section

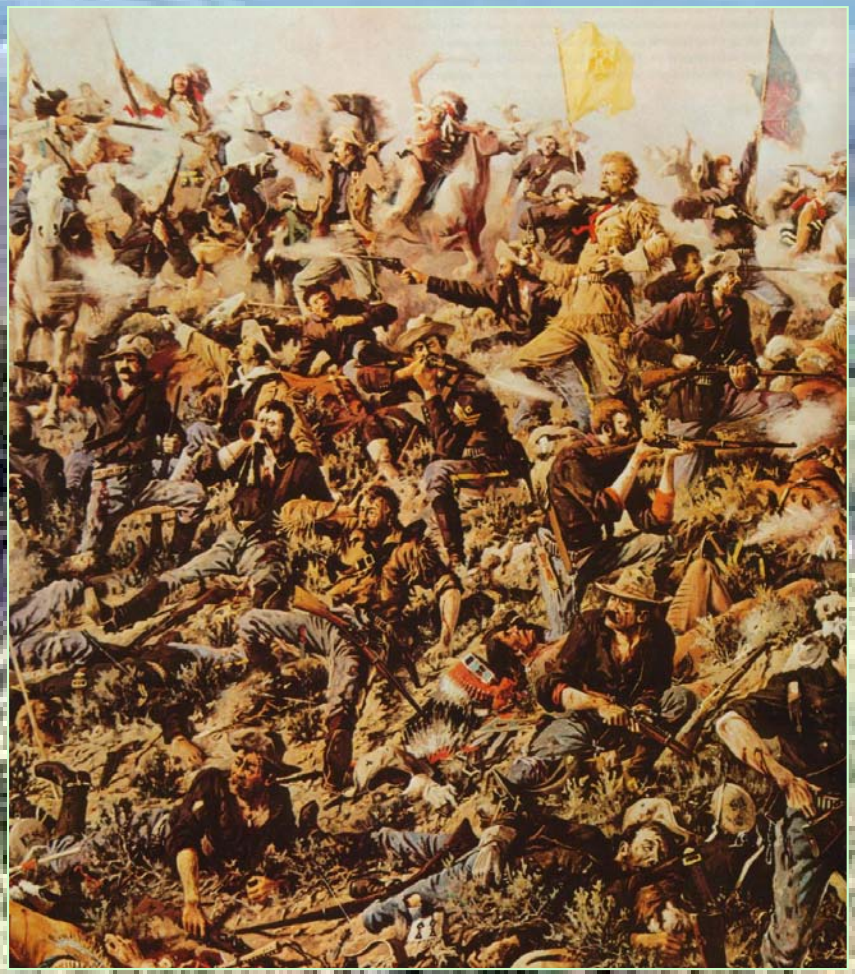
Society for Range Management

Great Falls, Montana

Clayton B. Marlow, Animal and Range Sciences
Department Montana State University, Bozeman

Pre-European Grazing Management

Montana's Range Livestock Industry



- No range livestock until after Little Bighorn (1876)
- Cattle and sheep numbers mushroom from '78 to 1902
- 1891-1897 Federal reserves created
  - Westerners resent "recommendations by eastern scientific men"
- 1915-1920 Passage of more "Homestead Acts" increase western livestock numbers
- 1920 – sheep and cattle markets plummet

Management of the Federal Reserves

- 1897- FS Organic Act
  - Forest reserves for protection of watersheds and timber production
    - Grazing NOT listed
  - Secretary could authorize use to "preserve forests from destruction"
    - "tramp" sheep grazing and fires were primary dangers
  - Colville Report (1898)
    - Recommends permits to hold sheep numbers to levels that will not damage forage

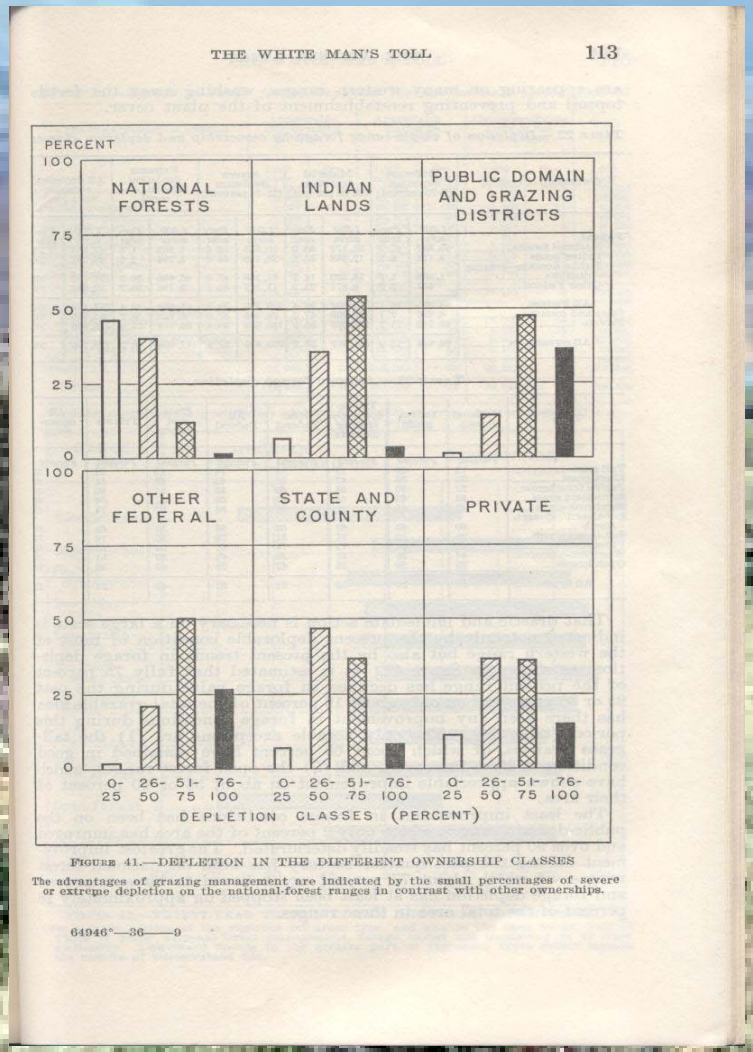
Forest Service Regulations - 1907

- Livestock Associations advise FS on allotment assignments
  - Preference to neighboring landowner
- Grazing permit fees
- Regulations
  - Grazing not "injurious to water supply"
  - All grazing under permit
  - Permit sets district, numbers, off and on dates

Management for Non-Forest Reserves

- Mizpah-Pumpkin Creek Grazing District (1928)
  - Grazing leases
  - Restrict numbers
  - Fences, stock ponds
  - 1931; 20% better forage
- Foundation for Grazing Service (BLM) Lands

Limited Success



THE WHITE MAN'S TOLL 113

PERCENT

NATIONAL FORESTS | INDIAN LANDS | PUBLIC DOMAIN AND GRAZING DISTRICTS

OTHER FEDERAL | STATE AND COUNTY | PRIVATE

100 75 50 25 0

0-25 26-50 51-75 76-100

DEPLETION CLASSES (PERCENT)

FIGURE 41.—DEPLETION IN THE DIFFERENT OWNERSHIP CLASSES

The advantages of grazing management are indicated by the small percentages of severe or extreme depletion on the national-forest ranges in contrast with other ownerships.

64946°—36——9

- *The Western Range*
  - Western ranges seriously depleted
  - Recommended
    - Soil surveys
    - use of "imported" species and plant development
- Taylor Grazing Act
- Soil Conservation Service

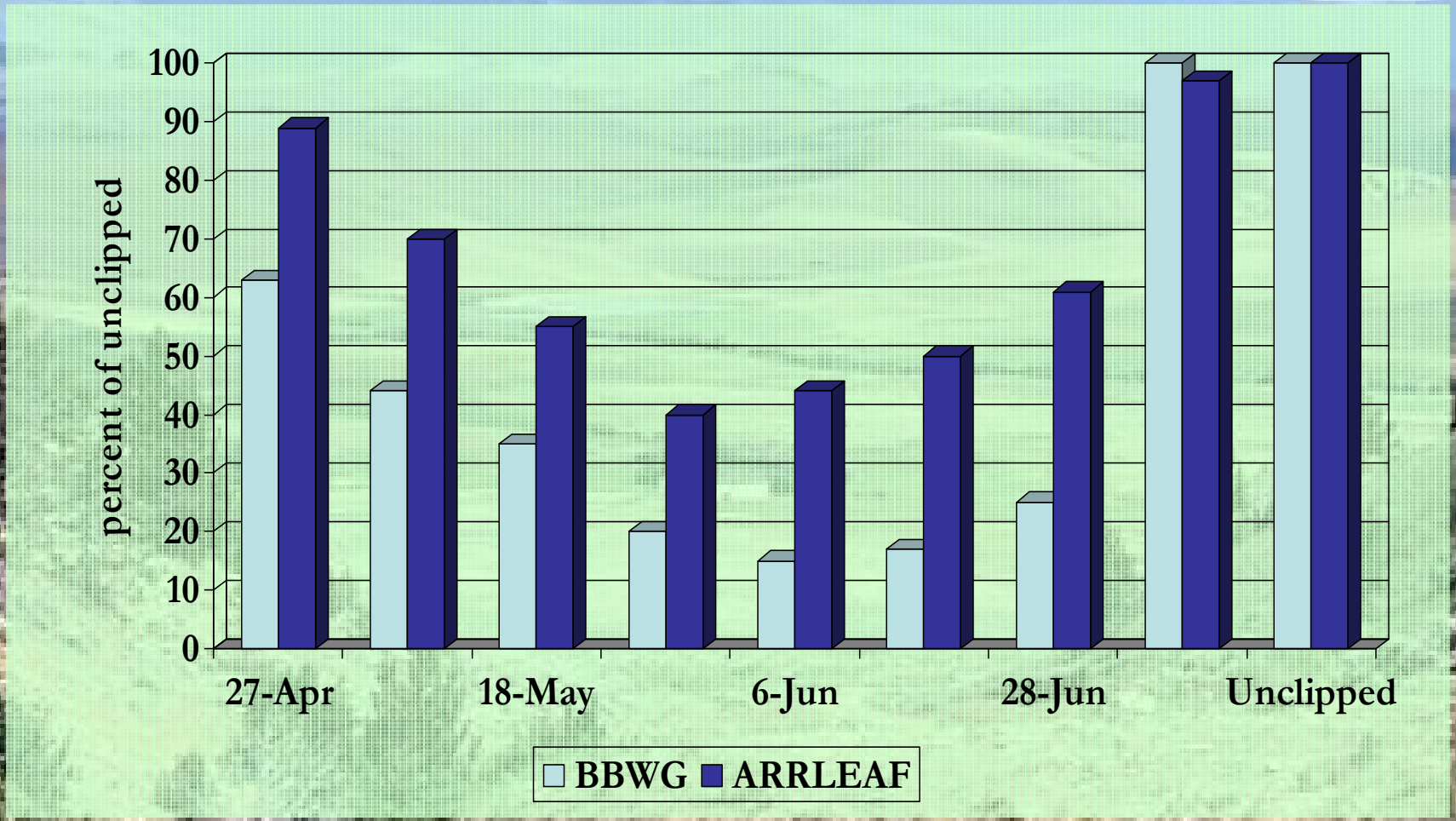
Northern Great Plains 1916-1940

System	Stocking Rate	ADG	Condition
Continuous 1 5 month season	0.26 aums/ac	2.1	static
Continuous 2 5 month season	0.30 aums/ac	2.0	static
Continuous 3 5 month season	0.50 aums/ac	1.7	Slight decline
Continuous 4 5 month season	0.70 aums/ac	1.5	decline
Deferred rotation	0.5 aums/ac	1.8	static

(73 more pounds of gain on 88% of land base compared to C3 and C4)

Season of Use

(Blaisdell and Pechanec 1949)



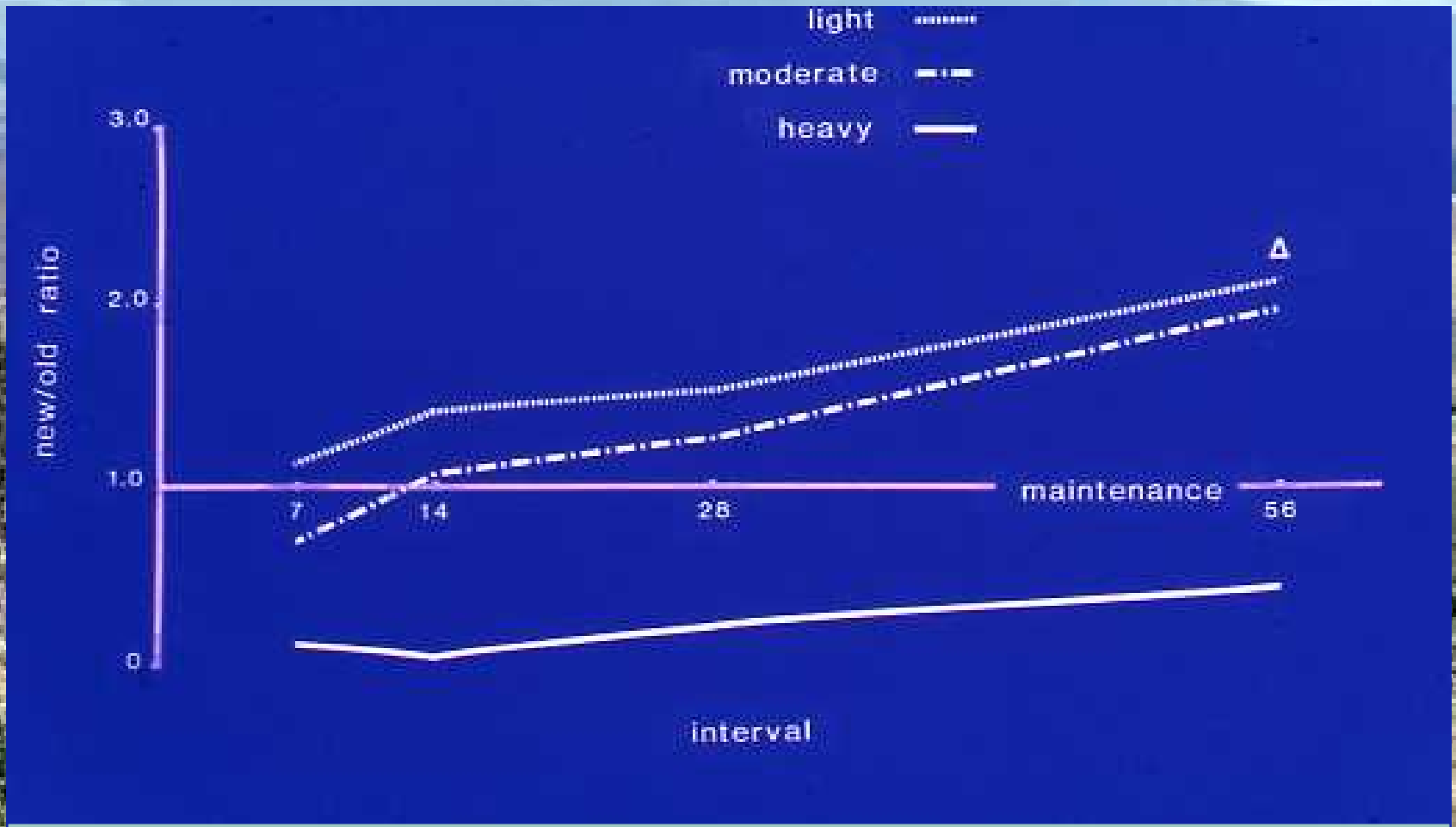
Utilization Becomes A Topic

- NGP Research (1916-1940)
  - ADG is measure
  - 25% residual
- Bighorn NF Research (1963)
  - Soil type affects grazing response
  - 40 to 45% to maintain
  - Lighter use to improve

Hormay Rest Rotation

- Designed to re-establish new plants
  - Deferment for vigor
- Stocking Rate
  - By pasture
- Utilization Level
  - 60-75% expected
- Any season
  - Grazing during seed ripe
- Regrazing desirable
  - Don't drive livestock

Interval Between Bites



Note! Blaisdell and Pechanec recorded nearly full recovery with supplemental watering

Stocking Rate More Important than System

(Van Poolen and Lacey 1976)

- Improvement in Range Condition
  - 13% for implementing any grazing system
  - 35% for adjusting SR downward from heavy to light
  - 28% for adjusting SR down from moderate to light
  - West TX; $\leq$ 40% use of annual growth maintains range condition under yearlong grazing

Attitude of Manager More Important than System

(Erhardt and Hansen 1997)

General Rules

- Most if not all grazing animals will be highly selective of both species and individual plants
  - Highest during active plant growth
  - Lowest in uniform, mature stands
- Plant recovery is dictated by temperature and available soil moisture
  - Defoliation near end of soil moisture (temperature) = no opportunity to recover (CHO only 7-9 days)
- Utilization levels indicate length of recovery period
  - Light, infrequent use = short rest

Discussion Points

- What can we really control?
- What escapes our best intentions?