


Marianas Grazing and Livestock Management Academy
Range and Pasture Management 101:
Range and Pasture Monitoring

Mark S. Thorne, Ph.D.
University of Hawai'i at Manoa - Cooperative Extension Service
College of Tropical Agriculture and Human Resources

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Range and Pasture Monitoring

I) Overview

- A) Five questions help determine an efficient monitoring program.
 - 1) Why, what, when, where, how do I monitor?

II) Why monitor?

- A) Follow changes over time in the condition of the range or pasture ecosystem.
- B) Determine if grazing activities are achieving desired goals and objectives.
- C) Defend management practices.
 - 1) Provides a record of management activities and effects.
- D) Determine grazing effects in key areas (streams, weed management, etc.).

III) What do you monitor?

- A) Vegetation characteristics.
 - 1) Species composition, cover, density, production.
- B) Soil characteristics (Erosion, bare ground, compaction, etc.).
- C) Animal performance.
 - 1) BCS, average daily gain, calving rate, rebreeding rate, etc.

IV) When and Where do you monitor?

- A) Frequency of monitoring should be such that it provides an adequate amount of time to change or adjust grazing to avoid overgrazing vegetation, soil damage, or loss of animal performance
- B) Monitoring should be conducted where grazing occurred, is occurring, and will occur.

V) How do you monitor?

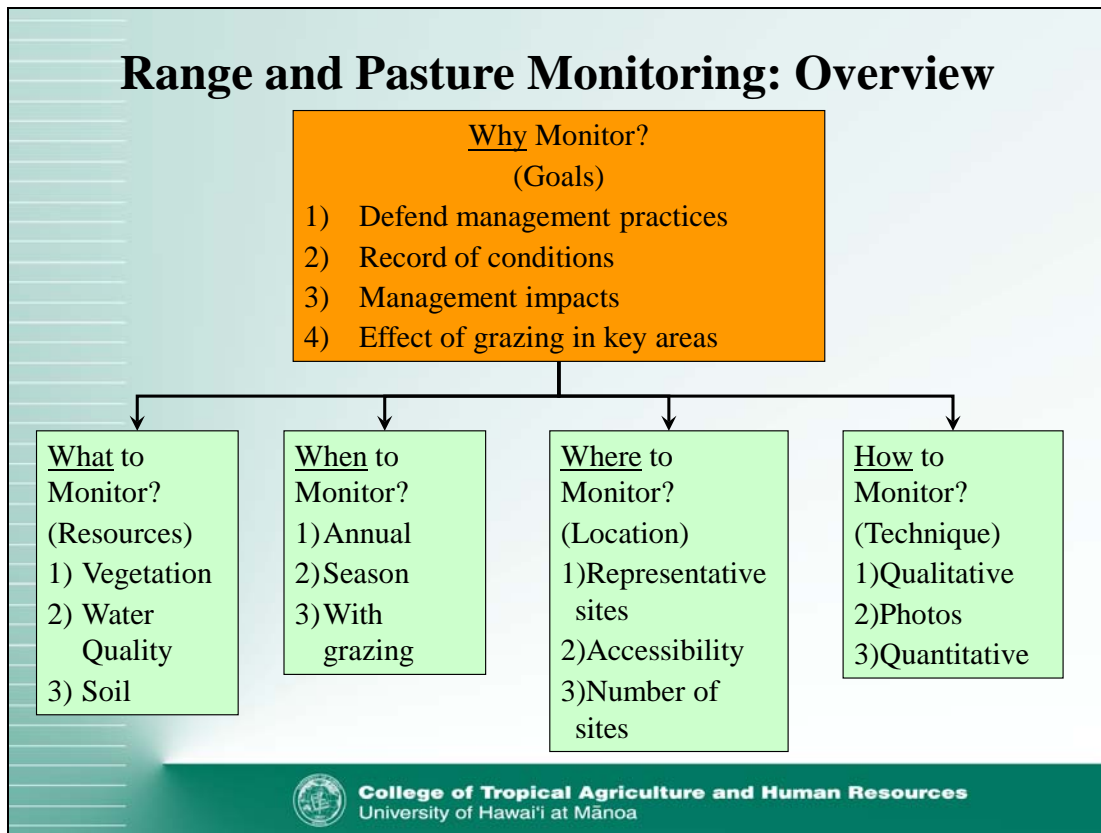
- A) Specific techniques depend on management goals, but fall in 3 categories.
 - 1) Qualitative methods (direct observation).
 - 2) Photo monitoring (cover pole, landscape level, etc.).
 - 3) Quantitative methods (transects, biomass, cover estimates, etc.).

Range and Pasture Monitoring: Introduction

Five basic questions that need to be answered when developing a monitoring program to determine the sustainability of a grazing system.

1. Why do we want to monitor grazing?
2. What do we want to monitor?
3. When do we monitor?
4. Where do we monitor?
5. How do we monitor?





Monitoring decisions

Range and Pasture Monitoring

Why do we monitor grazing?

- Follow changes or trends over time in the condition of the range or pasture ecosystem.
- Determine if grazing activities are achieving desired goals and objectives.
- Defend management practices.
- Effects of grazing in key areas.



Monitoring is rapidly becoming an essential tool to protect both the rancher and the resource base. Monitoring simply stated means systematically recording observations of processes or activities to detect change over time. Rangeland monitoring can be thought of as a “check-up” on the condition of rangelands to assess the productivity and stability of the resource. (Adapted from Nader and Gildersleeve).

In an increasing urban population, monitoring information will assist you in dealing with misconceptions by providing information that educates concerned citizens about your rangelands and stewardship. (Excerpted from Gildersleeve and Forero).

Range and Pasture Monitoring

What do we monitor?

- Determining what to monitor depends on goal and objectives
 - Vegetation characteristics
 - Species composition, diversity, richness etc.
 - Cover, density, or frequency by species or vegetation type
 - Residual biomass following grazing (stubble height)
 - Available biomass before grazing
 - Soil characteristics
 - Soil compaction
 - Signs of erosion, pedestalling, loss of organic matter, changes in fertility, pH, etc.
 - Animal performance
 - Average daily gain, percent calving, breeding success, etc.

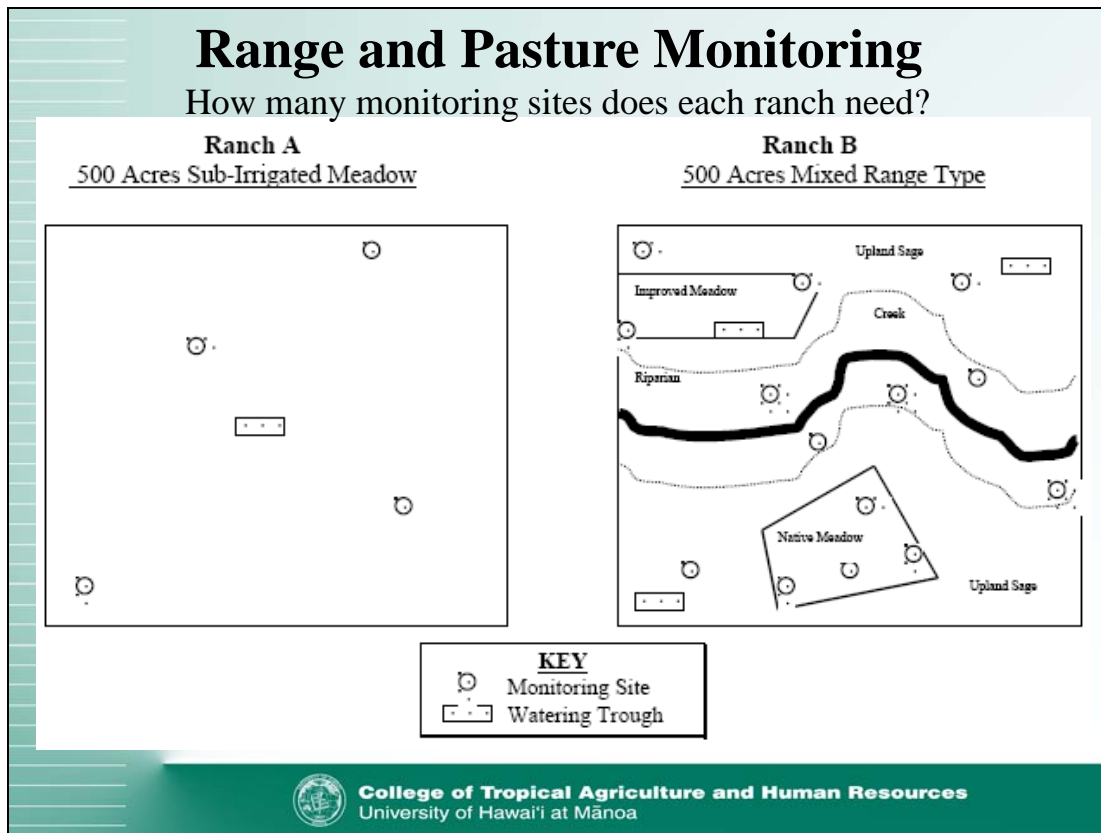


Range and Pasture Monitoring

When and Where do we monitor?

- Frequency of monitoring should be such that it provides an adequate amount of time to change or adjust grazing to avoid overgrazing vegetation, soil damage, or loss of animal performance.
- Monitoring should be conducted where grazing is occurring:
 - Where grazing is (indicates current use levels)
 - Where grazing was (indicates total use and growth rate for estimating recovery time)
 - Where grazing will be (indicates grazing readiness)





Ranch A consists of 500 acres of sub-irrigated meadow with continuous grazing. Ranch A is a similar vegetation type and utilization is also uniform under one management system. Because of this uniformity, Ranch A needs very few monitoring sites— perhaps three or four sites scattered throughout the parcel, depending on variability (e.g. soil, slope, etc.).

Ranch B consists of: 100 acres of native meadow; 300 acres of upland sagebrush rangelands; 25 acres of riparian areas; 75 acres of improved grass pastures. Ranch B has 4 distinct range sites or types that must be represented by at least one monitoring site each (native meadow, uplands, riparian, and improved pasture). To properly represent variability within each area, multiple sites may be required. After some study of each area in Ranch B, the owner identified four meadow sites, three upland sites, five riparian sites, and two improved pasture sites for the monitoring program, based on these goals, the different vegetation types, and key areas of concern. (From Gildersleeve and Forero).

Range and Pasture Monitoring

How do we monitor?




- How you monitor depends on your management goals, resources you can devote to monitoring, and how much information you want.



How you monitor depends on your management goals, resources you can devote to monitoring, and how much information you want.

Range and Pasture Monitoring: Techniques



Qualitative data:


- Direct observation

Photo monitoring:

- Cover pole
- Landscape photographs

Quantitative data:

- Transects
- Clipping
- Cover estimates
- Density

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Many methods exist for monitoring rangeland and pasture resources. Some are suited more for scientific research and can be complex. Others techniques are simpler but may not provide adequate information depending on your needs. Monitoring can start simply by recording your observations in a pocket notebook and documenting the same areas over time with photographs. A more involved monitoring system can help you know if your operation goals are being met.

Range and Pasture Monitoring: Summary

Purpose:

Monitoring helps you determine if your goals are being met.

Approach:

Before beginning a monitoring program, the five basic questions of why, what, when, where, and how do you monitor should be established.

Remember:

Management goals shape monitoring techniques, intensity, and frequency.

