

Goals of Monitoring and Key Area Concept

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What is monitoring?

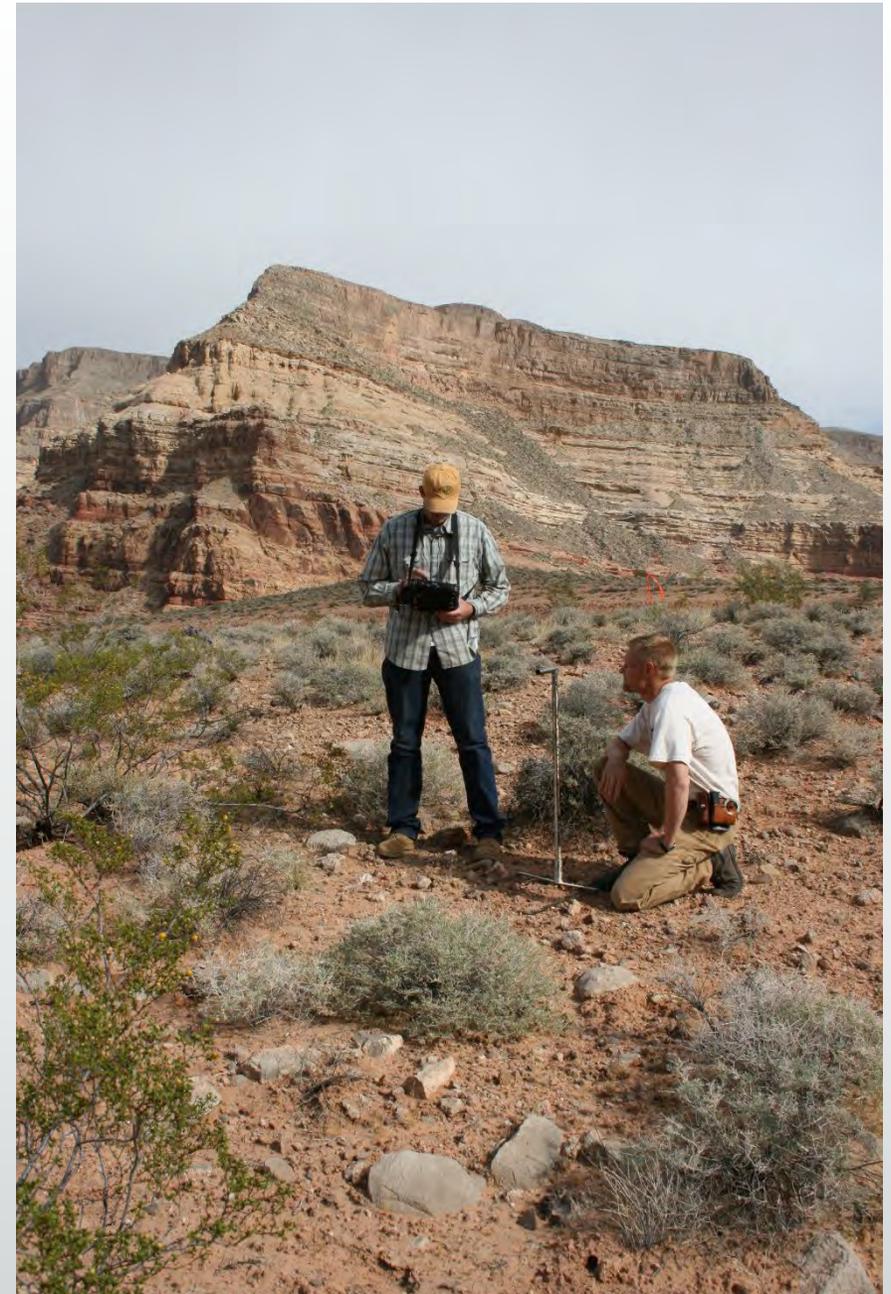
Inventory vs. Monitoring vs. Assessment



- Inventory: Documenting and describing existing resources on a management unit at one point in time.
- **Monitoring: Emphasis on documenting change over time in vegetation or other attributes through repeated measurements.**
- Assessment: Making an interpretation of data relative to management objectives.

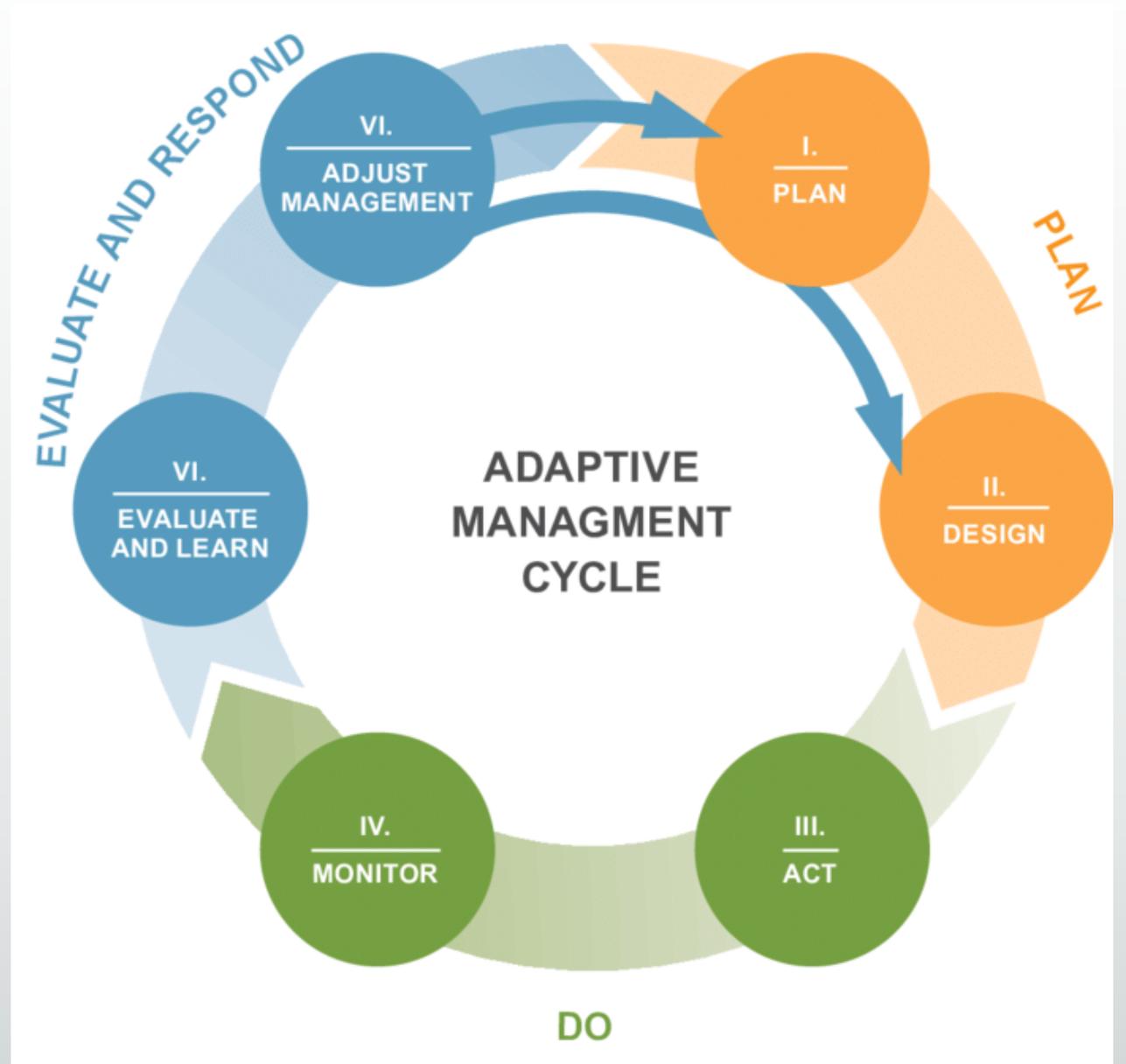
Why do we monitor?

- Establish a record of range trends.
- Determine effectiveness of management practices.
- Document effects of livestock on rangelands.



Why do we monitor?

- Assess if management actions are achieving or making progress towards goals and objectives.
- Often incorporated into an operating plan as part of adaptive management.



What do we monitor?

SHORT TERM

Events that happen throughout the year:

- Rainfall
- Number of cattle in pasture
- Length of time in pasture
- Utilization
- Production

LONG TERM

Changes in vegetation or soil over time:

- Changes in species composition
- Changes in frequency
- Changes in cover
- Changes in ground cover

Monitoring Assumptions

- Monitored attributes link to ecological processes.
- Management goals/objectives of all parties involved are clearly stated and unambiguous.
- Monitoring provides reliable estimates of the attributes measured.
- Data interpretation and extrapolation are a matter of professional judgement.



Goals vs Objectives

- Goals and Objectives used for deciding what to monitor, where, how often.
- Considerations for goals/objectives:
 - Potential of the land (ESD/TEU)
 - Values or desires of those who own and/or manage the land



Goals vs Objectives

GOAL

What do you want to see happen on the land?

- Environmental goals:
 - maintain livestock forage, wildlife habitat, ecological services, water, soils, recreation, etc.
- Economic goals (Turning a profit)

OBJECTIVE

How do you reach the goals?

- Reconcile environmental or economic goals of:
 - Landowners
 - Managers
 - Interest groups
 - Other citizens
 - Federal and/or State laws

Monitoring to Meet Goals/Objectives

FIRST

- What to measure?
- What are the management goals/objectives for all parties involved ?
- What type of vegetation is present?



THEN

- Match rangeland attributes and data collection methods to objectives for different vegetation types.
- Data collected in specific locations chosen to represent a specific management situation.

What to Monitor?

Attributes: a characteristic or quality that can be **observed, measured or described.**



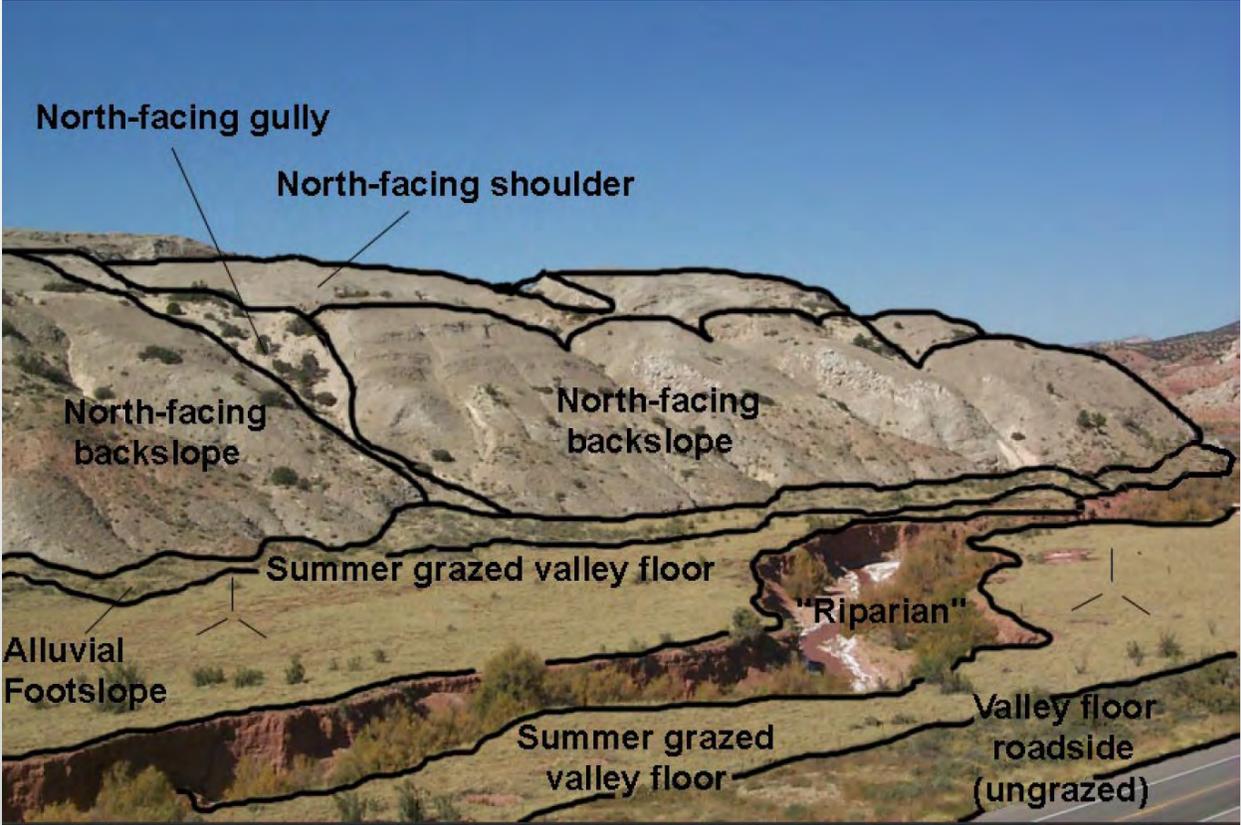
Possible Monitoring Attributes:

- Cover
- Basal area
- Density
- Frequency
- Vegetation composition
- Visual obstruction
- Ground cover
- Repeat photography
- Utilization
- Production

Where to monitor?

- Stratify Management Unit

ECOLOGICAL SITES ON THE LANDSCAPE



Where to Monitor?

- Data usually collected at specific locations.
- Chosen to represent a specific management situation – not random.
- Selection of locations should be agreed upon by all interested parties.
- Three types of monitoring situations.



1. Key Areas



- Represent effects of management practices on the entire unit— pasture or ecological site.
- Specific to *use* or *management practice*-like: livestock grazing, wildlife cover, or a reseeding project.
- Capacity to respond positively or negatively to grazing but avoid bedding grounds.
- The number of key areas depends on the pasture size, topography, or ecological site complexity.

2. Critical Areas

- An area treated with special consideration
- Monitoring only represents critical area, not grazing on entire pasture/allotment
- An example is a small riparian area within a larger upland pasture grazed by livestock.



3. Comparison Areas



- Selected as a basis for establishing trends
- Used for interpreting the cause of trends measured on key or critical areas
- An example would be an exclosure- it measures different management under the same ecological site

When and How Often Should I Monitor?

WHEN

- Time of year can affect data:
 - End of growing season.
 - Timing of grazing.
 - Stage of plant growth.
- Monitor during the same time each year.

HOW OFTEN

- As often as time and money permit.
- Annually for at least the first 3-5 years to determine a baseline of trend.
- Then a 5 year schedule to provide a “check up”.

Summary

- Balance goals and objectives when choosing which attributes to measure.
- Determine “What are we monitoring for?”
- Monitoring data should support adaptive management decisions.

Monitoring is only one piece of the puzzle!

Animal (wild/livestock) use, soils, ecological site, precipitation (timing and amount), elevation, aspect, etc. all impact on the ground conditions and management

