



ASSESSMENT, INVENTORY, AND MONITORING

SUPPORT FOR BLM AIM PROJECTS AND PROGRAMS

PLANNING & DESIGN DATA COLLECTION QUALITY ASSURANCE & DATA MANAGEMENT & ANALYSIS & REPORTING

DESIGN MANAGEMENT OBJECTIVES

MANAGEMENT OBJECTIVES

Step 1: Develop management objectives; select additional ecosystem attributes and indicators to monitor

Step 1a: Develop management objectives or goals

- One of the first and most important steps in the AIM process is identifying management objectives that will be the focus of your monitoring effort. Management objectives should provide the context for why monitoring information is needed and how it will be used. Together, management and monitoring objectives (Step 2b) inform all subsequent decisions, including where and how points are selected and what will be measured and at what frequency.
- To begin this effort, work as an interdisciplinary team to review existing documents which describe the management history, planned management actions, previous data collection efforts, and relevant policy. Some examples are listed below.
 - BLM Land Health Handbook (4180)
 - Land Health Standards
 - Ecological processes
 - Watershed function
 - Water quality and yield
 - T&E and Native Species

Management questions → monitoring objectives

Management questions relate to management actions.

- Is the stocking rate on this allotment compatible with sage-grouse habitat?
- Is this road-crossing causing sedimentation in the stream?
- Did the post-fire seeding reduce cheatgrass establishment?



Monitoring objectives explain specifically how we propose to answer management questions.

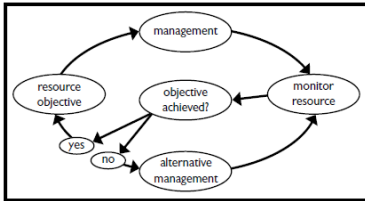
Importance of developing clear monitoring objectives

- Can you answer the basic question for all monitoring projects: why am I collecting data?
- Monitoring objectives dictate:
 - Sampling design (where, when, how often you sample)
 - Sampling methodologies (e.g., whether you include supplemental indicators)
 - Data analysis and reporting
- Vague or ambiguous questions confound decisions regarding adaptive management, monitoring directions and program outcomes—how do you interpret your results?

Importance of developing clear monitoring objectives

Cornerstone of adaptive management

- Describe desired outcomes
- Management actions to achieve outcomes
- Benchmark for measuring success



Tips for developing sound monitoring objectives

1. Strive for clear, concise, quantifiable statements
2. Be specific: specify what you are measuring and the expected magnitude and direction of change
3. Specify the monitoring target population or scope of inference
4. Develop individual questions for each monitoring objective within a region



Basic monitoring objective formula

Study area+ Indicator + Benchmark +
Proportion+ Confidence level + Time Period



Management questions

Condition (baseline sampling for determinations of biological condition):

What is the composition of vegetation within the Mill Creek watershed?

Trend (repeat baseline sampling for biological condition):

Are vegetative attributes within the Mill Creek allotment changing through time?

Treatment effectiveness (willow planting):

How did Mill Creek respond to a willow planting?

Impact assessment (lawsuit: perceived grazing induced habitat degradation):

Does grazing impact sage-grouse forb availability?

Monitoring objectives examples

Condition (baseline sampling for determinations of biological condition):

What is the composition of vegetation within the Mill Creek watershed?

Objective: Is total perennial grass cover between 25% and 65% on 70% of the Mill Creek watershed with 80% confidence in 2016?



Monitoring objectives examples

Trend (repeat baseline sampling for biological condition):

Are vegetative attributes within the Mill Creek watershed changing through time?

Objective: Did perennial grass cover in the Mill Creek watershed increase by at least 25% over the last three years with 90% confidence?



Monitoring objectives examples

Treatment effectiveness (willow planting):

How did Mill Creek respond to a willow planting?

Objective: Did at least 50% of the willow poles planted in the Mill Creek floodplain survive the first three years post-treatment?



Monitoring objectives examples

Impact assessment (lawsuit: perceived grazing induced habitat degradation):

Does grazing impact sage-grouse forb availability?

Objective: Was there a 10% increase in sage-grouse preferred forbs in the Home Camp allotment five years following a change from season-long grazing to rest-rotation, with 90% confidence?



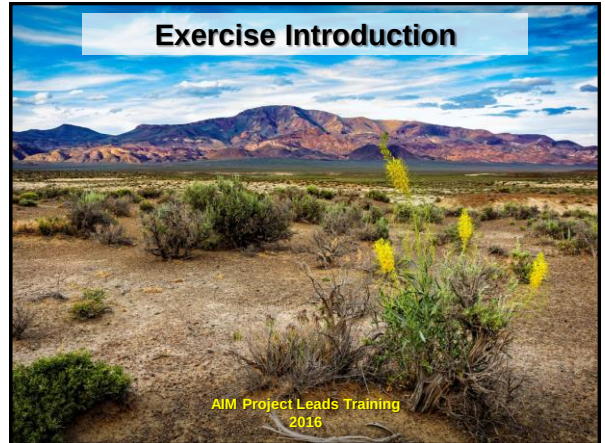
Basic monitoring objective formula

What is the composition of vegetation within the Mill Creek watershed?

Study area+ Indicator + Benchmark +
Proportion+ Confidence level + Time Period

Is total perennial grass cover between 25% and 65% on 70% of
indicator benchmark proportion
Mill Creek watershed with 80% confidence in 2016 ?
study area confidence level time period

Exercise Introduction



3 Examples – work in “ID Teams”

- Walk through an AIM monitoring project
- Each “ID Team” works with 1 of the 3 examples
 - ES&R Treatment Effectiveness
 - Grazing Permit Renewal
 - Site Scale Habitat Assessment



BLM
AIM – Assessment, Inventory, and Monitoring



4 Steps

Follow Basic Steps of a Monitoring Design Worksheet

1. Monitoring Objectives
2. Study Area, Reporting Units, & Strata
3. Indicators
4. Data analysis

Don't get ahead – we WILL explain things!

BLM
AIM – Assessment, Inventory, and Monitoring



Basic monitoring objective formula

BLM
AIM – Assessment, Inventory, and Monitoring

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Proportion+ Confidence level + Time Period

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