AIM + Range Integration Example

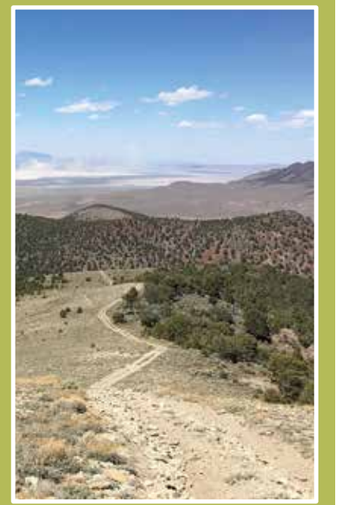
San Luis Valley Field Office, Colorado

- Field office staff created and implemented AIM monitoring at the field office level to address land use plan effectiveness as well as many smaller scale needs such as evaluating land health and restoration treatment effectiveness, beginning in 2015.
- They integrate historic range monitoring with AIM monitoring by collecting AIM indicators at existing range monitoring locations. Generally, cover indicators are most valuable, so they collect data using the line point intercept method. These locations are monitored more often than other AIM plots and are useful for addressing grazing.
- They collect grazing use information, including actual use data and utilization data, and incorporate remote sensing data, to help better understand livestock grazing and climate effects.
- Field office staff incorporate AIM and other data (IIRH and PFC) to complete land health evaluations. They use a process similar to BLM Technical Notes 453 and 455, including setting benchmarks. They also compare data across scales from allotments to watersheds to ecoregions.

AIM + Outcome-Based Grazing Example

Stillwater Field Office, Smith Creek Ranch, Nevada

- Smith Creek Ranch was selected as one of BLM's first outcome-based grazing demonstration projects, with the goal of using a more flexible approach to grazing management to achieve multiple outcomes.
- Smith Creek's BLM grazing allotments have many important natural resources including wild horses and burros, greater sage-grouse, and Lahontan cutthroat trout.
- BLM staff completed a land health assessment and evaluation based on upland and stream AIM data as well as other data (e.g., historic trend monitoring sites, qualitative assessments including IIRH and PFC), using a process similar to Technical Note 453. The process included creating benchmarks for their AIM data that were based on ecological site references and scientific literature.
- BLM staff completed a determination that applied annual use indicators (e.g., utilization) as well as land health information and found that livestock grazing and wild horse and burro use were causal factors and climate was a contributing factor.
- BLM staff completed the permit renewal and related environmental assessment. The long-term monitoring plan incorporates AIM terrestrial, lotic, and riparian and wetland plots along with other useful monitoring, such as utilization. Monitoring throughout the life of the grazing permit will help BLM staff evaluate the adaptive management decisions that stem from the outcome-based grazing approach.
- The decision was appealed, but the stay was denied in full because the judge found the plan to be sound.



Learn More

http://www.blm.gov/aim/
BLM Technical Note 453 and BLM Technical Note 455

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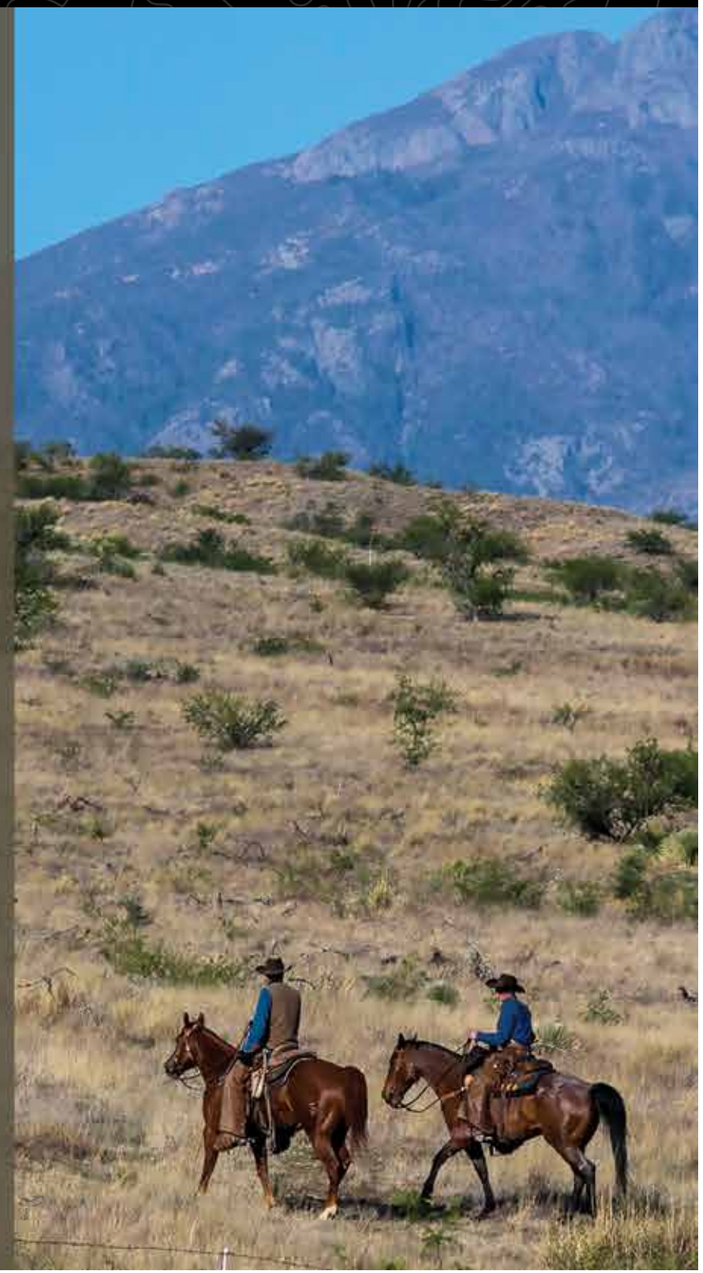
"AIM" for Efficiency in Rangeland Monitoring

The Bureau of Land Management (BLM) is responsible for managing about 245 million acres of public land for multiple uses while conserving natural, cultural, and historical resources. Assessing the condition of public rangelands and evaluating whether land health standards are being achieved are critical to achieving the BLM mission. Furthermore, achievement of land health standards ensures that land uses are balanced with maintenance of ecological processes, water quality, and plant and wildlife habitat.

In the past 10 years, a vast amount of monitoring data has been collected across BLM-managed lands through implementation of the Assessment, Inventory, and Monitoring (AIM) Strategy. AIM principles, protocols, and methods provide a foundation for developing a consistent and defensible approach to monitoring rangelands. They also enable rangeland managers to leverage AIM data to inform land health assessments and implementation-level resource management decisions such as permit renewals, vegetation treatments, and wild horse and burro gathers.

ASSESSMENT, INVENTORY, AND MONITORING



Incorporate AIM Principles and Methods to Benefit Rangeland Monitoring

CONSISTENT METHODS ALLOW DATA COMPARISON. AIM methods and indicators support the monitoring of uplands (terrestrial), streams and rivers (lotic), and riparian and wetland areas. Methods are adapted from tried-and-true field methods and combined with standardized data collection and management procedures—allowing data to be collected once and used for many purposes.

AVAILABLE TRAINING. Yearly trainings are widely available to ensure that field staff receive consistent training and collect high quality data.

DATA MANAGEMENT AND QUALITY CONTROL. Data are collected, managed, and accessed electronically, with quality control built into each phase. Suites of core indicators are calculated and provided to data users. These practices help ensure data reliability, accessibility, and use for BLM staff. Data errors are also detected and corrected following established data management protocols.

RELIABLE DATA PRACTICES. Data infrastructure and documentation practices ensure continuity of data storage and availability.

FLEXIBLE SITE SELECTION BASED ON MONITORING OBJECTIVES. While randomized site selection is often used and enables use of certain statistical analyses, focused monitoring locations, such as key areas or designated monitoring areas in grazing allotments, can also be included as part of an AIM sampling design. See Figure 1 and the San Luis Valley Field Office example provided later.

MAXIMIZE MONITORING EFFORTS. Realize monitoring efficiencies by incorporating existing AIM data into project-specific monitoring efforts (Figure 1). This minimizes the number of new monitoring locations and limits duplicate efforts.

DATA SUPPORT OTHER ASSESSMENTS. Terrestrial indicators support qualitative assessments of rangeland health using the Interpreting Indicators of Rangeland Health (IIRH) protocol (Pellant et al. 2020). Likewise, lotic and riparian and wetland indicators support Proper Functioning Condition (PFC) assessments (Dickard et al. 2015; Gonzalez and Smith 2020).

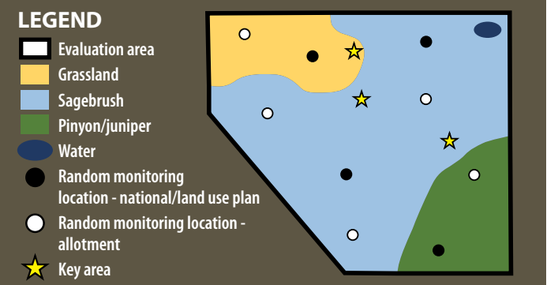


FIGURE 1. Example of existing AIM data leveraged to supplement project-specific monitoring efforts. AIM data collected for national and land use plan monitoring are available to inform a local land health evaluation, even before project-specific data collection.

Leverage AIM Data to Evaluate Rangeland Health

SUPPORT FOR LAND HEALTH ASSESSMENTS. AIM indicators and methods are well-suited for use in the land health assessment and standards evaluation process (Figure 2). Lotic and riparian and wetland indicators support the assessment of riparian and water quality-related land health standards, while terrestrial indicators support the assessment of upland rangelands including habitat for greater sage-grouse and other wildlife.

BENEFIT FROM EXISTING AIM DATA. With more than 50,000 terrestrial, 3,700 lotic, and 350 riparian and wetland data points already available, AIM data can be used to compare ecological condition in a specific site to other similar sites. Existing data also help to establish indicator benchmarks or to provide context for other analyses and support interpretations of the indicator values. This is especially helpful in areas where information about land potential is incomplete or lacking (e.g., no ecological site descriptions).

ADDITIONAL EVIDENCE STRENGTHENS EVALUATIONS. Indicators provide important lines of evidence that can be integrated with and are complementary to other lines of evidence for evaluating land health. AIM data can increase confidence in and strength of evaluations.

SUPPORT AVAILABLE FOR USE IN DECISION MAKING. Training, technical guidance, and support are also available for use of AIM data in decision making including for grazing permit renewals (e.g., BLM Technical Note 453).

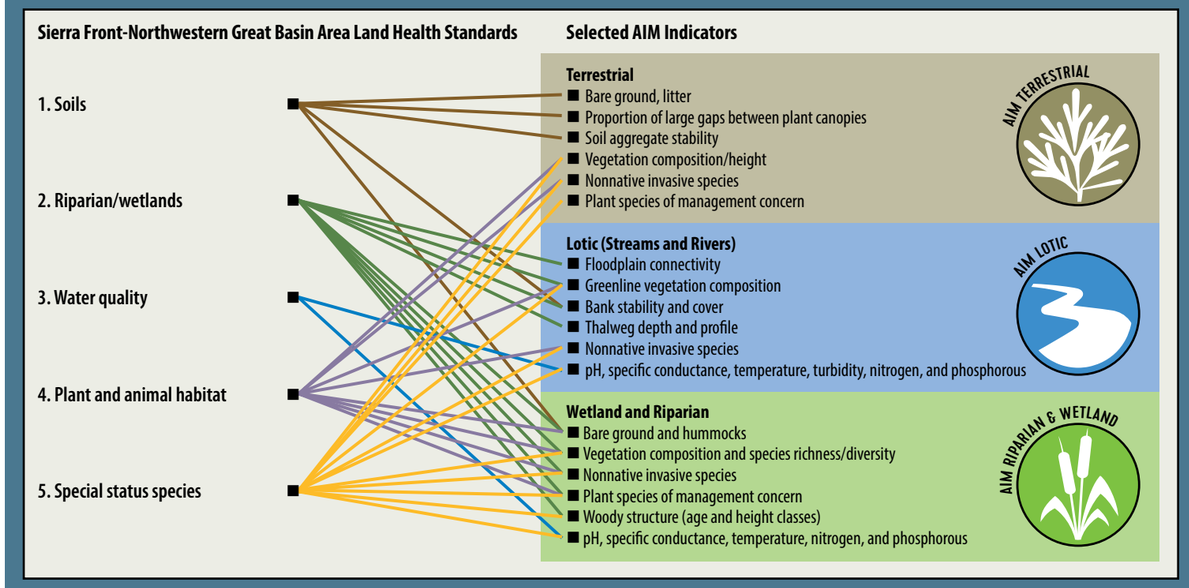


FIGURE 2. There are five land health standards for the Sierra Front-Northwestern Great Basin Area. Selected AIM indicators for uplands (terrestrial), streams and rivers (lotic), and wetland and riparian areas support evaluation of each of these five land health standards.

Common Misconceptions and Corresponding Facts about AIM

MISCONCEPTION	FACT
AIM represents new data collection methods.	The AIM program integrates established methods. The AIM protocols consist of methods that have been used by range and stream and river monitoring for decades. AIM data address similar questions as other methods based on the best available science.
Only partner data collection crews can collect AIM data.	Anyone can collect AIM data. To ensure quality of data that are ingested to the AIM databases, data collectors must attend AIM trainings and follow minimum data requirements and quality procedures.
All AIM plots need to have the full suite of AIM methods.	Land use plan effectiveness monitoring should include all core AIM indicators and methods. However, monitoring for specific programs or projects should include the AIM indicators and methods that address their specific goals and objectives and consider AIM database ingestion requirements.
AIM monitoring plot layouts are fixed.	AIM plot layouts can be flexible. Refer to the specific protocol and associated documentation for guidance.
All AIM designs need to be random.	Design approaches should be appropriate for the question at hand and can include nonrandomly selected locations or existing key areas or designated monitoring areas.
AIM adds to my monitoring workload because I need to continue collecting data following other methods and protocols too.	In many cases, there are opportunities to integrate AIM methods with existing monitoring programs and to integrate AIM data with other existing range monitoring data. A key goal of the AIM strategy is to collect data once and use it for many purposes, which increases efficiency in the long run.
AIM data take too long to get, sometimes more than 6 months. If I collect my own data I can use immediately.	The AIM data quality control and ingestion process reduces the risk of errors, miscalculations, or lost data and ensures that the data are defensible. The process can take time. The AIM program is continually working to minimize the time between data collection and availability for use. With AIM electronic data capture, data collectors can see near real-time summary data that can help with the quality control process.
All AIM data has to be analyzed a certain way.	AIM data can be analyzed many ways including most approaches the BLM has historically used to analyze and interpret range monitoring data. Additionally, the AIM program provides support for robust, well-documented statistical analysis approaches where appropriate.
AIM takes up all the monitoring funding for the range program.	A majority of the AIM budget comes from programs outside the range program. Thus, using AIM data and methods saves money by leveraging funding from across the agency.
AIM replaces monitoring of land uses.	AIM focuses on collecting data that enable the BLM to understand rangeland condition and trends. It may also be necessary to monitor land uses and disturbance (e.g., utilization, fire effects) to address questions about causes of change in land health.