

Consistent Indicators and Methods and a Scalable Sample Design to Meet Assessment, Inventory, and Monitoring Information Needs Across Scales

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Accurate and timely information on the condition and trend of natural resources is crucial for making effective management decisions. Within the Bureau of Land Management (BLM), as in many land management agencies throughout the world, much effort is invested in monitoring for and assessing specific management needs. Because these specific management needs are often focused on a single objective, the data often are of limited utility for other management objectives. The ability to use monitoring data for more than one purpose is becoming increasingly important as the use of public lands simultaneously intensifies and diversifies. It is not efficient, nor ultimately effective, to develop individual monitoring plans for different management objectives (e.g., resource planning, permit compliance, restoration, recreation impacts, invasive species, and energy development). An assessment, inventory, and monitoring approach built on consistent indicators of ecological function and capacity (that can be supplemented with additional indicators for local needs or specific ecosystem characteristics) can provide data that can be combined to address multiple needs at multiple scales.

Many management issues faced by the BLM and other land management agencies are inherently multiscale in nature. Local decisions are made at the scale of a BLM field or district office; they require local monitoring and assessment information, and they can be informed by broad-scale information. Other decisions are made at broader scales (e.g., state or national levels) and need consistent information

collected across management boundaries. An example of a multiscale management issue is the impact of invasive species. At a local level, the distribution and prevalence of invasive species can be assessed through individual field surveys, and appropriate management can be implemented and monitored over time. Consistent monitoring of invasive species across all field offices in a state is necessary to detect broad-scale patterns (e.g., linking invasive species distribution to land uses). Monitoring and assessment data collected to meet the local management needs should also contribute to regional and national monitoring and assessment efforts.

The BLM Assessment, Inventory, and Monitoring (AIM) Strategy was initiated, in part, to evaluate and to make recommendations for improving the efficiency and effectiveness of monitoring activities.¹ A goal of the AIM Strategy is to provide the BLM and its partners with the information needed to understand terrestrial resource location and abundance, condition, and trend, and to provide a basis for effective adaptive management. The Strategy supports an integrated approach that includes three components:

- 1) A standard set of field-measurement indicators and associated methods for terrestrial vegetation and soils that reflect the status of key attributes of ecosystem sustainability
- 2) A statistically valid sampling framework that allows data sets collected in different areas and for different objectives to be aggregated at different scales to address regional and national information needs