

Identifying Priority Science Information Needs for the BLM in Colorado

A short brief on final results

Background and need: The BLM affirmed in [2015](#) that it is critical to use science-informed decision making at every level and in every program to increase the science foundation, consistency, transparency, and defensibility of agency decisions. A key next question was 'What are the current priority science needs for the agency?' In essence, what gaps in the science information currently available to BLM staff may be hindering their ability to make effective, science-informed planning and management decisions? The BLM National Science Committee and National Operations Center funded this study to begin to answer that question.

Goal: Our goal was to develop a structured, repeatable method for identifying potential priority science needs for BLM based on multiple lines of evidence. We worked with BLM Colorado staff to develop and apply that method in Colorado.

Methods: We examined multiple publicly available **data sources**, primarily from the five-year period 2015-2019, to identify potential science needs. Three core data sources (BLM EAs, litigation, and protests) were complemented by 4 others: BLM EISs, Resource Management Plans, science plans and strategies, and news media coverage.

We first identified **4 types of science information** needed to support consistent and defensible public lands decision making:

Quality data on resources of concern	Scientific studies relevant to the potential for proposed actions to impact resources	Reasoned and repeatable methods for quantifying potential effects of proposed actions on resources	Effective actions for mitigating any negative impacts of proposed actions on resources
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We then **prioritized** potential needs in each category based on 3 factors: **frequency**, **quality/reliance**, and **challenges**. Specifically, **resources** (for data, mitigation) and **issues** (the combination of an action and a resource, for science, methods) were classified as top potential needs in each category when 1) the resource or issue was analyzed frequently in Colorado, 2) our metric of current quality/defensibility was low (for data, science, methods) or mitigation measures for a resource were frequently relied upon (for mitigation), and 3) BLM was challenged on its use of data, science, methods, or mitigation measures for this specific resource or issue in the region.

Results: We identified the following potential needs as the highest priorities within each category:

<u>Data</u>	<u>Scientific Studies</u>	<u>Methods</u>	<u>Mitigation actions</u>
Vegetation	Fluid minerals * - Terrestrial wildlife - Hazardous/solid waste - Socioeconomics - Water - Geology Livestock grazing/Range management * - Grazing & range (as a resource) - Vegetation - Terrestrial wildlife	All cumulative effects analyses <i>plus</i> Livestock grazing/Range management * - Grazing & range (as a resource) - Vegetation - Terrestrial wildlife - Soils Fluid minerals * - Hazardous/solid waste - Water - Socioeconomics - Water quality - Noise	Vegetation Archaeological & historic Soils Water quality
* denotes the combination of an action and a resource (e.g., the combination of a Fluid minerals action and Socioeconomics resources)			

Next steps: BLM will determine which potential priorities constitute current priorities for agency action. Detailed project findings can help BLM identify specific actions to best address needs (e.g., new policy encouraging documentation of data use in decisions, training in interpreting research results, development of new methods, effectiveness testing of commonly used mitigation measures).

Anticipated benefits: Results can help BLM to be strategic in addressing current science and data gaps that can support consistent, defensible, science-informed decision making in Colorado. One effort already in progress is developing [online, searchable summaries](#) and [syntheses](#) of science on high priority topics such as Gunnison and greater sage-grouse and invasive annual grasses.

Initial manuscripts: Two manuscripts from this project are currently in press (below), and two more are in preparation.

Carter, SK, TS Haby, JK Meineke, AC Foster, LE McCall, LD Espy, MA Gilbert, JE Herrick, and KL Prentice. *In Press*. Prioritizing science efforts to inform decision-making on public lands. *Frontiers in Ecology and the Environment*.

Foster, AC, SK Carter, TS Haby, LD Espy, and MK Burton. *In Press*. Using public litigation records to identify priority science needs for managing public lands. *Ecology and Society*.

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