BLM

Bureau of Land Management

Socioeconomics Strategic Plan

2012-2022

NATIONAL SYSTEM OF PUBLIC LANDS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Vision:

Relevant and credible socioeconomic information and tools are used in resource management decisions to strengthen the effectiveness of BLM programs.

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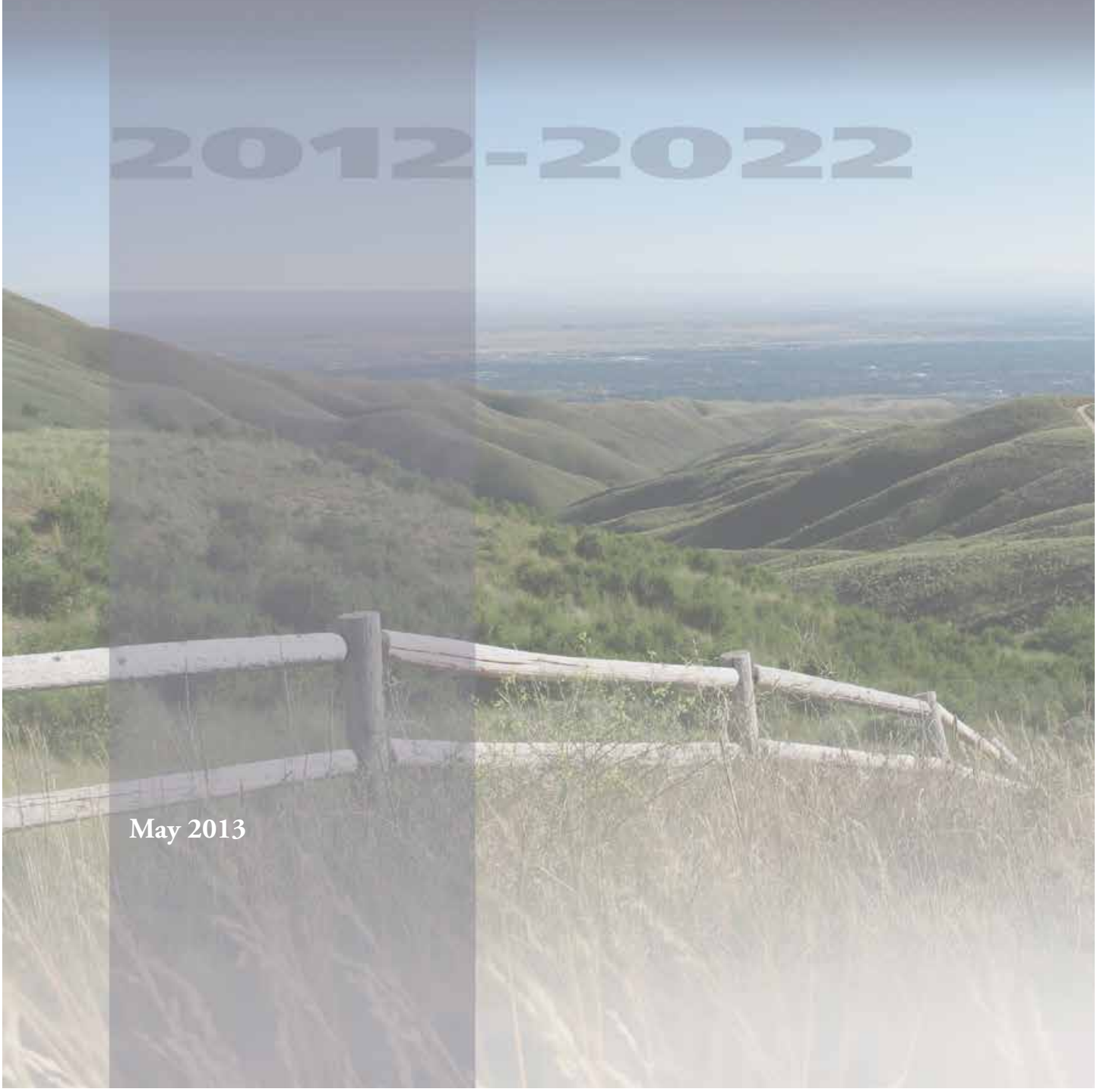
Socioeconomics Strategic Plan

2012-2022



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Contents

Executive Summary

Until the 1970s, the Bureau of Land Management (BLM) successfully pursued its mission by focusing on commodity production while striving for good stewardship of land, water, and habitat—an inherently natural resource focus. However, for the last several decades, the challenge of resource management has increasingly centered on weighing competing interests and public benefits regarding the use of and access to public lands and resources—an inherently social and economic focus. This socioeconomics strategic plan (SSP) addresses this changing emphasis and provides a roadmap to guide the BLM's socioeconomics program now and for the next 10 years. Among the key questions it addresses are:

- What information on the socioeconomic context, costs, and benefits of proposed actions does the BLM staff and the public need?
- How can the socioeconomics program most effectively support other management needs, including emerging issues (climate change, the valuation of ecosystem services) and short-term demands for socioeconomic data and analysis?
- What socioeconomic capabilities, both internal and external, are required for the BLM to meet these needs?

Socioeconomics—shorthand for the use of social science data, analysis, and interpretation—is particularly relevant to three sets of resource management issues:

- Describing communities and values (the concern of sociology and cultural anthropology).
- Analyzing goods, services, and choices (the concern of economics).
- Identifying the human uses of places and landscapes (the concern of geography).

Over the last 40 years, the American West has changed dramatically. The 2012 census showed that 7 of the 12 western states—all with a large BLM presence—more than doubled their populations. During the same period, the economies and demographics of western towns diversified to include a wide range of perspectives about how the public lands should be managed.

To address these changes and provide a solid foundation for this SSP, the BLM contracted for an external assessment of its social science needs and capabilities. Among the key findings:

- BLM employees place a high value on socioeconomic information but feel it is not used effectively.

- A large proportion of BLM employees have either a degree or formal training in a social science, providing an important resource for building the Bureau's capacity beyond its current small cadre of social science specialists.

- Most of the BLM's resource advisory council members felt that socioeconomic issues were important to consider during the BLM's decisionmaking process. At the same time, many of those individuals did not think that the BLM adequately addressed the economic, social, and environmental justice effects of its decisions.

The BLM faces several challenges in its decisionmaking that can be informed by socioeconomic information and analysis. As communities grow and diversify, they become increasingly involved in public lands management. Communities of place (such as small settlements, growing towns, and large metropolitan areas) and communities of interest (such as ranchers, off-road vehicle users, and wilderness advocates) continue to play an important role in providing public perspectives and input for the BLM's staff and managers to consider in the decisionmaking process.

In addition, the BLM is challenged by new conditions and resource demands that cannot be addressed effectively within the boundaries of a single field office. The emphasis on landscape-level assessments challenges the BLM's use of socioeconomics, which until recently operated with little reference to the models, data, and research objectives of other disciplines and programs. In the future, many of the most important problems for science and policy at the BLM will involve the interaction of social, economic, and geographic factors with biophysical processes.

Finally, resource management involves weighing the competing sets of values that distinctive groups place on landscapes, resources, and activities. Socioeconomic methods and tools can be used to assess the variety of market, nonmarket, social, and ecosystem services values that are produced by public lands across the West, and these analyses can help inform the BLM's short- and long-term management decisions.

The socioeconomics program has been working on a variety of projects to help address these needs. The BLM's "Land Use Planning Handbook" includes an appendix to help employees and managers evaluate the social, economic, and environmental justice impacts of their planning decisions. There are also several training courses in development that are designed to help nonspecialists understand the role of socioeconomics in their decisionmaking. In addition, the socioeconomics program is contributing to several Bureau- and governmentwide initiatives, such as examining the human benefits received from healthy ecosystems, understanding the economic impacts of environmental restoration projects, and modeling community growth across the West. These actions are only a start to better incorporating social science data, tools, and analysis into the BLM's decisionmaking.

There are several broad ways that socioeconomics can contribute to land management. First, there are four core socioeconomic workloads across the Bureau:

- Conducting regular socioeconomic analyses, which examine the social and economic impacts of BLM actions through the National Environmental Policy Act and the Bureau's planning process.

- Applying methods and tools to address new challenges, including BLM and Department of the Interior initiatives.

- Providing socioeconomic support for immediate management concerns, including questions from managers and employees that require very short turnaround times.

- Addressing program- or state-specific socioeconomic priorities, such as determining coal valuations in Wyoming and identifying subsistence use areas and resources used by Alaskan villages.

Second, the need for additional socioeconomic support can be met through the Bureau's most valuable resource: its people. As budgets permit, the BLM's professional socioeconomic expertise should be strengthened through recruitment of well-qualified individuals with interests and skills relevant to new management challenges. In addition, other BLM employees whose programs need socioeconomic information and analyses should have access to clear guidance, effective web-based and instructor-led training, and useful decision-support tools. The BLM's need for socioeconomic information and support cannot be met solely through internal staffing, however. The socioeconomics program can leverage its partnerships with other federal agencies, universities, nonprofits, and contractors, as well as tribal, state, and local governments.

Third, an effective socioeconomics program requires appropriate procedures for identifying workload priorities, developing needed guidance and tools, and assuring the quality of work products.

These broad approaches can be implemented through specific goals, strategies, and actions, which are outlined in the SSP. The goals are:

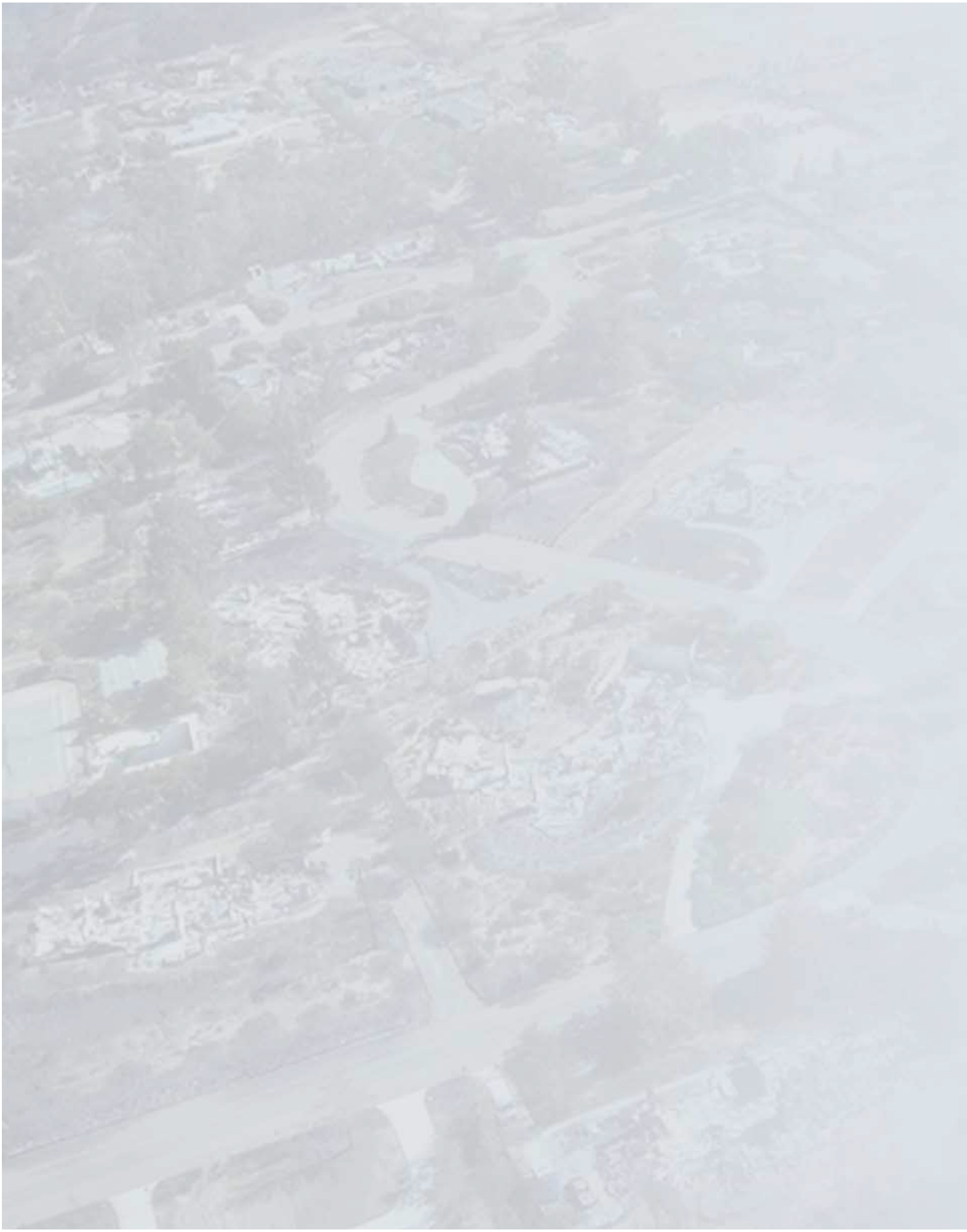
- Goal 1: Ensure that the BLM's socioeconomic capabilities support legal mandates, management priorities, and program needs. This goal includes strategies to meet socioeconomic needs of BLM managers, consult with and respond to external constituencies, and provide socioeconomic support for legal mandates.
- Goal 2: Manage the BLM's internal and external socioeconomic capabilities to provide sound and cost-effective support for offices and programs. This goal includes strategies to enhance the BLM's internal and external capacity to meet its socioeconomic needs.
- Goal 3: Ensure that BLM employees can obtain and apply sound socioeconomic information relevant to their programs. This goal identifies actions to help field and program staffs understand and use socioeconomic information in their day-to-day work.

These goals reflect four broad principles:

- Increase socioeconomic awareness and integrate capabilities across all programs.
- Build on existing socioeconomic understanding and expertise within all levels of the organization.
- Use flexible and cost-effective approaches in workforce planning to optimize the balance of BLM and external socioeconomic capabilities.
- Wherever feasible, make socioeconomic tools and data accessible and useful for nonspecialists.

Although the SSP was produced at a specific point in time, it is intended to be a living roadmap that evolves as the needs and resources of the BLM change. These goals and strategies lay out an ambitious agenda that cannot be achieved in a single year. These actions will be prioritized through annual work plans.

The American West will continue to change; the expectations placed on the BLM in managing resources will evolve with corresponding speed. A strong socioeconomics program will allow the BLM to address these challenges now and in the future.



Section 1: The Changing Role of Socioeconomics in the Bureau of Land Management

Introduction

As the BLM fulfills its mission both to sustain and to use the lands and resources under its stewardship, how should human values and interests be considered? What information about the human context and consequences of the BLM's activities does our staff need to make informed and effective decisions? What information about socioeconomic benefits and costs of proposed actions do our constituents need? Finally, what socioeconomic capabilities, internal and external, does the BLM require to provide such information?

The BLM's socioeconomics strategic plan (SSP) provides direction for answering these questions, considering both well-established program activities and newly emerging challenges. Because the BLM's current social science capabilities fall well short of meeting these needs, the SSP outlines a realistic and cost-effective approach for achieving the vision and principles of a functional and effective socioeconomics program.

The SSP is intended for several audiences. For the BLM's Washington Office and state office leaders, the strategy is intended to outline a cost-effective approach to meet established and emerging workloads. For BLM field managers and program staffs who have little familiarity with the use of the social sciences in resource management, it provides necessary background information and some specific applications to the BLM's work. For governmental partners and interest groups concerned with the economic and social consequences of the BLM's decisions and the adequacy of our analyses, it provides an opportunity to see the steps we are taking to strengthen our capabilities and respond to their concerns. Finally, for social scientists at the BLM and those colleagues from other organizations who work with the BLM, the SSP offers a roadmap for building a relevant, sound, and innovative socioeconomics program.

What Are the Social Sciences?

Throughout this document, the term *socioeconomics* refers to the data collection, analysis, and interpretation provided by the social sciences and used by the BLM in a variety of ways.[1] These activities do not equate to economics or any other single field or discipline. The challenges of resource management involve understanding and negotiating competing human interests regarding public lands and resources. The capabilities of socioeconomics are particularly relevant to three sets of resource management issues:

- Describing communities and values (the concern of sociology and cultural anthropology).
- Analyzing goods, services, and choices (the concern of economics).
- Identifying the human uses of places and landscapes (the concern of geography).

The BLM's socioeconomics program uses knowledge and tools from the following four disciplines, and for certain applications, draws on other social sciences as well. Each discipline has distinctive methods and theories and specific areas of relevance for resource management:

- *Sociology* focuses on the organization and values of social groups. It includes analyzing communities of place and communities of interest and determining differential impacts across stakeholder groups. Sociological methods emphasize quantitative data and are well suited to profiling the communities affected by a plan or project or conducting a survey of attitudes regarding the uses of adjacent public lands.
- *Cultural anthropology* examines social life as guided by distinctive systems of meaning—culture. Though its uses overlap those of sociology, anthropology emphasizes ethnographic (qualitative) methods such as open-ended interviews and participant observation, which are well suited to problems involving distinctive ways of life, occupational practices, or local knowledge. Examples of applications include identifying the subsistence hunting harvests of Alaska Native communities or the vulnerability of Arizona ranchers to climate change.[2]
- *Economics* studies the choices society makes in managing its scarce resources—investigating both the factors leading to outcomes and the outcomes themselves. For example, economics may investigate outcomes in terms of the jobs and income to be generated under alternative land use allocations or the fair market value of a proposed coal lease. Economics may also explore development strategies or incentives that encourage greater diversification of resource uses with the goal of building resilient economic outcomes. Environmental economics expands the consideration of benefits and costs to include ecosystem services, which are environmental goods not traded in markets, such as the value of a whitewater rafting experience or the human benefits from terrestrial carbon sequestration.
- *Human geography* considers how the characteristics of land and resources shape human activity, from local to global scales. Examples of resource management issues appropriate for geography include modeling the pace and direction of urban growth affecting public lands[3] and using participatory techniques to map the associations of places and values in a landscape affected by proposed development.[4]

History and archaeology are two other social science disciplines integral to the activities of the BLM. Because these disciplines are organized through the BLM's cultural resources program, they are not examined in this SSP. Nonetheless, in many contexts—particularly land use planning—an account of the past human use of an area documented through history and archaeology is a necessary complement to the information on contemporary social and economic life provided through the disciplines examined here.

Political science and decision science are also social science fields relevant to the BLM's programs, though expertise in those fields is generally more appropriately obtained through external sources. Political science is concerned with systems of governance, authority, and decisionmaking. Political science can, for example, identify more effective strategies for intergovernmental cooperation on cross-jurisdictional issues such as growth and wildfire risk. Decision science is an interdisciplinary subject, drawing on psychology, economics, and operations research, that develops tools and procedures to structure defensible decisionmaking, typically involving complex criteria under conditions

of uncertainty. There are, for example, several decision tools to conserve biodiversity benefits while maximizing other resource management objectives in land use planning.[5]

Legal Mandates

Using socioeconomics to understand the human context and consequences of the BLM's activities not only makes good management sense, it is also required by law. Several legal mandates are relevant:

- *Federal Land Policy and Management Act (FLPMA).* FLPMA directs managers to pursue multiple-use management while balancing a range of environmental and social values, including consistency with state, local, and tribal government plans. FLPMA requires the BLM to integrate "physical, biological, economic, and other sciences," and by regulation to consider "social, economic and institutional data" in developing land-use plans.[6]

- *National Environmental Policy Act (NEPA).* NEPA states that "it is the continuing policy of the Federal Government . . . to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."[7] In addition, NEPA directs the BLM to "insure the integrated use of the natural and social sciences . . . in planning and decision-making."[8] The Council on Environmental Quality's NEPA regulations specify that the human environment "shall be interpreted comprehensively to include the natural and physical environment *and the relationship of people with that environment"* (emphasis added).[9]

- *Government Performance and Results Act (GPRA).* GPRA requires the BLM to identify program objectives and to collect "information about program results and service quality."[10] A variety of socioeconomic techniques can support these goals, including economic analyses of cost-effectiveness and the systematic collection of information on the public's satisfaction with the BLM's programs.

- *Environmental Justice.* The 1994 Executive order on environmental justice requires each federal agency to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."[11] The BLM uses socioeconomic methods and data to incorporate environmental justice considerations into its resource management decisions. The Department of the Interior (DOI) has prepared a revised environmental justice strategic plan to guide implementation of these principles and establish performance measures.[12]

- *Subsistence resource rights.* Federal obligations to tribes regarding access to resources are based in treaty, statute, and case law.[13] Beyond the government-to-government relationship, many issues involving consultation with tribal governments, such as balancing tribal access to subsistence resources with proposed energy development, require ethnographic or other socioeconomic information to identify workable solutions. In addition, the Alaska National Interest Lands Conservation Act specifies additional requirements for ensuring the opportunity for subsistence use by rural Alaskans.[14]

The Changing Context of Resource Management

Until the 1970s, the BLM could successfully pursue its mission by focusing on commodity production while striving for good stewardship of land, water, and habitat. The passage of NEPA in 1970 and the Endangered Species Act in 1973 focused public awareness on federal environmental responsibilities and contributed to increasingly polarized public attitudes regarding the appropriate management of federal lands and resources. These circumstances have strengthened the need for sound information on the environmental and socioeconomic interests and values of the BLM's varied constituencies.

Over the past 40 years, the West has changed dramatically. Seven of the 12 western states—all with a large BLM presence—have more than doubled their populations. Nevada grew by more than 450 percent and Arizona by more than 260 percent in this period, while the U.S. population increased by only 52 percent.[15] The footprint of many western cities expanded dramatically to accommodate growth, pushing residential development to the boundaries of federal lands and producing many land use conflicts at the wildland-urban interface. Once an overwhelmingly rural agency, the BLM must now consider both the social and economic conditions of small communities and the growing demand for recreation and other services by urban and suburban populations.

During the same period, the economies of western towns diversified. Globalization helped undermine the role of agriculture across much of the West.[16] New communications technologies made it feasible for firms to do business on a national or international scale while based in small but amenity-rich western communities. In many rural counties of the "New West," the stewardship of public and private lands has created a culture and environment that attracts retirees and the service economy. Today in many of those communities, the economic value of services

and transfer payments to retirees far outstrip that of traditional commodity sectors such as ranching.[17]

Yet energy and mining remain major economic drivers for many rural western counties. The West has experienced several booms in fossil energy production, including one from the mid-1970s to the mid-1980s and the current boom, which started in the late-1990s. Rapid energy development has many socioeconomic consequences, including increased employment, greater demand for housing and public services, and a two-tier local wage structure.[18] For example, in 2010, mining-related jobs in Garfield County, Colorado, earned an average of $78,000 per year, while nonmining jobs earned $40,000 annually.[19] Large-scale wind, solar, and geothermal generation projects represent a more recent trend in western energy development, posing distinctive management challenges and socioeconomic effects.

The United States has also become more racially and ethnically diverse. For example, while many racial and ethnic groups use and value the public lands, Hispanics and Latinos form a particularly significant new public for the BLM. According to U.S. Census data, from 2000 to 2010, America's Hispanic and Latino population grew 43 percent to more than 50 million.[20] This population is disproportionately located in the West.[21] As a result, the BLM must learn to serve not only a larger population but also a more diverse population with more varied needs, interests, and values regarding the public lands.

Native American rights and interests also gained greater political prominence over the past 40 years. Examples include laws preserving access to American Indian sacred sites and protecting rural Alaskan subsistence uses.[22] Such changes have required resource management that is better informed regarding the rights, values, and ways of life of American Indian and Alaska Native communities.

Finally, over the past decade, state and local governments have taken a stronger role in informing

the development of the BLM's plans and environmental impact statements (EISs) by becoming more formally and actively involved as cooperating agencies.[23] State and local governments have strong interests in the socioeconomic effects of federal decisions on their jurisdictions, resulting in greater scrutiny of the socioeconomic analyses contributing to the BLM's resource management decisions.

Three Decades of Socioeconomics in the BLM

Staffing Trends

Beginning in the late 1970s, rapid, large-scale energy development, particularly of coal and natural gas, created concern for the adequacy of the BLM's socioeconomic analyses. The energy boom, combined with new policy emphases on integrated planning under FLPMA and impact assessment under NEPA, prompted a wave of social science hiring. By 1981, the BLM had a sizeable socioeconomics staff, estimated at 40 economists and 15 sociologists.[24] That level of staffing included at least one economist in every state office, economists in many district offices, sociologists in 11 of 12 state offices, and socioeconomics staffs at the Washington Office and the Denver Service Center (now known as the National Operations Center).

Budget priorities shifted significantly over the next decade. By 1987, only two sociologist positions remained; economist positions also dwindled. In some cases, this reduction could have been due to a mismatch between the professional background of social scientists and the Bureau's socioeconomic needs. Many of the sociologists hired in the late-1970s and early-1980s were trained in an urban sociology and social work tradition and may not have been familiar with the assessment of social impacts in land and resource management.[25] By 2011, there were 14 individuals on the BLM's socioeconomics staff—9 economists and 5 other social scientists (in sociology, anthropology, and geography)—but only 10.6 full-time equivalents.[26]

Previous Social Science Plans and Reports

This document is not the first effort to craft a strategy for the social sciences at the BLM; the socioeconomics staff prepared action plans and reports in the 1980s and 1990s. Some key findings from earlier efforts provide a context for the current strategy and suggest areas of both continuity and change in the use of socioeconomics across the Bureau.

Social and Economic Policy and Action Plan (1981)

The 1981 action plan proposed a major role for socioeconomics within the BLM and called for "including social and economic concerns on an equal basis with other resource considerations."[27] The plan identified three broad goals:

- First, to integrate socioeconomic analysis into the BLM's decisions, it mandated improved policy and guidance on preparing benefit-cost analyses and incorporating social and economic analyses into plans and environmental impact assessments.[28]

- Second, it called for improved technical capabilities, acknowledging that "comprehensive . . . and professional" socioeconomic analysis was still far from being achieved. It stated that analyses were "of uneven quality" and that "the Bureau lacks quality data."[29] The action plan recognized the need to value not only market commodities, but also the "nonmarket values of all goods and services produced on public lands."[30]

- Third, it included a strong statement on socioeconomic mitigation. The BLM was responsible not only for identifying the adverse human impacts of a proposed action, but also for working with other parties to reduce them.[31]

As a snapshot of social science at the BLM in 1981, the action plan suggests both some important strengths and some significant weaknesses. On the positive side, this plan and other programmatic efforts of the period reflect extensive technical expertise by the BLM's economists and sociologists, a critical awareness of shortcomings, and thoughtful ideas for programmatic improvements. On the negative side, the action plan also refers to a "communication gap" between the BLM's socioeconomics staff and its managers. Socioeconomic findings "have been couched in terms that are incomprehensible."[32] Three years later, a followup report noted: "The perception is that managers do not know what social scientists can do or what they do, and that social scientists perceive managers as not being able to articulate what they want."[33]

In hindsight, opportunities to improve communication between specialists and managers may have been limited by assumptions on how applied social science should be organized in a resource management agency. The action plan focuses on technical excellence—improved methods and better data—but scarcely addresses effectiveness, providing the information and assistance that will most benefit the BLM's programs and management decisions. The plan assumed that providing socioeconomic information and assistance should be the exclusive responsibility of trained social scientists, rather than a goal to be accomplished by a combination of specialists and other BLM staff equipped with appropriate tools and training.[34]

BLM Social Science Initiative (1995)

Three focus groups involving BLM managers and the socioeconomics staff were held in 1995 to review the status of social science within the Bureau. Many of the challenges identified by the focus groups had been noted a decade earlier:

- "A significant number of BLM managers resist recognizing that there is a problem—public discontent with the BLM's attention to 'people issues' and, by extension, with the level of use of social science in BLM."[35]
- Social scientists fail to present information in a manner that is "relevant and usable to BLM decision makers."[36]

A number of solutions recommended by the focus groups remain relevant today and are addressed in the current strategy:

- The BLM needs to "incorporate social science awareness training into all aspects of the core curriculum."[37]
- The BLM should foster "continuous informal dialogue between social scientists and managers" to advise on local issues and trends.[38]
- The BLM "must aggressively partner, at all levels, with all sources of [external] social science expertise."[39]

Assessment of Social and Economic Capabilities (2009)

To adequately characterize the current state of the BLM socioeconomics program and to provide a solid basis for this SSP, the BLM contracted for an external assessment of its social science needs and capabilities. The socioeconomic needs assessment was conducted by a team of economists and sociologists from four western universities.[40] The team reviewed current social and economic analyses within BLM planning documents, spoke with the BLM's social science staff, conducted a telephone survey of BLM employees, and interviewed members of the BLM's resource advisory councils (RACs). The assessment was guided by an oversight committee of more than 20 BLM managers and program employees drawn from the Washington Office; state, district, and field offices; the National Training Center (NTC); and the National Operations Center (NOC) (appendix A).

Through its interviews with BLM socioeconomics staff, field staff, managers, and resource advisory council members, the assessment report provides both a baseline of the socioeconomics program's current status and a description of desired future capabilities. The findings in the assessment report resulted in many of the recommended strategies and actions presented in section 3 of this SSP. Given the length of the assessment report, only a few of the findings are noted here.[41]

BLM socioeconomics staff. Interviews with current and former BLM socioeconomics staff members provided a good "insider" perspective regarding the state of the program, including the following observations:

- "There is not a career track for social scientists in BLM."[42]
- "Cross training of social scientists would be desirable."[43]
- "There is little time for collecting primary data. This is especially a problem for sociology since the issues tend to be community based."[44]
- "Monitoring for adaptive management will not likely take place given competing demands. . . . Adaptive management requires good [socioeconomic] monitoring."[45]

The Bureau's socioeconomics staff indicated that they could benefit from enhanced support for social science practitioners through training and a "community of practice." They also stated that current workloads prevent some methods of data collection and analysis,

which may be remedied through tools that automate routine processes such as data standardization.

BLM employees. More than 1,200 managers and employees participated in a telephone survey. In addition to multiple choice survey questions, the study included several open-ended questions, such as: "Please describe how a resource management plan could make effective use of social science information." Responses to the open-ended questions provided rich insight into the practical challenges of effectively incorporating socioeconomics into the BLM's programs. Especially relevant survey findings are presented below:

- Ten percent of those surveyed had earned a degree in a social science, including economics. Another 31 percent had some coursework or other formal training in the social sciences.[46] This pool of BLM employees offers an important resource in building the Bureau's capacity beyond the small cadre of social science specialists.

- The primary responsibility for preparing social and economic analyses rests with BLM employees other than social scientists (51 percent of responses), followed by BLM socioeconomics staff (13 percent) and contractors (12 percent). Another 12 percent agreed that "no one addresses these [socioeconomic] issues."[47] This finding demonstrates the need to improve the socioeconomics knowledge and skills of those BLM employees actually guiding such analyses.

- Employees were asked what they would do to enhance the use of social science research other than adding staff. Twenty-four percent of those surveyed called for more socioeconomic education and training for BLM employees. Others responded that they would contract for assistance; conduct more research; build awareness; increase communication with the public; and develop manuals, handbooks, and tools (figure 1).[48]

- BLM employees place a high value on socioeconomic information but feel it is not used effectively.

In developing resource management plans, 66 percent of those surveyed rated the value of socioeconomic information "high" or "very high" (on a 5-point scale).[49] In developing field office implementation actions, 60 percent rated the value of socioeconomic information "high" or "very high."[50] In contrast, the assessment of how well such information is actually used is far less positive. Only 38 percent of employees surveyed felt that the adequacy of socioeconomic information in resource management plans was "high" or "very high" (on a 5-point scale). In determining implementation actions, only 23 percent felt that the adequacy of socioeconomic information was "high" or "very high"[51] (figures 2 and 3.)

In addition to questions addressed to all BLM employees, the survey included questions regarding the use of socioeconomic data specific to particular programs, including grazing, recreation, wildland fire, forestry, energy and minerals, and lands and realty.

Almost one-half of BLM field employees and managers surveyed either have a degree in a social

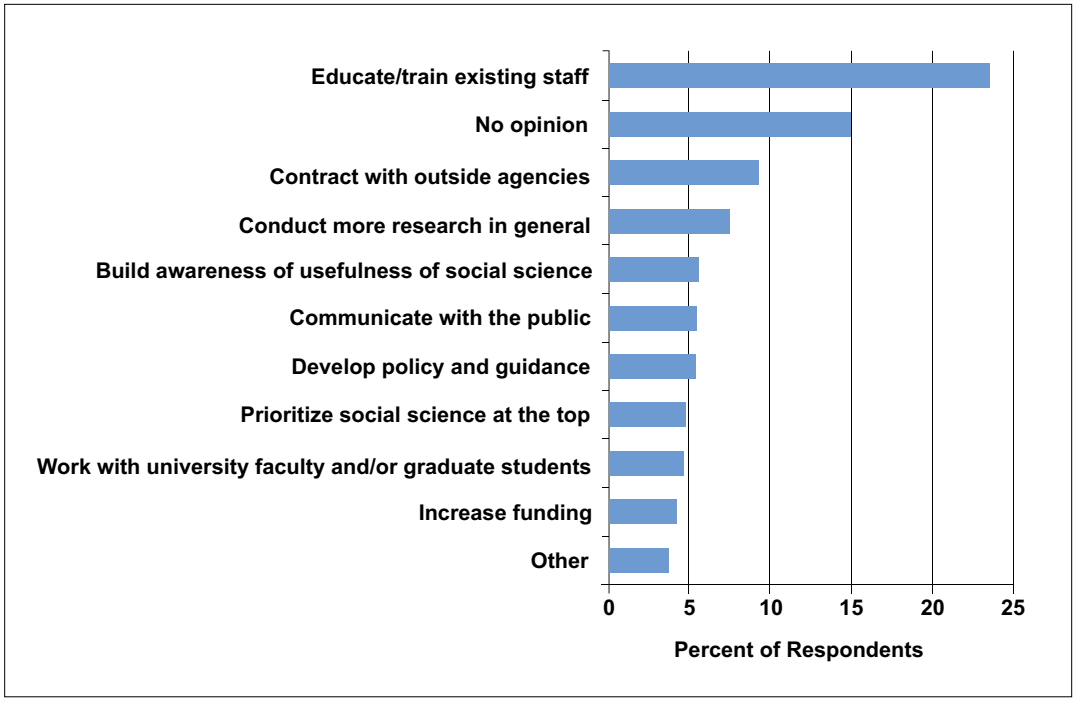


Figure 1. Responses to: "What would you do to enhance the use of social science research other than by new staffing?" from the BLM employee survey.

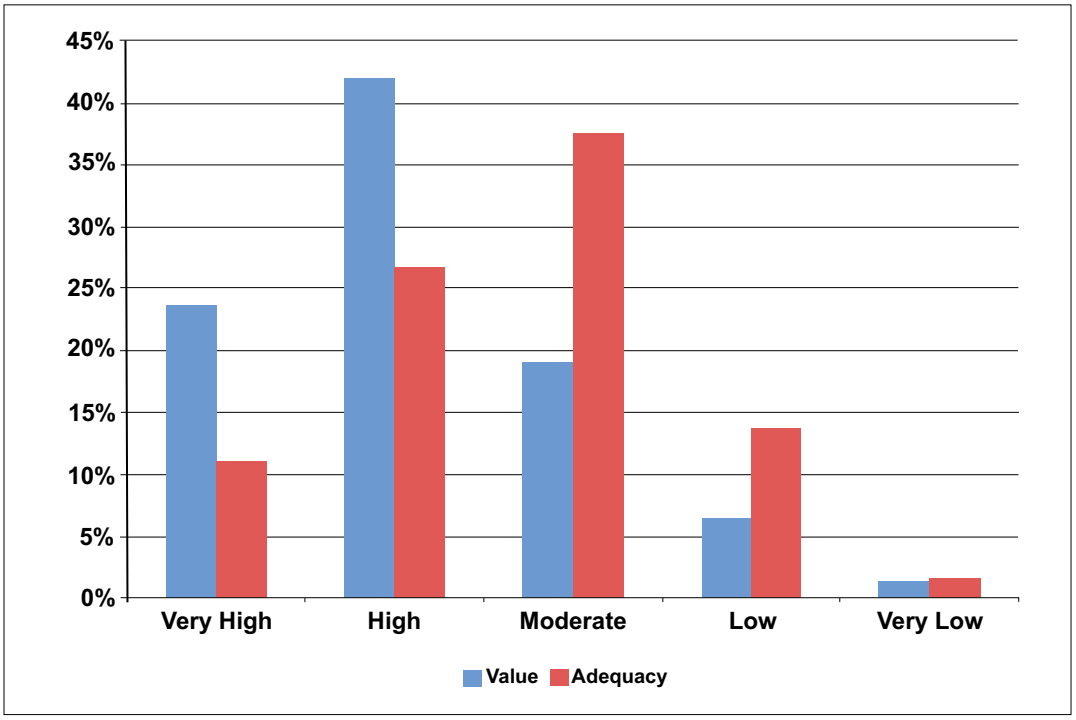


Figure 2. Responses to value and adequacy of social science information for resource management planning from the BLM employee survey.

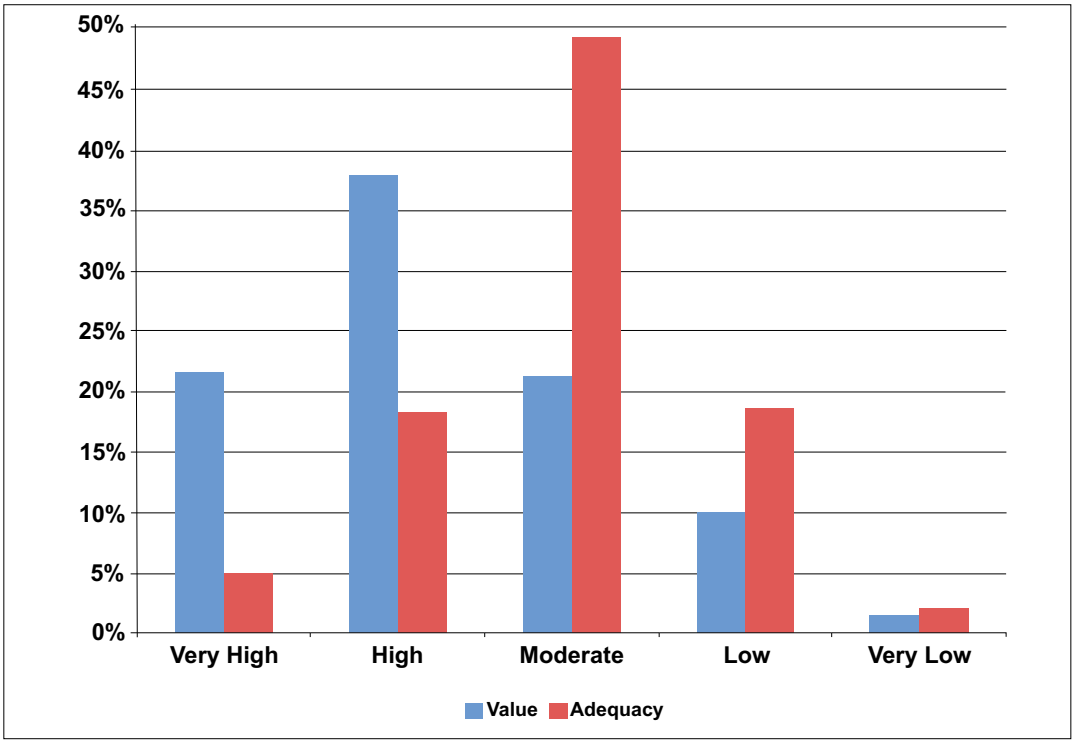


Figure 3. Responses to value and adequacy of social science information for project implementation from the BLM employee survey.

science or have some coursework or formal training in the social sciences, indicating that they are well-prepared to benefit from additional training in socioeconomic tools and methods. In addition, while many of the staff and managers surveyed find value in the use of socioeconomic information, they do not currently feel that the BLM uses that information to its full potential. This difference may be because many of the socioeconomic analyses are being performed by those outside of a social science position or because those employees would like additional education and training.

RAC members. For an external perspective on the BLM's socioeconomic needs and capabilities, the assessment team conducted phone interviews with 90 RAC members, which was a 38 percent sample.[52] RAC membership is intended to reflect a balance between commodity, recreation and environmental, and public and governmental interests. While overall the views of the RAC members were highly varied, the interviews offered relatively consistent responses to some key questions:

- Most RAC members felt that socioeconomic issues were important to consider during the BLM's decisionmaking process. Nearly 80 percent of RAC members representing commodity and public and governmental interests rated socioeconomic issues "high" (on a 3-point scale), compared to about 45 percent for members representing recreation and environmental interests.[53]

- RAC members were generally satisfied by the quality of the BLM's socioeconomic analysis. Overall, 59 percent were "satisfied" or "very satisfied" (on a 5-point scale), though fewer members with commodity interests (46 percent) and more members with recreation and environmental interests (68 percent) expressed that level of satisfaction (figure 4).[54]

- A different picture appears when RAC members were asked whether the BLM has adequately addressed the economic, social, and environmental justice effects of its decisions (figure 5).[55]

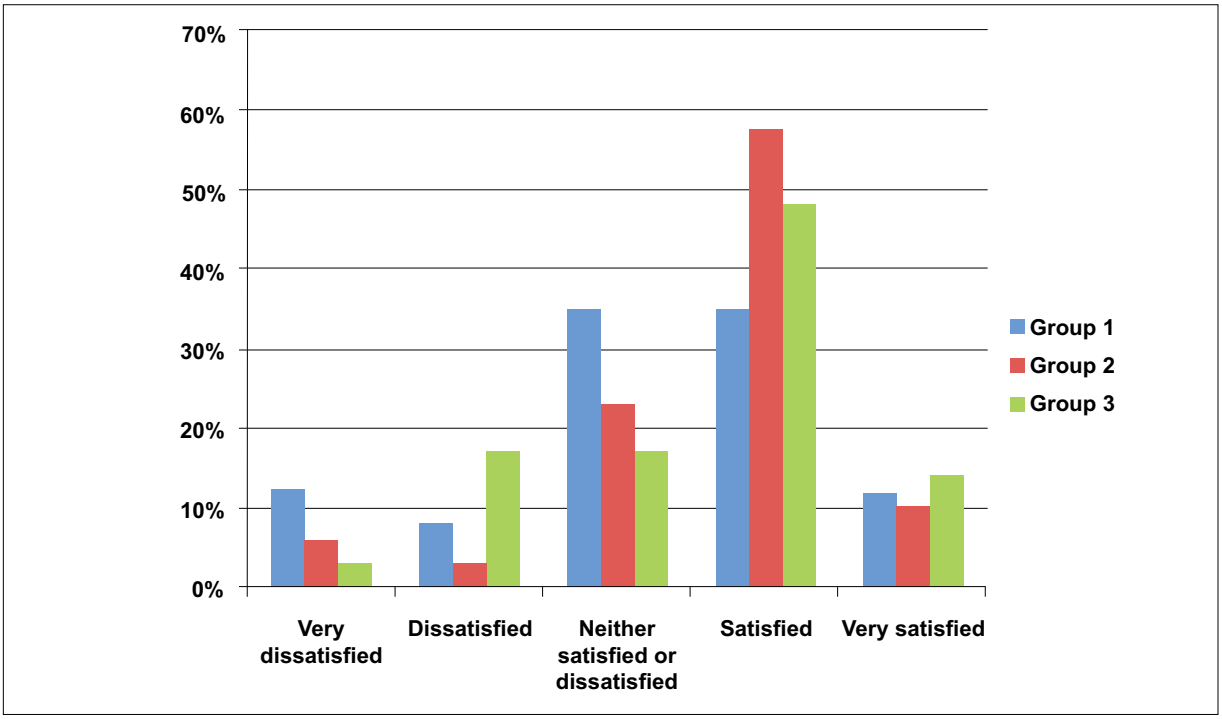


Figure 4. Responses to: "Overall, how satisfied are you with the level of social and economic analysis in BLM's resource management decisions?" from RAC interviews (group 1 = commodity interests; group 2 = recreation and environmental interests; group 3 = public and governmental interests).

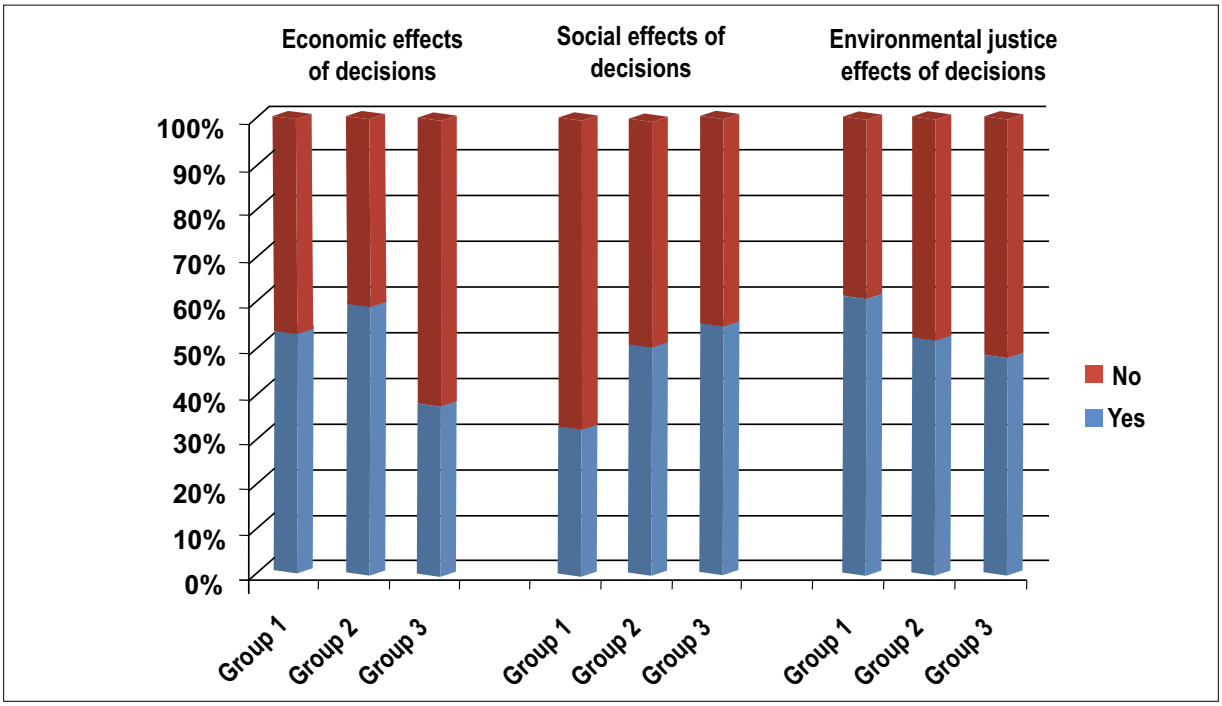


Figure 5. Responses to: "In making resource decisions, has the BLM adequately addressed the economic, social, and environmental justice effects of its decisions?" from RAC interviews (group 1 = commodity interests; group 2 = recreation and environmental interests; group 3 = public and governmental interests).

In other words, while the BLM may be including socioeconomic information in its analysis and documentation, it may not be using that information to inform the overall decision.

Regarding economic effects, positive responses were received from about 50 percent of RAC members with commodity interests, about 57 percent from those with recreation and environmental interests, and only about 35 percent from those with public and governmental interests:

- "No, they can do a much better job of it, but they are shorthanded and need more [funding], and we shouldn't blame the field-level personnel because they are already pulled in too many directions."[56]

- "There is no long term data to back up anything and the data they have is not updated."[57]

Regarding social effects, only 30 percent of commodity interest members responded positively, with around 50 percent positive responses from recreation and environmental and public and governmental interest members. One member commented, "No, I don't think they recognize the impacts that decisions can have on communities. We don't see any difference of approach to their managing oil and gas development with $140/barrel oil than we did at $20/barrel oil, so there is no reaction to circumstances."[58]

Regarding the effects on minority, low income, and tribal populations (environmental justice), 60 percent of commodity interest members responded positively, compared to 50 percent for recreation and environmental interest members and about 45 percent for public and governmental interest members:

- "We need a better understanding of social structures, interactions of communities, compatibility of types of data. There is not enough staff to harvest, compile, prepare and distribute the data."[59]

RAC members expressed broad concern with the adequacy of how the BLM assesses and responds to the social and environmental justice effects of its resource management decisions. In addition, the RAC members showed strong interest in socioeconomic issues and extensive knowledge of regional socioeconomic conditions. Given these facts, there is great opportunity to work with the councils on a systematic basis to identify the socioeconomic information most relevant to outside constituencies, strengthen outreach on socioeconomic issues, and gain an external perspective on improving the mitigation of social and economic effects.

BLM Socioeconomics Program Accomplishments

Despite the limitations identified by past efforts and the recent needs assessment, a review of the socioeconomics program's activities over the past few decades shows that much has been accomplished.

Guidance

By the early 1980s, the BLM had developed a substantial socioeconomic manual and handbook system, dealing with topics such as planning, mineral valuation, benefit-cost analysis, and impact assessment. Other guidance was issued on socioeconomic analysis of grazing decisions[60] and socioeconomic mitigation.[61] Prompted by the community-level effects of widespread coal leasing, in 1982 the BLM issued the "Guide to Social Assessment: A Framework for Assessing Social Change," a substantial work later published commercially by Westview Press.[62]

Many socioeconomic guidance documents were eliminated in the 1996 ("reinventing government") reduction of regulations and policies. In 2011, only a few socioeconomic documents remain in the BLM's system of handbooks: appendix D of the 2005 "Land Use Planning Handbook"[63] and handbooks on economic evaluations of both coal and oil and gas.[64]

Other guidance has been issued under instruction memoranda, such as minimum qualifications for contractors.[65]

Training

In 1983, the BLM developed a training program on social and economic impact assessment,[66] based on the "Guide to Social Assessment." In 2002, the NTC developed a new course, "Social and Economic Aspects of Planning," to support the congressionally mandated effort to expedite revision of the BLM's resource management plans. This 3-day, in-person course was offered annually through 2007 and received very positive assessments. Reduced training budgets prompted its conversion to a 12-hour web video format, but the course has attracted little interest as a distance learning package.[67]

To meet a broader training need and to provide an introduction to socioeconomic methods that could serve as a foundation for more specialized courses, the NTC is developing a much shorter online training course, "Reading the Human Landscape." The course presents a number of economic and social analyses addressing realistic problems faced by field offices. It is scheduled for completion in 2013.

Technical Support

To compensate for the declining number of state offices with socioeconomics staffs, in 2007 the NOC established interagency agreements with both the Forest Service (USFS) TEAMS and the U.S. Geological Survey (USGS) Policy Analysis and Science Assistance Branch to provide socioeconomic assistance for field offices preparing plans and project EISs. The USGS has also provided support for national socioeconomic initiatives.

Outreach Publications

While the information provided by BLM's socioeconomics program has largely been directed at meeting regulatory requirements, such as impact analysis under NEPA, the program's aims have recently expanded to support outreach to the public and constituencies.

In 2009, the DOI initiated an annual report on the economic impacts of its bureaus' programs and activities (see box). Developing estimates of economic activities associated with BLM-managed lands and resources required a team of 10 economists, including 5 from other agencies.

The BLM issued a factsheet highlighting these economic data in 2011[68] and is currently preparing a standalone report describing the social and economic effects of BLM's programs at both national and community scales.

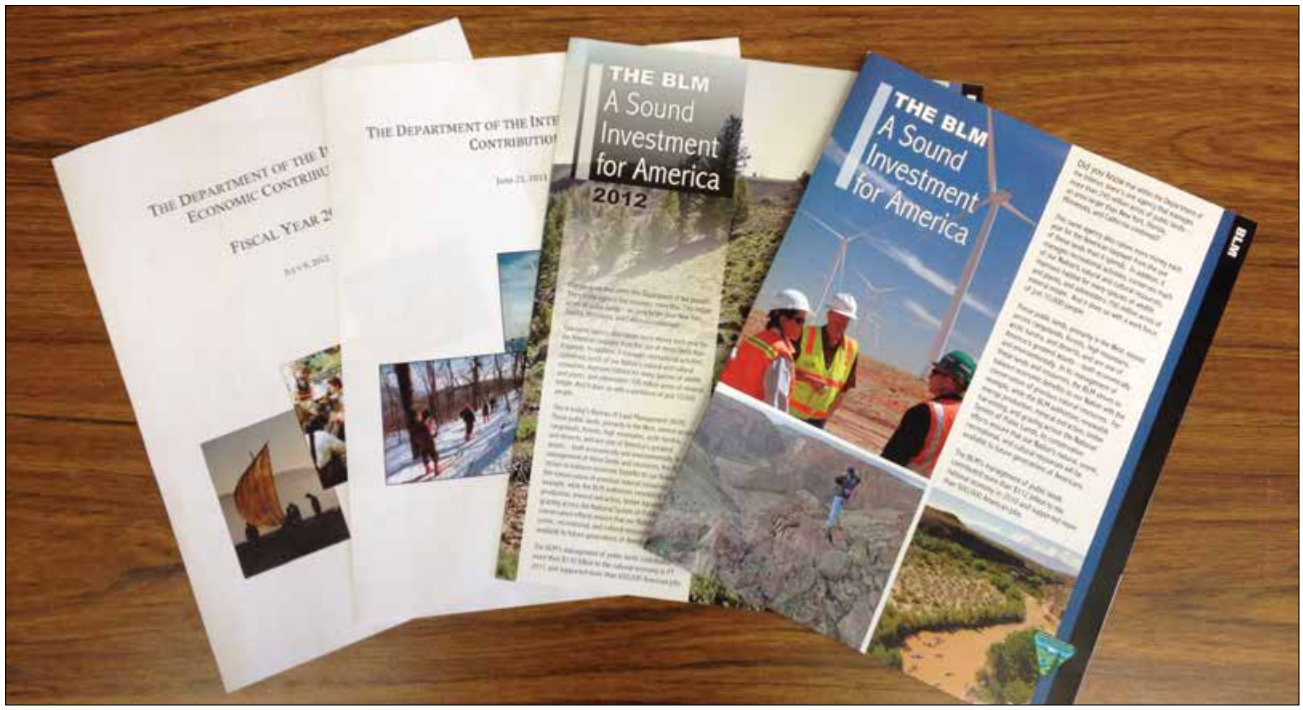
Tools

Over the past decade, the BLM has supported the development of tools intended to make socioeconomic information more accessible.

In fiscal year 2010, the BLM's programs supported more than 550,000 American jobs (25 percent of the jobs that are attributable to DOI's programs and activities) and $122 billion in total economic output (34 percent of the total output that is attributable to DOI), using only 15 percent of the DOI's payroll and 7 percent of the DOI total budget authority.[69]

Economic Profile System–Human Dimensions Toolkit (EPS–HDT)

In 1998, the BLM's socioeconomics program began a partnership with the Sonoran Institute (and later with Headwaters Economics) to produce a software application offering access to economic and demographic data in a format readily used and understood by nonspecialists. Originally developed to foster collaboration with the public over the BLM's planning goals, EPS–HDT was quickly adopted as a tool for internal use. There are also thousands of public users. A greatly expanded application, now funded jointly by the BLM and the USFS, was released in 2011.[70]



Assessment of Socioeconomic Planning Needs (ASPN)

This web-based expert system provides advice on the appropriate economic and social assessment methods to use for a plan or project assessment based on responses to a series of questions. ASPN is being developed by the USGS with funding from the BLM, USFS, and National Park Service.

Initiatives

A growing share of the socioeconomics workload involves finding new approaches to address Bureauwide challenges and emerging program needs.

Recreation Benefits

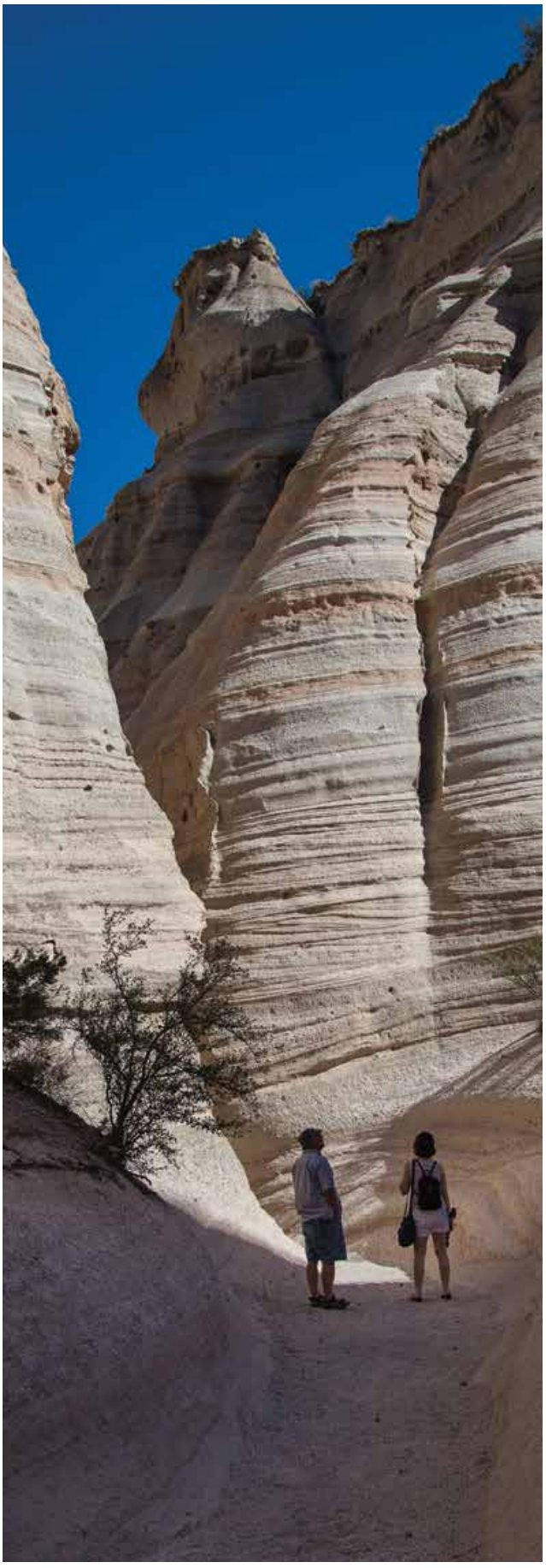
Identifying the economic benefits of recreation on BLM lands remains challenging. The socioeconomics staff is assisting the recreation and visitor services staff with identifying the most cost-effective and defensible methods for surveying visitor use and estimating visitors' expenditures.

Community Growth

The rapid expansion of many western cities has placed increasing demands on BLM-managed lands and resources. To better anticipate the effects of growth, the BLM's socioeconomics staff is partnering with the USGS to assess several community growth models for use in preparing resource management plans.

Ecosystem Services

While the BLM routinely estimates the jobs and income generated by the development of commodities such as oil and gas or timber, it is far more difficult to quantify the human benefits received from healthy ecosystems, such as water provisioning or carbon sequestration. Such ecosystem services can be significantly affected by resource management decisions. BLM's socioeconomics staff has partnered with the USGS to evaluate computer-based tools and other economic methods for valuing ecosystem services.

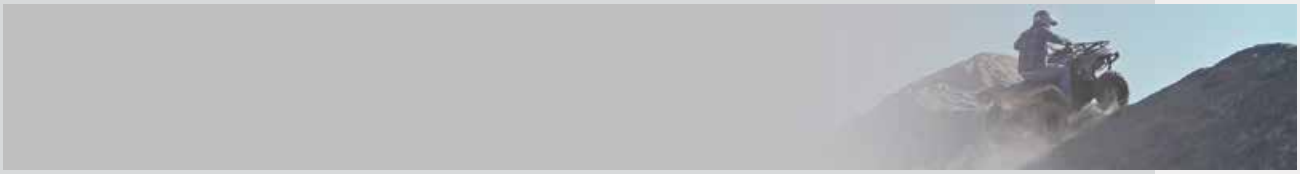


Environmental Restoration Benefits

Many BLM programs contribute to the restoration of healthy ecosystems, but we lack good data on the economic impacts of these efforts in terms of jobs and output. The BLM's socioeconomics staff is supporting a new effort by the USGS and USFS to correct this omission through a survey of businesses and an analysis of the economic contributions made by federal restoration activities.

Human Dimensions of Climate Change

Beginning in fiscal year 2012, the BLM staffs from the socioeconomics program and climate change initiative are partnering with the USGS and other agencies to build a common framework for assessing the human dimensions of climate change. The project will identify methods, protocols, and indicators for describing those socioeconomic effects and adaptive responses most relevant to the lands, waters, and resources that are managed for the public.



Section 2: Needs and Responses

The BLM's Emerging Socioeconomic Needs

The BLM's need for socioeconomic information, analysis, and problem solving falls into three interrelated categories: communities, landscapes, and values.

Communities

Many of the factors shaping the BLM's external challenges, such as changing western economies and growing polarization over the values that should guide resource management, increase the relevance of community perspectives in the BLM's decision process. Communities include both communities of place (such as small settlements, growing towns, and large metropolitan areas) and communities of interest (such as ranchers, off-road vehicle users, and wilderness advocates). The BLM must consider the following factors:

- *Community development.* Bureau managers and planners need information on the community development objectives of local government partners, as well as reliable data on local and regional economic trends, to maximize the opportunities for cross-jurisdictional coordination in land use planning. This can mean supporting plans to put local economies on a more diversified and sustainable footing. Examples include participation in regional ecotourism initiatives, promotion of historic and archaeological sites as visitor destinations, and support for stewardship contracting for fuels treatment and use of small-diameter logs. The BLM socioeconomics staff can be an important resource for such efforts.

- *Impacts of commercial uses.* Commercial uses of BLM lands often have substantial effects on surrounding communities and groups. Commercial recreation on BLM lands, led by outfitters and guides, has both economic and social impacts on surrounding communities. The economic importance of many traditional uses (for example, timber and grazing) has decreased in recent decades, but those industries remain an important part of how many communities define themselves. Many extractive sectors such as oil and gas are subject to major fluctuations in production (boom and bust). To plan effectively for both sides of this cycle, local governments need more detailed projections of project-driven revenues, employment, housing impacts, and demand on public services (figure 6).

- *Demographic changes and urban growth.* BLM and local government planners need practical ways to model how changing populations and expanding urban footprints will affect the demand for recreation and other uses of the public lands.

- *Environmental justice.* As noted by RAC members, BLM planners need better analyses of the effects of proposed actions on community subgroups, particularly of the potential effects on minority, low income, and tribal populations.

- *Subsistence.* BLM biologists and planners need better information on subsistence requirements of rural communities in Alaska and many other western states. Such baseline information, usually obtained through collaborative ethnographic studies, is essential to assess the impacts of plans and projects on subsistence uses (see figure 7 example.)

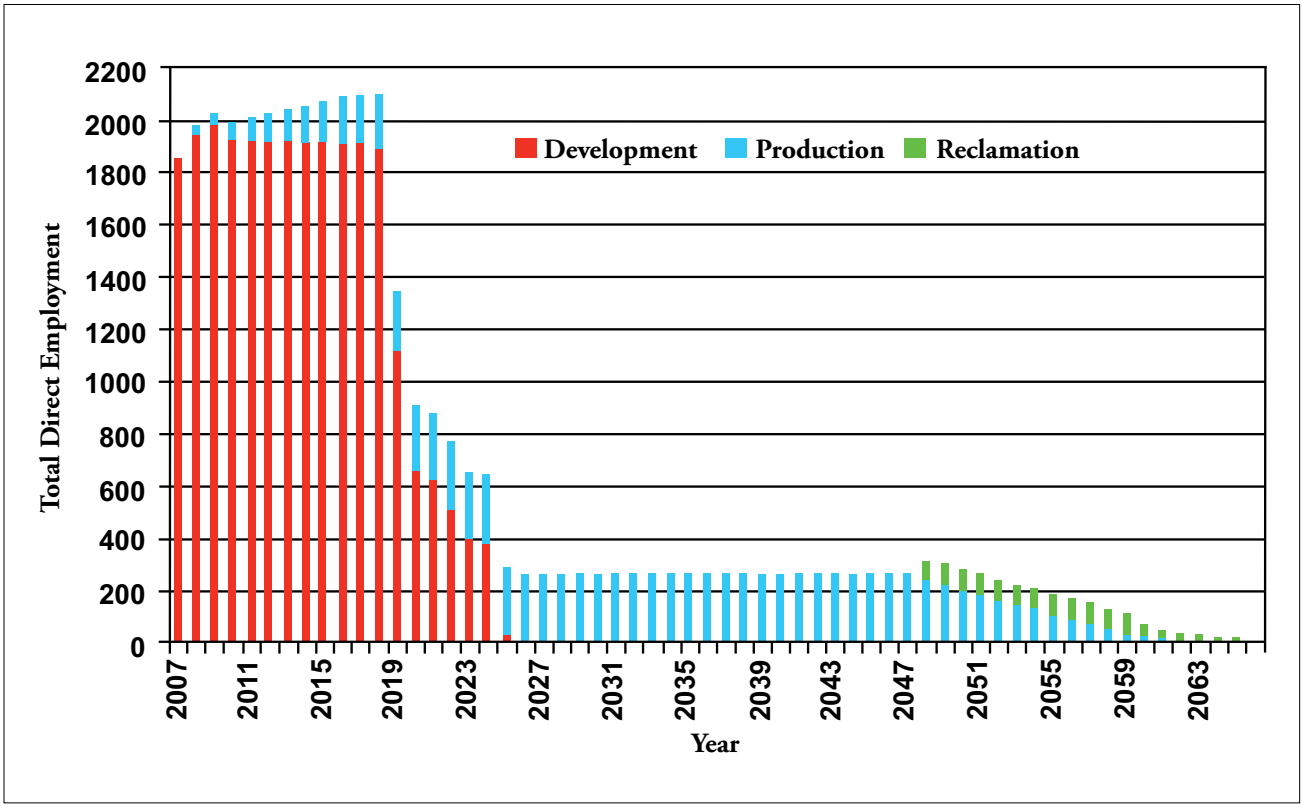


Figure 6. Projected direct employment from oil and gas development under the Pinedale,Wyoming, resource management plan.[71]

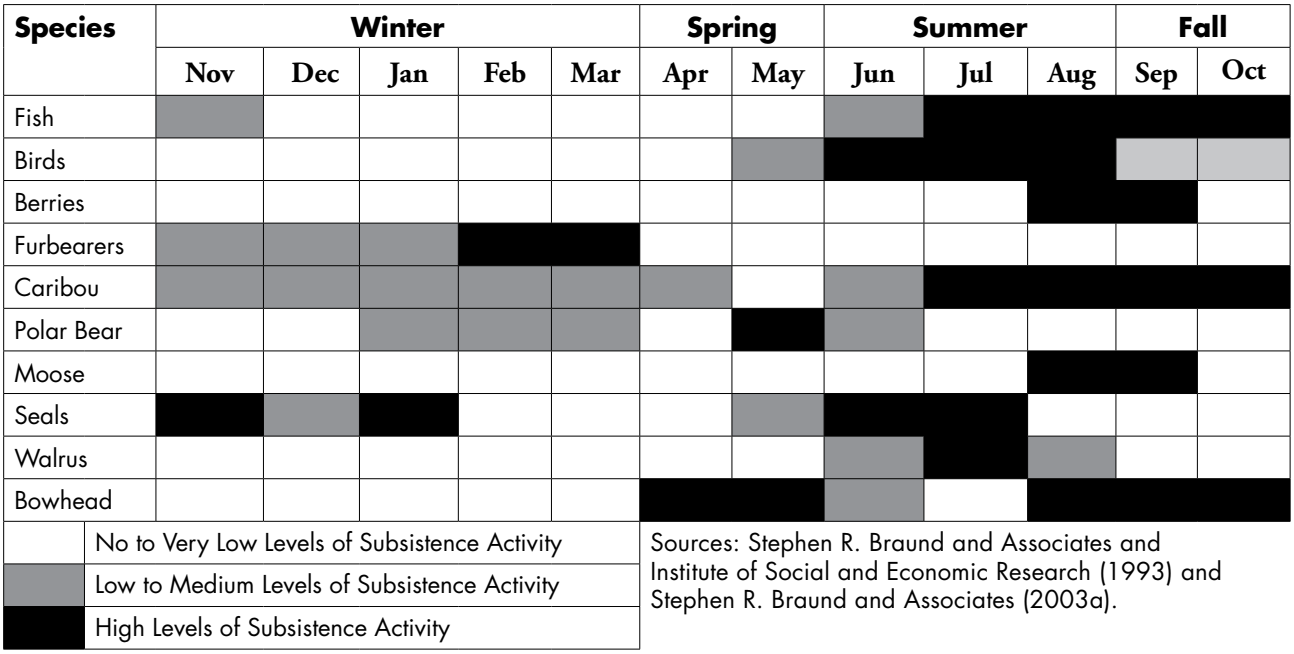


Figure 7. Annual cycle of substance activities in Barrow, Alaska.[72]

Landscapes

Today the BLM is challenged by new conditions and resource demands that cannot be addressed effectively within the boundaries of a single field office. Examples include climate change, the large-scale loss of sage-grouse and other important wildlife habitat, the loss of ecological connectivity, and the siting of large renewable energy facilities. Directly or indirectly, most of these changes are driven or affected by human activities. To respond, the Bureau has begun landscape-scale rapid ecoregional assessments (REAs), which cross jurisdictional boundaries. The REAs bring together biophysical data with socioeconomic data—for example, information on urban development or the growth of road networks—to understand the natural and human influences that are shaping the environment.[73]

The emphasis on landscape-level assessments challenges the BLM's use of socioeconomics, which until recently operated with little reference to the models, data, and research objectives of other disciplines and programs. In the future, many of the most important science and policy issues at the BLM will involve the interaction of social, economic, and geographic factors with biophysical processes. This interaction will require integration of socioeconomic data with the BLM's evolving system for data management, including geospatially organized data sets. Substantively, it will require integrating socioeconomic variables into models of ecological change. Nonetheless, socioeconomic analysis will continue to be needed at multiple scales, from local and regional to national and transnational.

Grazing on the public lands provides a good example of the challenges in modeling change at a landscape scale. Grazing can play a positive role in stabilizing degraded sagebrush steppe environments.[74] When grazing is conducted properly, base ranch properties provide an ecologically preferable alternative to converting land to subdivisions and other urban development because ranches limit landscape fragmentation and maintain ecological connectivity.[75]

A proper assessment of the costs and benefits of public lands grazing requires a model of landscape change that integrates biophysical and socioeconomic factors at appropriate geographic and temporal scales.

Climate change, which affects a wide range of BLM and other DOI programs (see box), provides the best example of the need to understand the bidirectional linkages between biophysical and socioeconomic

Climate Change in the American West

"In the past decade, it has become impossible to overlook the signs of climate change in western North America. They include soaring temperatures, declining late-season snowpack, northward-shifted winter storm tracks, increasing precipitation intensity, the worst drought since measurements began, steep declines in Colorado River reservoir storage, widespread vegetation mortality, and sharp increases in the frequency of large wildfires. These shifts have taken place across a region that also saw the nation's highest population growth during the same period." [76]

systems at a landscape scale.[77] In the Arctic, for example, permafrost thaw, altered streamflows, and the displacement of tundra by boreal forest drive numerous habitat changes that in turn reshape both formal and subsistence economies.[78] Similarly, programs to build ecological resilience and conserve biodiversity must reflect an understanding of local social systems so that human communities benefit as conservation programs alter land use practices.[79]

Values

Resource management involves weighing the competing sets of values that distinctive groups place on landscapes, resources, and activities. Such values take several forms, each documented through distinct socioeconomic methods:

- *Market values* reflect the supply and demand for various goods and services, including the value of commodities produced from BLM-managed resources and the wages earned in producing those commodities.

- *Nonmarket environmental values* provide monetary estimates of the benefits individuals attribute to experiences of the environment, such as the value individuals place on a whitewater rafting trip.

- *Ecosystem services* estimate the value of human benefits from healthy ecosystems, for example potable water from ground water recharge or flood control from intact wetlands.[80] These services may be market-based (such as agreements between municipalities and farmers to provide water filtration on rural lands) or measured outside of traditional market mechanisms (such as collection of traditional tribal materials in high desert ecosystems).

- *Social values* reflect meanings that communities or other groups give to particular places, events, and practices, such as the Gettysburg battlefield for American citizens, caribou hunts for Alaska's rural villages, or a ranching way of life for many western rural communities.

While the BLM's capacity to estimate market values is the furthest developed of these four, effectively

documenting each of these categories of value will require significant effort by the BLM's socioeconomics program. Specifically, this documentation entails the development of appropriate data sets; additional tools and methods feasible for field office use; and more extensive training, guidance, and technical support. A systematic effort to recognize the costs and benefits associated with all four categories of value will help the BLM better meet its multiple use mandate, progressing toward the BLM mission to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

The BLM's Strategic Responses

The BLM's growing need for reliable and relevant socioeconomic information requires a variety of organizational responses. These responses fit into three broad categories: workloads, people, and processes.

Workloads

BLM managers and staff, from field offices to the director's office, have identified four core socioeconomic workloads:

- *Regularly conducted socioeconomic analyses.* This workload involves examining the social and economic impacts of BLM actions through NEPA and the Bureau's planning process. It also involves assisting the Bureau in meeting annual GPRA reporting requirements and providing quality assurance and contract oversight for social, economic, and environmental justice portions of plans and project assessments. Examples include:
    - Performing the socioeconomic baseline and impact assessments for resource management plans.
    - Analyzing the social and economic impacts of proposed oil and gas development.
    - Conducting customer satisfaction surveys for program reporting.

- *Applying methods and tools to address new challenges, including BLM and DOI initiatives.* The socioeconomics program contributes information on the human dimensions of new challenges and initiatives to BLM field staff and managers, other federal agencies, and external stakeholders in response to changing management needs and accountability requirements. Deriving and organizing this information results in the creation of new socioeconomic methods or tools that can be used by the BLM at multiple levels to address a variety of issues in a consistent and repeatable manner. Examples include:

  - Valuing the benefits of carbon sequestration and other ecosystem services.

  - Designing cost-effective measures for estimating the economic benefits of recreation.

  - Preparing BLM elements of the annual DOI economic report.

- *Socioeconomic support for immediate management concerns.* BLM managers and staff often need to respond to short-term challenges that can benefit from socioeconomic information or analysis. Currently there is little capacity to provide socioeconomic information in less than 1 week, which is realistically the turnaround often required for Washington Office and state office policy issues. Examples include:

  - Documenting the economic tradeoffs of protecting public lands, for an Office of Management and Budget (OMB) briefing.

  - Developing a spreadsheet to estimate the changes in jobs and output associated with alternative forestry program budgets.

- *Program- or state-specific socioeconomic priorities.* Several states and programs have specific social and economic issues that require dedicated staff support. This workload is often defined by specific resources or legislative mandates and may not apply Bureauwide. Examples include:

  - Coal valuation for lease sales in Wyoming.

  - Identifying subsistence use areas and resources used by Alaskan villages.

The BLM's strategy to meet its socioeconomic workloads in a cost-effective way will require an

appropriate balancing of internal staffing with reliance on the socioeconomic capabilities of other federal agencies, universities, nonprofits, and contractors, as well as tribal, state, and local governments.

People

The BLM's greatest asset is its staff. While there are few employees in socioeconomic positions across the Bureau, their expertise and practical experience with the BLM's programs constitutes a critical resource. As budgets permit, the BLM's professional socioeconomic expertise should be strengthened through recruitment of well-qualified individuals with interests and skills relevant to new management challenges. In 2012, BLM's Executive Leadership Team (ELT) approved a plan to add a socioeconomic specialist position to each of four zones, covering the 11 western state offices. The positions will ensure a level of socioeconomic support for all 12 state offices (the Washington Office staff will support the Eastern States Office). The new positions will complement rather than replace the socioeconomics staffs at the state offices and the NOC. In addition, other BLM employees whose programs need socioeconomic information and analyses should have access to clear guidance, effective web-based and instructor-led training, and useful decision-support tools.

The BLM's need for socioeconomic information and support cannot be met solely through internal staffing. The socioeconomics program will need to leverage its partnerships with other federal agencies, universities, nonprofits, and contractors, as well as tribal, state, and local governments. In 2011, the NOC developed a blanket purchase agreement for socioeconomic services involving multiple vendors. This is one of several steps planned to improve the accessibility and quality control for contracted work.

In addition, the BLM's socioeconomics program has already established successful partnerships with both the USGS and USFS TEAMS. USGS has provided expertise for a number of emerging socioeconomic challenges, including the analysis of the BLM's economic contributions for the annual DOI economic report, a feasibility study of ecosystem services tools, an assessment of urban growth models, and a study of the economic benefits of ecological restoration. USFS TEAMS has provided field office support primarily by preparing or reviewing the socioeconomic elements of numerous plans and EISs. The use of each of these partnerships should be evaluated against the value of developing these capabilities within the BLM to determine the best use of resources across the Bureau.

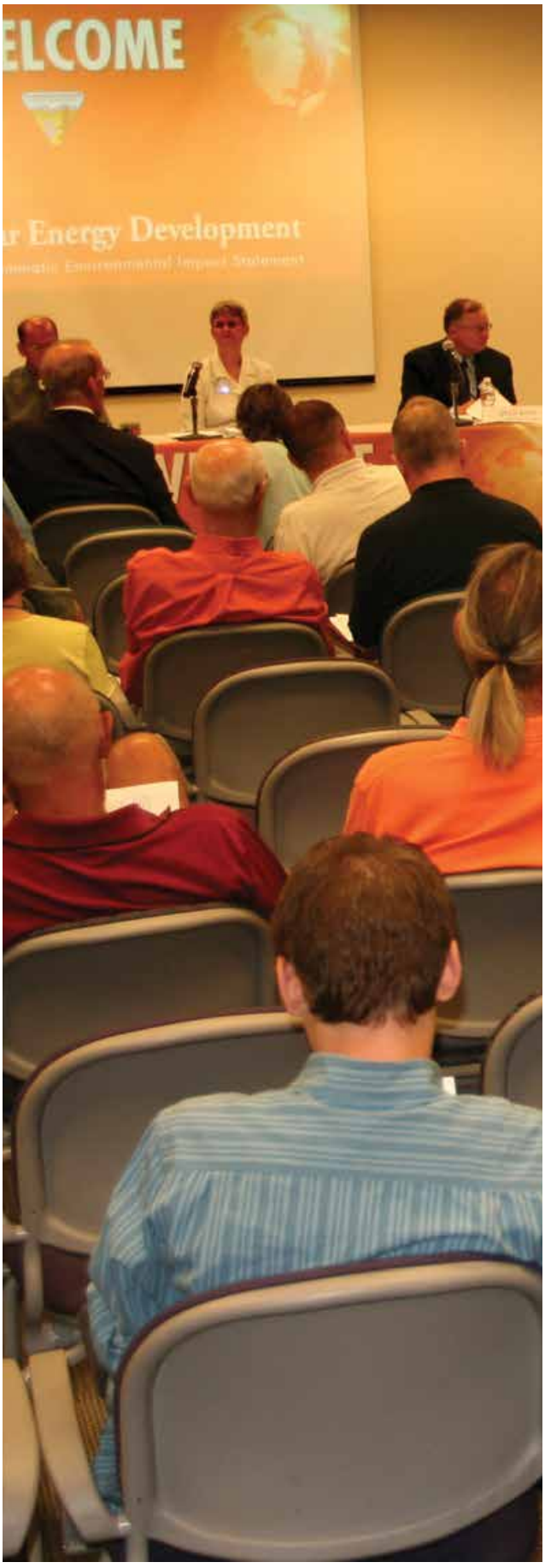
While the BLM does draw on social science experts in the academic and nonprofit communities, far more can be accomplished to match socioeconomic needs across the BLM with appropriate organizations. The BLM is an active member of the Cooperative Ecosystem Studies Units (CESU) Network, a national consortium of federal agencies, academic institutions, and other partners working to provide applied research to support effective land and resource management.[81]

Nonetheless, many activities cannot be effectively outsourced. BLM employees are in the best position to understand the socioeconomic aspects of the Bureau's diverse programs, from grazing, mineral production, and large-scale renewable energy development to wild horse management and wildland fire planning. BLM socioeconomic expertise is required to ensure that externally provided information and analysis are relevant, credible, and sound.

Processes

An effective socioeconomics program requires appropriate procedures for:

- *Identifying workload priorities.* Socioeconomic workload priorities should reflect the needs of field offices and programs. To ensure that the dollars supporting socioeconomic analysis are well spent, it is essential to have regular communication between users and providers—across programs and at various levels of management, including Bureau and state office leadership. The BLM employee survey



conducted for the socioeconomic needs assessment provided numerous suggestions for new tools, guidance, and information.

Many of the BLM's constituencies have strong interests in the validity and relevance of the Bureau's socioeconomic information and analysis. These stakeholders include tribal governments, county governments, RACs, and nongovernmental organizations such as environmental, recreation, and industry groups. The BLM's "Desk Guide to Cooperating Agency Relationships and Coordination with Intergovernmental Partners 2012" provides a framework for incorporating stakeholders' concerns during the planning process. Consultation with these external stakeholders will be required to identify the types of socioeconomic information and analysis they need.

In addition to regular consultation to identify emerging information needs, the socioeconomics staff will need to be proactive in providing resources to decisionmakers and other constituencies. The socioeconomics staff should remain current on issues important to particular regions and stakeholder groups to anticipate their data and analysis needs.

- *Developing policy, guidance, and tools.* In the employee survey conducted for the socioeconomic needs assessment, many employees expressed the need for better socioeconomics guidance. More comprehensive guidance will help ensure that the socioeconomics program is employed effectively and consistently across the BLM.

To make use of socioeconomic information and analyses, managers and program staff must understand what is available, where it can be accessed, and how it can be used in the Bureau's decisionmaking process. New information needs identified by consulting BLM managers and staffs should be met whenever possible by using existing data sets, tools, and other resources. Where this is not feasible, new socioeconomic tools may need to be developed.

While many types of social and economic analyses require in-depth training to understand the assumptions and limitations behind the methodologies, many tools are or can be made available to allow socioeconomic information to be used by employees without specialized experience. Many tools internalize socioeconomic expertise to increase the ability of other BLM employees to carry out their work while minimizing time and expense. The BLM generally develops such tools in partnership with other organizations to both share costs and leverage external expertise.

In addition, BLM socioeconomics staff members need their own professional support to ensure their effectiveness and opportunities for professional growth. This support should include regular communication with a socioeconomic "community of practice" and access to professional training and conferences to keep current in their disciplines.

- *Assuring quality of work products.* Several laws and regulations establish a high standard for the information that executive branch agencies use to inform management decisions. These include the Information Quality Act, OMB policy on peer review, and DOI policy on scientific integrity.[82] To comply with these requirements, the BLM needs quality control and peer review processes to guarantee that socioeconomic information and analyses prepared by the Bureau or its partners are sound, unbiased, and defensible.

Section 3: Goals and Strategies

A successful and sustainable socioeconomics program can be defined in several ways. At a minimum, the Bureau's social scientists must be available to assist employees and managers with their immediate as well as ongoing socioeconomic needs. They must provide both inreach to the BLM employees and outreach to the larger social science and resource management communities.

BLM employees whose work requires an understanding of the human context and consequences of resource management should be familiar with available socioeconomic tools and resources. While they may not know how to use every tool, they should know how to access those that are most relevant to their work and where to find technical support to assist them.

The BLM has established a vision for its socioeconomics program: *relevant and credible socioeconomic information and tools are used in resource management decisions to strengthen the effectiveness of BLM programs.* This section identifies strategies and actions organized around three broad goals designed to achieve that vision:

- Goal 1: Ensure that the BLM's socioeconomic capabilities support legal mandates, management priorities, and program needs. This goal includes strategies to meet socioeconomic needs of BLM managers, consult with and respond to external constituencies, and provide socioeconomic support for policy and legal mandates.

- Goal 2: Manage the BLM's internal and external socioeconomic capabilities to provide sound and cost-effective support for offices and programs. This goal includes strategies to enhance the BLM's internal and external capacity to meet its socioeconomic needs.

- Goal 3: Ensure that BLM employees can obtain and apply sound socioeconomic information relevant to their programs. This goal identifies actions to help field and program staffs understand and use socioeconomic information in their day-to-day work.

These goals reflect four broad principles:

- Increase socioeconomic awareness and integrate capabilities across all programs.

- Build on existing socioeconomic understanding and expertise within all levels of the organization.

- Use flexible and cost-effective approaches in workforce planning to optimize the balance of BLM and external socioeconomic capabilities.

- Wherever feasible, make socioeconomic tools and data accessible and useful for nonspecialists.

The goals and strategies presented here address the needs and responses described in section 2. The goals are broad, and as a result, there is some overlap between the strategies and actions discussed under each goal. For example, training is discussed in strategies 2.3 and 3.3. The former focuses on training for *providers* of socioeconomic information (that is, the BLM's socioeconomics staff), while the latter discusses training for *users* of socioeconomic information at the BLM (employees and managers). Implementation of the strategies and actions included here will be led by the socioeconomics staff at the Washington Office, in collaboration with the NOC, NTC, and field-level staffs.

These goals and strategies lay out an ambitious agenda that cannot be achieved in a single year. The actions proposed here will be prioritized through annual work plans developed in coordination with the BLM's Socioeconomic Advisory Board (see strategy 1.1). Criteria for prioritizing projects include: (1) recommendations from internal and external stakeholders, as described in strategies 1.1 and 1.4; (2) actions needed to meet legal mandates defined in FLPMA, NEPA, and other legislation; and (3) actions required to complete other actions (for example, training must be developed before it can be delivered).

Goal 1
Ensure that the BLM's socioeconomic capabilities support legal mandates, management priorities, and program needs.

Strategy 1.1
Identify and prioritize changing needs for socioeconomic information and support by consulting regularly with BLM leaders, managers, and employees.

Actions

A. Establish the Socioeconomic Advisory Board, with members drawn from Washington Office programs, state offices, field offices, centers, and possibly external stakeholders to help ensure that the BLM's socioeconomic capabilities are responsive to emerging issues and organizational needs.

B. In consultation with the Socioeconomic Advisory Board, develop an annual socioeconomic work plan to prioritize activities, including training, guidance, publications, tools, and commissioned research.

C. Increase coordination and transparency of the BLM's socioeconomic activities by soliciting BLM employees for input on the annual work plan and making both comments and the completed plan available for internal audiences. Review comments from the 2008 BLM employee survey, conducted for the socioeconomic needs assessment, as input to the work plan.

D. Share the work plan and annually solicit direction from the ELT on BLM priorities requiring socioeconomic support.

E. Provide semiannual updates on socioeconomic issues and priorities, focusing on work plan action items and implementation of the SSP, for the Field Committee and the Deputy State Directors' Committee.

F. Participate in national BLM program meetings to identify opportunities for improved socioeconomic support.

G. Attend state leadership team meetings to share information on emerging state-specific socioeconomic issues and ensure field offices receive needed socioeconomic support. Use these meetings to identify emerging trends and work being performed across the BLM.

Strategy 1.2
Provide socioeconomic support as required by legal mandates.

1.2.1. Environmental Justice

Actions

A. Participate in the DOI Environmental Justice Working Group to promote the consistent application of environmental justice principles across the Department.

B. Disseminate information on the DOI environmental justice strategic plan, and coordinate the BLM's implementation of applicable requirements.

C. Support the BLM's state office environmental justice coordinators through periodic conference calls and other information sharing.

D. Consistent with the DOI environmental justice strategic plan, develop guidance on applying environmental justice principles in the BLM's resource management and implementation

decisions, addressing outreach, analysis of disproportionate impacts, and mitigation.

E. Provide training to BLM employees on applying environmental justice principles.

1.2.2. Rights to Subsistence Resources

Action

A. Work with the BLM's coordinator for Native American and Alaska Native issues and with state office tribal liaisons to assess the need for guidance on documenting and analyzing impacts to subsistence and other native resource uses. Develop guidance and training as needed.

Strategy 1.3
Develop socioeconomic information and procedures relevant to both field offices and the BLM's constituencies.

Actions

A. Using data developed for the annual DOI economic report, work with public affairs and Washington Office program staffs to prepare a report summarizing the human dimensions of the BLM mission. This report will use narrative, graphics, and photos to describe economic and social contributions of programs of particular interest to the BLM's constituencies at both national and local scales.

B. Consult with the BLM's RACs to determine the types of socioeconomic information that would be most useful to the councils and the public.

C. Develop resources for BLM managers and external stakeholders to identify mitigation measures for adverse impacts of land use decisions.

D. Consult with the BLM's coordinator for Native American and Alaska Native issues and the

BLM's intergovernmental liaison to identify the types of socioeconomic information and analysis most useful to tribal, state, and local governments.

E. Improve external access to socioeconomic information and analyses that are produced or compiled by the BLM.

Strategy 1.4
Strengthen the BLM's capacity to support tribal, state, and local governments' community development initiatives.

Actions

A. Work with field offices, the BLM's liaison to state and local governments, and the BLM's coordinator for Native American and Alaska Native issues to compile examples of the BLM's participation in local community development initiatives for inclusion on the socioeconomics program's SharePoint site.

B. Work with external partners, as appropriate, to develop a guide for field managers and planners on supporting community development goals that includes case studies of pertinent projects or partnerships.

Strategy 1.5
Adapt socioeconomic methods and procedures to support emerging management needs.

Actions

A. Identify practical methods for estimating the economic benefits of noncommodity values of the public lands, including recreation and ecosystem services, and provide guidance and technical support for their use.

B. Link socioeconomic information and tools with the BLM's geospatial capabilities. Projects could include linking the EPS–HDT with geographic information system (GIS) technologies, mapping community values identified through public participation, and developing a socioeconomic atlas of BLM resources.

C. Develop standard survey instruments applicable to several types of BLM management decisions (for example, land use plans, grazing decisions, energy development) to expedite OMB approval through the Paperwork Reduction Act.

D. To support the BLM's emphasis on managing across landscapes, develop frameworks for socioeconomic data collection and analysis that can be used at multiple spatial and temporal scales (for example, economic and social datasets available across BLM jurisdictional boundaries).

E. Where appropriate, integrate socioeconomic variables into models of ecological change for the BLM's resource management activities (for example, regarding the causes and consequences of landscape fragmentation).

Goal 2
Manage the BLM's internal and external socioeconomic capabilities to provide sound and cost-effective support for offices and programs.

Strategy 2.1
Enhance the BLM's internal capabilities to meet its current and emerging socioeconomic needs.

Actions

A. Develop an inventory of current and potential socioeconomic workloads and the qualifications needed to perform them. Use this information to guide future hiring.

B. Working with the Socioeconomic Advisory Board and BLM management, implement the zoned socioeconomics staffing plan, per the ELT's direction.

C. Identify other BLM employees with significant socioeconomic training or experience and make this information available as an additional resource.

Strategy 2.2
Build external relationships to complement the BLM's internal socioeconomic capabilities.

Actions

A. Ensure that the BLM offices and programs have access to a range of qualified contractors to provide socioeconomic information and support by:

- Assessing the effectiveness of the socioeconomic services blanket purchase agreement.
- Developing a Bureauwide quality control process for contracted work.
- Establishing a voluntary roster of qualified social science contractors.

B. Maintain or expand socioeconomic partnerships with USGS and USFS TEAMS. As appropriate, develop socioeconomic partnerships with other federal agencies.

C. Explore the feasibility of using Service First authority to streamline partnerships with other federal agencies, including USGS and USFS TEAMS.

D. Coordinate with Department- and governmentwide initiatives, including the Landscape Conservation Cooperatives and Climate Science Centers.

E. Leverage low- and no-cost research through universities, federal agencies, nonprofits, and state or local government partners by:

- Developing a "socioeconomic portal" to provide researchers with access to potential BLM projects and BLM offices with information on academic research interests.
- Soliciting socioeconomic research projects from field, district, state, and Washington offices to populate the portal.
- Using the portal to share the results of completed socioeconomic projects.
- Continuing work with CESUs to engage universities for research and development.

F. Use socioeconomic networks, such as the Interagency Social Science Roundtable, to share information and pursue common problems more effectively.

Strategy 2.3
Support the BLM's socioeconomics staff through training, improved information sharing, and other professional development.

Actions

A. Support professional discussions on emerging issues and methods through regular conference calls and webinars. Where feasible, these forums should involve socioeconomics staff not only from the BLM but also from partner agencies.

B. Establish a program for professional development to retain and promote a capable socioeconomics staff. Sufficient time to participate in these activities should be a required element of all socioeconomics staff workloads. This program should include:

- Short courses on emerging socioeconomic issues and methods, provided in person or through distance learning.
- Cross-training to improve capabilities across the range of social science disciplines (economics, cultural anthropology, sociology, and human geography).
- Training in other resource areas to better understand the role and needs of BLM staff and managers.

C. As budgets allow, hold Bureauwide socioeconomics program meetings at least every 3 years.

D. Develop sections of a socioeconomics program website to facilitate staff discussion (see also strategy 3.3).

Strategy 2.4
Coordinate support and funding across BLM programs to meet existing and emerging socioeconomic needs.

Actions

A. Develop measures to identify socioeconomic accomplishments across the Bureau. Communicate and track accomplishments, including feedback for the BLM's existing budget and accountability systems (annual budget documents, activity-based cost management, and performance reporting).

B. Consider funding alternatives that reflect the broad-ranging impacts of the socioeconomics program.

C. Whenever feasible, maximize the reach of scarce funding by leveraging BLM dollars through cost recovery and cost sharing with other agency and nonprofit partners.

Goal 3
Ensure that BLM staff can obtain and apply sound socioeconomic information relevant to their programs.

Strategy 3.1
Develop policy and guidance for using socioeconomic information and analysis at the BLM.

Action

A. Develop desk guides or a socioeconomics handbook to address the needs of multiple audiences, including BLM employees, managers, and external constituents. Much of this material must be developed collaboratively with program staffs. Guidance is needed on a number of topics, including, but not limited to:

- Developing, implementing, and analyzing surveys.
- Leading socioeconomic workshops for land use planning.
- Using interviews and other ethnographic methods.
- Analyzing the environmental justice consequences of plans and projects.
- Mapping and valuing ecosystem services (such as carbon sequestration, biodiversity conservation, and water provisioning).
- Using various methods for eliciting information on communities of place and communities of interest.
- Estimating the local economic and social impacts of grazing program decisions.
- Using the expanded EPS–HDT in planning and community development.
- Using urban growth modeling in resource management planning (in development).
- Understanding and implementing on- and offsite measures to mitigate social and economic impacts.

Strategy 3.2
Establish an effective quality assurance process to ensure that the BLM's socioeconomic information and analysis are sound and unbiased.

Actions

A. Develop a quality control process that:

- Ensures socioeconomic work produced by the BLM or its external partners is accurate and defensible.
- Incorporates feedback to encourage individual and organizational learning.
- Provides for quick and thorough responses to requests for document review.

B. Working with internal and external audiences, establish a peer review procedure for socioeconomic tools and methods proposed for adoption at the BLM.

Strategy 3.3
Enhance communication and training to ensure the effective use of tools, models, and information.

Actions

A. Create a website for users of socioeconomic information within the Bureau and its partner agencies. Include the following information:

- BLM socioeconomic policy and guidance.
- Socioeconomic tools, data, and methods.

- A forum for sharing information and questions.
- Useful socioeconomic studies, organized by topic.
- Research projects requested by BLM offices and programs for external partners to undertake (see action 2.2.E).
- Links to socioeconomic training and other resources.
- Good examples of previous socioeconomic analyses and research.

B. Continue development of socioeconomic training through the NTC. Training should focus on a variety of audiences, including staff and managers at the field, state, and national level. Existing courses and courses in progress include:
   - "Social and Economic Aspects of Planning," course 1610-12.
   - "Economic Impact Analysis for Planning and NEPA," course 1610-11.
   - "Reading the Human Landscape," including three introductory online modules covering economic and social analyses for plans and projects (in development), courses 1610-13, -14, and -15.
   - Using the EPS-HDT, including three brief WebEx videos.

C. Include socioeconomic training opportunities at BLM program meetings and workshops.

D. See also actions 1.3.C (develop resources on socioeconomic mitigation) and 1.4.B (develop a guide on community development).

Strategy 3.4
Make effective use of existing knowledge by identifying and synthesizing available information in terms relevant for BLM staff.

Actions

A. Establish ways to regularly communicate current socioeconomic issues and sources of information to managers and field staffs (for example, a quarterly e-newsletter).

B. Explore techniques for documenting the local socioeconomic knowledge of field staffs, and use such information to strengthen plans and project assessments.

C. Develop mechanisms for collecting and publishing locally generated data (e.g., county or municipal economic projections).

D. Provide guidance to local governments on the type and format of information that would be useful for BLM decisionmaking.

E. Summarize existing research to meet the information needs identified through goal 1 and creating a series of "white papers" supporting BLM program activities and initiatives.

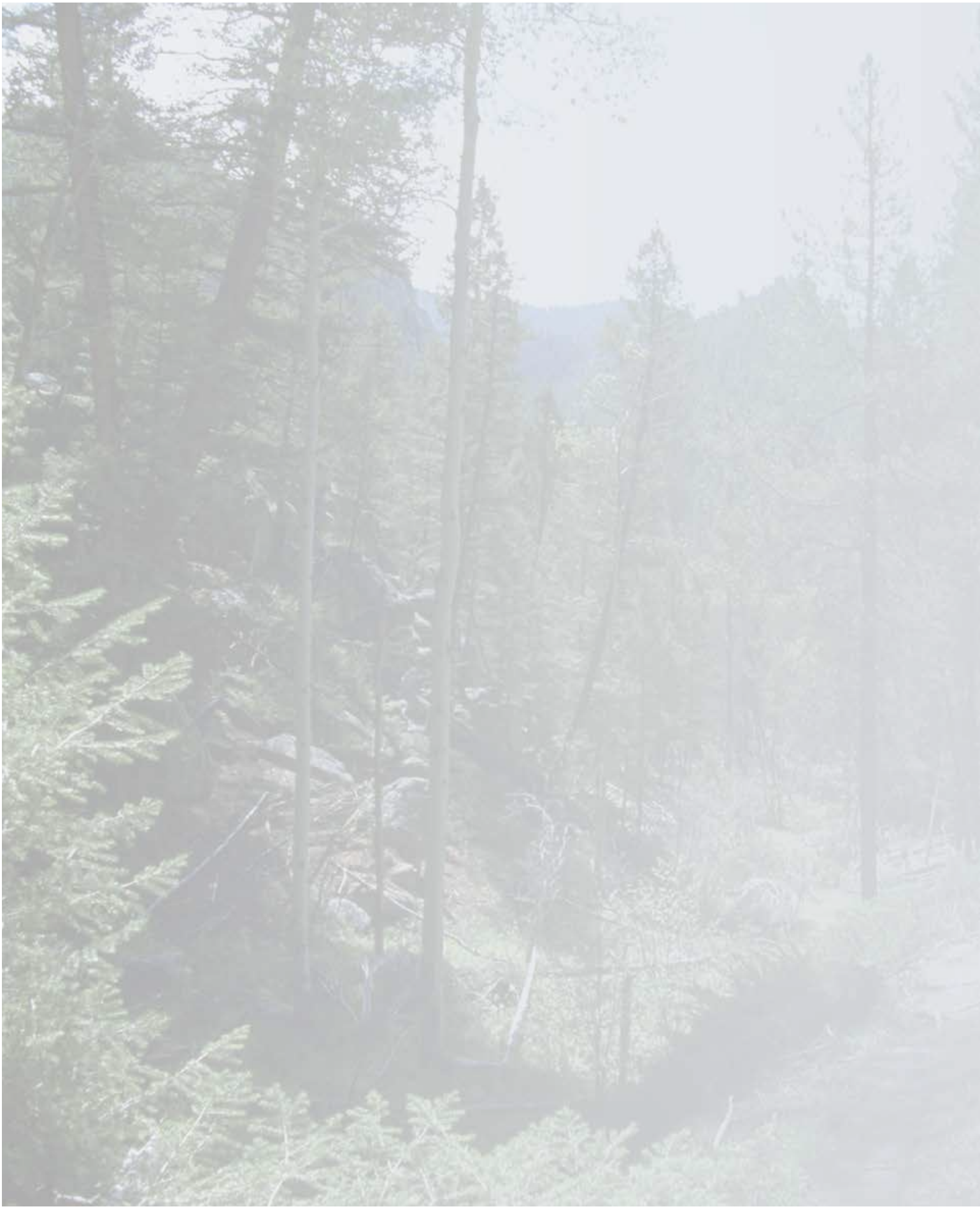
Strategy 3.5
Develop tools to allow BLM employees without specialized expertise to access and appropriately apply socioeconomic information to meet program needs.

Actions

A. Using input from the Socioeconomic Advisory Board, establish a list of priority socioeconomic

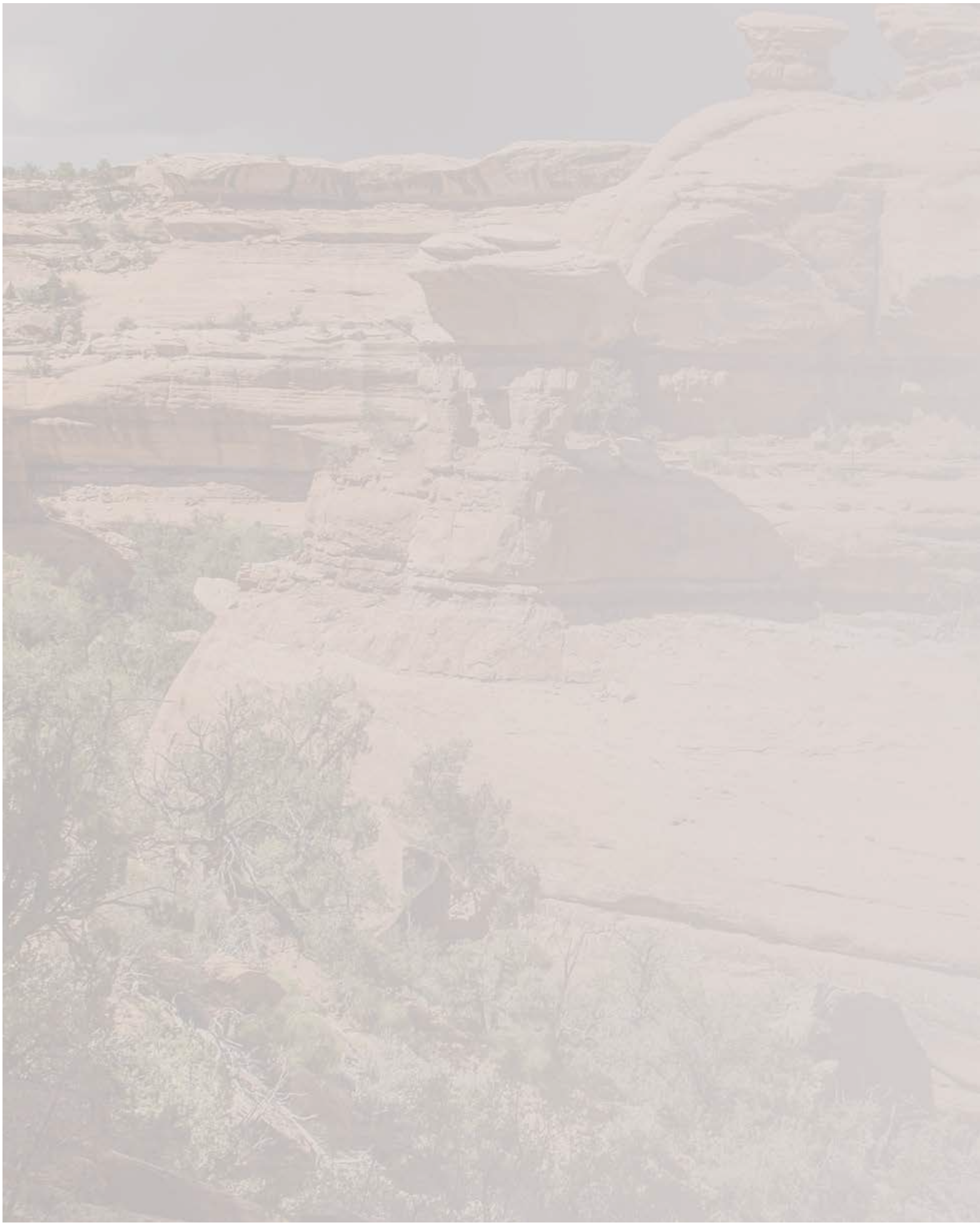
tools for future development (e.g., a GIS representation of relevant social and economic information).

B. Review results of the employee survey conducted for the BLM socioeconomic needs assessment to determine what additional socioeconomic data and tools may be needed to support program activities.



Appendix A: Socioeconomic Oversight Committee

BLM Washington Office and National Centers	
Lynda Boody	Fire and Aviation (former position)
Jim Bowmer	Forests and Woodlands (former position)
John Broderick	Minerals and Realty Management
Jim Burd	Fluid Minerals (former position)
Jerry Cordova	Cultural, Paleontological Resources and Tribal Consultation
Lara Douglas	National Landscape Conservation System (former position)
Marlo Draper	National Training Center
Marietta Eaton	National Landscape Conservation System (former position)
Roxanne Falise	National Operations Center
Hal Hallett	Recreation and Visitor Services (former position)
Matt Magee	Decision Support, Planning, and NEPA
Kit Muller	Renewable Resources and Planning
Doug Powell (retired)	Rangeland Resources
Deb Rawhouser	National Operations Center (former position)
BLM Field Offices	
Stacie McIntosh	Arctic Field Office, Alaska
George Oviatt (retired)	Alaska State Office
Catherine Robertson (retired)	Grand Junction Field Office, Colorado
Aden Seidlitz	Boise District Office, Idaho (former position)
John Thompson	Montana State Office
Kim Titus	Oregon State Office (former position)
Joan Trent (retired)	Montana State Office
Steve Wells	Eastern States Office (former position)
Department of the Interior	
Cynthia Moses-Nedd	Office of External and Intergovernmental Affairs
Ben Simon	Office of Policy Analysis



Notes

1. Social science is defined as "the study of society and of individual relationships in and to society, generally including one or more of the academic disciplines of sociology, economics, political science, geography, history, anthropology, and psychology" in BLM Manual 1601, "Land Use Planning," 2000, Glossary, p. 5.

2. Timothy J. Finan and Colin West, eds. "An Assessment of Climate Vulnerability in the Middle San Pedro River Valley." University of Arizona, Climate Assessment for the Southwest (CLIMAS) Report Series: CL3-00 (August 2000).

3. For information on the use of geographic models and techniques to enhance the analysis of a wide range of social science issues, see the website of the Center for Spatially Integrated Social Science, http://www.csiss.org/.

4. Greg G. Brown, "Measuring national forest landscape values using an internet-based participatory mapping approach," International Symposium on Society and Resource Management, Park City, Utah (2007).

5. See Sahotra Sarkar et al. "Biodiversity Conservation Planning Tools: Present Status and Challenges for the Future." *Annual Review of Environment and Resources* 31 (2006):123-159.

6. 43 U.S.C. 1712(c)(2); 43 CFR 1610.4-3.

7. 42 U.S.C. 4331(a).

8. 42 U.S.C. 4332(2)(A).

9. 40 CFR 1508.14.

10. The Government Performance and Results Act, Public Law 103-62, Sec. 2(b)(4).

11. Executive Order 12898, "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations," *Federal Register* 59:32, section 1-101 (16 February 1994).

12. The "U.S. Department of the Interior Environmental Justice Strategic Plan 2012-2017" is available at http://www.doi.gov/oepc/justice.html.

13. Robert N. Clinton, Nell Jessup Newton, and Monroe E. Price, *American Indian Law: Cases and Materials,* 3rd edition (Charlottesville, VA: The Michie Company, 1991) ch. 6.

14. Title VIII of the Alaska National Interest Lands Conservation Act, 16 U.S.C. 3111-3126.

15. The western states that more than doubled in population from 1970 to 2010 are, in order of relative growth: Nevada, Arizona, Utah, Alaska, Colorado, Idaho, New Mexico. U.S. Census Bureau, "2010 Census Population Profile Maps," http://www.census.gov/2010census/data/ (accessed 31 July 2011).

16. Center of the American West, "Boom and Bust in the American West" (Boulder, CO: University of Colorado, 2002), 3.

17. Headwaters Economics, "Energy Development and the Changing Economy of the West," Figure 7 (Wyoming personal income from mining compared to other sectors 1970-2005) (Bozeman, MT, 2009), http://headwaterseconomics.org/energy/western/changing-economy-west/ (accessed 14 May 2011).

18. Headwaters Economics, "Impacts of Energy Development in Colorado With a Case Study of Mesa and Garfield Counties," Figure 14 (difference in average wages in energy-related and other sectors, Garfield County, CO). (Bozeman, MT, 2008), http://www.headwaterseconomics.org/energy/western/colorado-mesa-garfield-counties (accessed 15 May 2011).

19. Headwaters Economics Economic Profile System–Human Dimensions Toolkit, Mining Report for Garfield County, Colorado, http://headwaterseconomics.org/tools/eps-hdt (accessed 16 May 2011).

20. U.S. Census Bureau, "2010 Census Briefs: Overview of Race and Hispanic Origin" (C2010BR-02), p. 3, http://www.census.gov/2010census/data/ (accessed 15 May 2011).

21. Hispanic Americans composed 25 percent of the population of the twelve western states (AK, AZ, CA, CO, ID, MT, NV, NM, OR, UT, WA, and WY) in 2000, compared to 13 percent nationwide. U.S. Department of Commerce, Census Bureau, American Community Survey (2000). Retrieved through Economic Profile System–Human Dimensions Toolkit, Demographics Report, http://headwaterseconomics.org/tools/eps-hdt (run date 15 May 2011).

22. American Indian Religious Freedom Act of 1978, Public Law 95-341. Alaska National Interest Lands Conservation Act of 1980, Public Law 96-487.

23. On the role of cooperating agencies in the preparation of environmental impact statements by Interior Department bureaus, see 43 CFR 46.225.

24. For the number of sociologists employed, see "Loss of Sociological Expertise at the BLM," draft issue paper (1987), p. 1. The estimate of approximately 40 economists assumes that in the early 1980s half of roughly 45 district offices and all state offices had at least one economist on staff, in addition to economists at the Washington Office and what was then the Denver Service Center. The 1981 socioeconomics staff estimates do not include the Outer Continental Shelf program, then still part of BLM's operations.

25. Bureau of Land Management, "Assessment of Social and Economic Capabilities" (ASEC), summary of interviews with socioeconomics staff (2009), p. 6.

26. "BLM Socioeconomic Staffing" (table) (May 2011). The 2011 data exclude supervisors and other staff with no more than 10 percent time spent on socioeconomic work. Many individuals included in the staffing figures have other significant duties, for example in planning or the oil and gas program. Several economist positions are staffed by minerals economists, who may not necessarily have experience in other aspects of the BLM's socioeconomic workload, including economic impact analysis and nonmarket valuation.

27. "Social and Economic Policy and Action Plan" (1981). Transmitted under BLM Instruction Memorandum 81-315 (11 March 1981), p. 1.

28. Action Plan (1981), pp. 21-24.

29. Action Plan (1981), p. 27.

30. Action Plan (1981), pp. 1, 29.

31. Action Plan (1981), pp. 37-38.

32. Action Plan (1981), pp. 27, 30.

33. Bureau of Land Management, "Social and Economic Task Force Report" (1984), pp. 2-8 (BLM Information Bulletin 84-289).

34. Action Plan (1981), p. 30 ("personnel").

35. BLM Social Science Initiative – Interim Report, Social Science Focus Groups (1995), p. 3.

36. BLM Social Science Initiative – Interim Report, Social Science Focus Groups (1995), p. 6.

37. BLM Social Science Initiative – Interim Report, Social Science Focus Groups (1995), p. 4.

38. BLM Social Science Initiative – Interim Report, Social Science Focus Groups (1995), p. 5.

39. BLM Social Science Initiative – Interim Report, Social Science Focus Groups (1995), p. 2.

40. External Assessment Team: John A. Tanaka, Oregon State University; Audie Blevins, University of Wyoming; Katherine Jensen, University of Wyoming; Neil R. Rimbey, University of Idaho; David T. Taylor, University of Wyoming; L. Allen Torell, New Mexico State University; J.D. Wulfhorst, University of Idaho.

41. ASEC (2009), http://www.blm.gov/wo/st/en/prog/planning/social_science/contact_list.html.

42. ASEC, socioeconomics staff interviews (2009), p. 6. ["There is general consensus that there is not a career track for social scientists in BLM. . . . while other specialists seem to have both career tracks and training programs, there is little in the way of training for social scientists that will help them further their careers or to do better jobs."]

43. ASEC, socioeconomics staff interviews (2009), p. 5.

44. ASEC, socioeconomics staff interviews (2009), p. 5.

45. ASEC, socioeconomics staff interviews (2009), pp. 5-6.

46. ASEC, employee survey (2009), Table 5, p. 65.

47. ASEC, employee survey (2009), Table 11, p. 74.

48. ASEC, employee survey (2009), Table 44, p. 127.

49. ASEC, employee survey (2009), Table 9, p. 70.

50. ASEC, employee survey (2009), Table 10, p. 71.

51. ASEC, employee survey (2009), Table 16, p. 80.

52. ASEC, RAC interviews (2009), p. 294.

53. ASEC, RAC interviews (2009), Appendix D4, Question 5: "How important are social and economic issues to the RAC members as they formulate advice concerning BLM decisions?" Results are shown in Figure 5, p. 301.

54. ASEC, RAC interviews (2009), Appendix D4, Question 14: "Overall, how satisfied are you with the level of social and economic analysis in BLM's resource management decisions?" Results are shown in Figure 10, p. 318. Data are provided in Appendices D5, D6, and D7.

55. ASEC, RAC interviews (2009), Appendix D4, Question 8: "In making resource decisions do you feel that the BLM has generally: a. Adequately addressed the economic effects of its decisions? b. Adequately addressed the social effects of its decisions? c. Adequately addressed the environmental effects of its decisions on minorities and low income residents (here, probe for tribal impacts)?" Results are shown in Figure 7, p. 308, which presents responses in yes/no format, coded from open-ended responses.

56. ASEC, RAC interviews (2009), Appendix D7, Question 8a (economic effects), governmental/ public interests, p. 412.

57. ASEC, RAC interviews (2009), Appendix D7, Question 8a (economic effects), governmental/ public interests, p. 412.

58. ASEC, RAC interviews (2009), Appendix D5, Question 8b (social effects), commodity interests, p. 343.

59. ASEC, RAC interviews (2009), Appendix D6, Question 8c (environmental justice effects), conservation interests, p. 378.

60. "Guidance for Social and Economic Analysis in Grazing Environmental Impact Statements (EISs)," BLM Instruction Memorandum 81-99 (25 November 1980). "Ranch Analysis and Related Economic Inputs to Grazing EISs," BLM Instruction Memorandum 80-579 [cited in BLM Instruction Memorandum 81-99, Encl. 1-14].

61. "Reference Guide to Socioeconomic Mitigation," BLM Information Bulletin 86-318 (8 August 1986).

62. Kristi Branch, James G. Thompson, Douglas Hooper, and James L. Creighton, *Guide to Social Assessment: A Framework for Assessing Social Change*, Social Impact Assessment Series #11 (Boulder, Colorado: Westview Press, 1984).

63. Appendix D: Social Science Considerations in Land Use Planning Decisions, H-1601-1, "Land Use Planning Handbook" (2005).

64. BLM Handbooks H-3070-1, "Economic Evaluation of Coal Properties" and H-3070-2, "Economic Evaluation of Oil and Gas Properties," http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.29194.File.dat/h3070-1.pdf. H-3070-2 - Economic Evaluation of Oil and Gas Properties: http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.39460.File.dat/h3070-2.pdf.

65. "Minimum Qualifications for Socio-economic Contractors," Instruction Memorandum No. 2006-112 (15 March 2006).

66. "Loss of Sociological Expertise at the BLM," draft issue paper (1987), p. 1.

67. "Social and Economic Aspects of Planning" (course #1610-12), available in an online format through the BLM National Training Center's Knowledge Resource Center website, http://www.ntc.blm.gov/krc/viewresource.php?courseID=249&programAreaId=96.

68. "The BLM: A Sound Investment for America" (2011), http://www.blm.gov/wo/st/en/prog/planning/social_science.html.

69. BLM's payroll, jobs, and output estimates: "The Department of the Interior's Economic Contributions" [fiscal year 2010] (21 June 21 2011), pp. 7, 12-13, http://www.doi.gov/news/pressreleases/upload/DOI-Econ-Report-6-21-2011.pdf. BLM and DOI fiscal year 2010 budgets: "The Department of the Interior Fiscal Year 2011 Interior Budget in Brief," BLM Budget Highlights (2011), p. BH-11, and Appendix A: Comparison of 2009, 2010, and 2011 Budget Authority, p. A-14), http://www.doi.gov/budget/appropriations/2011/highlights/index.cfm. For FY 2010, the BLM/DOI comparisons are: jobs 550,016 / 2,216,985; total output $122.11 billion / $363.18 billion; payroll: $733 million / $5.05 billion; and budget $1.317 billion / $19.955 billion.

70. Links to the Economic Profile System–Human Dimensions Toolkit (EPS–HDT) version 6.01 and explanatory factsheets and training videos are available on the BLM National Training Center's Knowledge Resource Center: http://www.ntc.blm.gov/krc/viewresource.php?courseID=504&programAreaId=96.

71. Ecosystem Research Group, "Sublette County Socioeconomic Impact Study: Phase I Final Report," Figure ES-2 (Missoula, Montana, 2008).

72. "National Petroleum Reserve–Alaska Draft Integrated Activity Plan/Environmental Impact Statement," Ch. 3, Affected Environment, Sec. 3.4.3, Subsistence, Figure 3-5 (draft November 2011).

73. Dynamac Corporation. "Colorado Plateau Rapid Ecoregional Assessment, Memorandum I-2-C: Data Identification & Evaluation, Section III: Data Needs Assessment" (4 December 2010), http://www.blm.gov/pgdata/etc/medialib/blm/wo/Communications_Directorate/public_affairs/landscape_approach/documents1.Par.64529.File.dat/ColoradoPlateauREA_12-05-10FinalMemorandum_I-2-c.pdf (accessed 6 November 2011).

74. Neil E. West. "Synecology and Disturbance Regimes of Sagebrush Steppe Ecosystems," *Proceedings: Sagebrush Steppe Ecosystems Symposium*, Bureau of Land Management, Idaho State Office, Boise, Idaho, Publication No. BLM/ID/PT-001001+1150 (1999), 19-20, http://ris.wr.usgs.gov/general/SSSymp.pdf#page=18 (accessed 6 November 2011).

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76. J. Overpeck and B. Udall. "Dry Times Ahead," *Science* 328 (25 June 2010): 1642-1643.

77. Department of the Interior Task Force on Climate Change, Report of the Subcommittee on Land and Water Management (2008), http://www.usgs.gov/climate_landuse/.

78. O.A. Anisimov et al. "Polar regions (Arctic and Antarctic)." *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry et al., eds. (Cambridge: Cambridge University Press, 2007), 666.

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80. Millennium Ecosystem Assessment, *Ecosystems and Human Well-being: Synthesis* (Washington, DC: Island Press, 2005).

81. Information on the Cooperative Ecosystems Studies Units (CESU) Network is available at http://www.cesu.psu.edu/default.htm.

82. The Information Quality Act, Public Law 106-554, §515. Department of the Interior, Departmental Manual, "Integrity of Scientific and Scholarly Activities," 305 DM 3, 28 January 2011. Office of Management and Budget, "Final Information Quality Bulletin for Peer Review," Bulletin M-05-03, 16 December 2004, http://www.whitehouse.gov/omb/memoranda_fy2005_m05-03.

BLM Socioeconomic Goals and Strategies