

Chapter 8 CONCLUSIONS

The Department of the Interior's lands and managed resources produce a wide range of valuable ecosystem services, including food, drinking water, energy, flood and disease control, carbon sequestration, recreation, and culture. Understanding the economic contributions and values of these goods and services can result in better land management decisions.

This report has presented information on the FY 2011 economic contributions of the programs and activities of DOI. The information in the report has highlighted the current economic impact of Interior's existing programs and activities.

The Department of the Interior has a substantial impact on the national economy, supporting nearly 2.4 million jobs while infusing billions of dollars into the economy which in turn support many jobs across the Nation. In 2011, Interior supported approximately \$385 billion in economic activity. Most of this contribution was associated with revenues produced by Interior's management of natural resources on Federal lands, including leasing mineral rights, providing irrigation water, providing recreational opportunities, protecting unique natural resources, and providing valuable information to the mineral markets. Many of Interior's activities, such as the leasing of mineral rights, significantly impact the national economy because they enable private industry to create wealth and jobs.

One of the challenges associated with providing economic information about Interior's activities is that many of the ecosystem goods and services produced on Interior-managed lands, or produced by Interior bureaus, are not bought and sold in markets (and thus not tracked in the national accounts). This makes valuing these goods and services difficult and makes understanding the tradeoffs between marketed goods and goods and services not typically bought and sold in markets difficult because a common metric for making comparisons is not readily available. The chapters of this report addressing conservation, the value of information and technology, and ecosystem restoration discussed some of these types of goods and services. A variety of economic analysis techniques are available to analyze these types of "non-market" goods and services. Additional empirical work to evaluate some of the values associated with these areas would be a useful addition to the set of information available to decision makers.

Some of the issues highlighted in the report included:

- The measurement of benefits from conservation investments can provide important information to policymakers for future decisions. Economic techniques allow the benefits and costs of conservation investments to be represented in monetary terms, enabling comparison across locations or projects in a common metric. Absent the ability to quantify benefits in monetary terms, physical measures of benefits (e.g., number of species conserved) can be substituted, where either measure of benefit can be used to calculate a return on investment. Such calculations can provide valuable information to evaluate, target and prioritize land acquisition decisions or other conservation activities.
- Restoration, rehabilitation, remediation, and reclamation activities play an important role in maintaining the health and vitality of DOI lands and managed resources. While there are numerous and compelling restoration success stories, some of which are described in this report,

challenges remain. Although there is an increasing understanding of ecosystem services through a number of federal and departmental efforts, there still tends to be a disconnect between restoring natural resources and restoring the benefits to the public derived from these resources, which can affect the goals, planning, and outputs of scientific study. Relevant, high-quality scientific outputs are critical inputs for economic analysis. Even with relevant science, though, the total benefits from restoration can be difficult for economists to quantify and value. While the jobs and economic contributions from restoration are substantial and important, they do not represent the full economic value of ecosystem restoration, because they do not capture the net benefits associated with environmental goods and services not bought and sold in markets. Valuation of non-market benefits is an exercise worth carrying out, with precision and rigor where feasible. Looking forward, developing well-established, tangible values for the resources and associated services under Interior's trust would help ensure that the public's benefits are maximized from investment in DOI restoration activities.

- Quantifying the economic value of the end uses which publicly provided data and information are put towards and incorporating these values into benefit-cost analyses can provide a useful mechanism to demonstrate the return on the public's investment in them. The examples presented in the report illustrate some of the beneficial uses of DOI bureau scientific research, information, and technology transfer activities. Advances in economic theory have led to an extensive range of methods that have been developed and applied to address the challenges that arise when monetizing the value of public goods such as data and information sources. But challenges remain and there are many opportunities to conduct empirical research that can help quantify the value of information and technology transfer.
- Empirical research suggests that the environmental benefits of land conservation in rural areas do not come at the expense of diminished employment and economic growth. While policies for public land conservation may not lead to an economic boon for rural communities, the research does consistently show that public land conservation does not harm rural economies. Policies that change the use of public lands from extractive or resource production to more of a conservation focus may simply result in shifts in the type of economic sectors supporting a local community, such that losses in one or more sectors are offset by gains in other sectors of the local economy. Furthermore, a rural area's ability to transition may also vary geographically and depend on the inter-relationships between rural communities and the surrounding areas. Additional analysis is warranted to better understand how the economic profiles of rural areas are affected over time from policies that change the landscape of conservation lands in surrounding areas. These issues are important to evaluate in regards to policies that both lead to additional land conservation as well as in those situations where conservation lands are being considered for more intensive resource uses. Finally, beyond quantifying any employment, income, and population growth effects, analysis of the broader market and non-market economic effects of public land conservation efforts is important to understanding the full scope of their contribution to local communities.
- Accounting explicitly for the externalities associated with the extraction and development of resources from Interior lands is an important component to strengthening the set of information available to decision makers. The use of a common metric allows comparisons across

alternatives to be made on a consistent basis. Specifically, engaging in full cost accounting of all energy sources—fossil fuels, wind, solar, and other forms of non-fossil fuel power generation—would help promote more cost-effective investments on public lands. A useful step to consider in moving toward full cost accounting would involve the development of more robust underlying information. This could include better information on recreation use and users of BLM lands and information on baseline levels of ecosystem services on DOI lands.

Economic analysis provides useful information for decision making in terms of choosing the most cost-effective technique for dealing with an invasive species, or conducting benefit-cost analysis of different management strategies. Many of the methods and results discussed in this report could prove useful for DOI bureaus in completing economic analyses for regulations or benefit-cost or cost-effectiveness analyses for management purposes.