Status of Social Criteria and Indicators

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Abstract

Sustainable rangelands are defined as those "that provide a desired mix of benefits to the present generation without compromising their ability to provide benefits for future generations." Implicit in that definition are assumptions that rangeland ecosystems must remain healthy (a condition judged primarily in biophysical terms), and that they must continually produce goods and services people desire (judged mainly in socioeconomic terms). Unfortunately natural resource managers have much more experience measuring and monitoring biophysical criteria than socioeconomic ones, and generally better economic measures than social measures. Thus, the social criteria and indicators in the Sustainable Rangelands Roundtable are problematic. For example, "social acceptability" is often cited as a key goal of rangeland ecosystem management, yet the acceptability of rangeland policies, practices, and conditions is most often detected by its absence. In other words, we are typically spurred to action when citizens tell us something is wrong with what we are doing, but by that time we are reacting to correct an unsustainable direction rather than managing proactively to maintain a sustainable direction. This paper will discuss this and related problems, and describe the Roundtable's progress toward enhancing the current state of social monitoring for rangeland sustainability.

Introduction

Perhaps the most fundamental tenet of sustainability is that it requires attention to biophysical, economic and social systems (World Commission on Environment and Development 1987). Within the field of rangeland science and management, the system we've given the least attention is the social system (Vavra 1995). For that reason, it may take even more work to find social indicators of rangeland sustainability than for the other two aspects.

The importance of monitoring the social component of sustainability grows more obvious each time we hear about difficulties faced by those who guide rangeland management initiatives. The literature on grazing in the developing world contains many examples of rangeland degradation brought on by the failure of Western-influenced programs and governments to incorporate long-standing social and cultural orientations to pastoral systems (Niamir-Fuller 1996, Scoones 1996). In the United States and other developed nations, projects intended to improve the ecological sustainability of rangelands – e.g., Mexican wolf reintroduction in the Southwest, chaining to enhance post-fire rehabilitation success in the Great Basin, weed control efforts in the northern Great Plains – have been delayed by lawsuits or administrative appeals from persons who believe the practices to be unacceptable. Accordingly land management agencies seek to build collaborative partnerships with multiple publics while monitoring citizens' acceptance of range management practices and conditions (Brunson 1999).

Process

The task of identifying criteria and indicators (C&I) of social sustainability for the Sustainable Rangelands Roundtable (SRR) has fallen to the criterion workgroup for Maintenance and Enhancement of Multiple Economic and Social Benefits to Current and Future Generations (subsequently referred to as the Socio-Economic Criterion Group). We have responsibility not only for the social indicators, but also for the economic indicators described by John Tanaka and Allen Torell in this symposium (pp. 51-53). Our discussions have included persons trained in academic disciplines both within and outside the social sciences, including sociology, anthropology, social psychology, cultural geography, economics, ecology, and forest and range management.

As others within the SRR have done, we used the Sustainable Forest Roundtable's list of C&I as a starting point for our discussions, along with a list of issues developed by the entire SRR at meetings in Salt Lake City and Reno in summer 2001, and refined for the purposes of considering socio-economic indicators at our fall meeting in San Antonio. Subsequently we examined each of the indicators using a framework developed by the SRR as a whole: What does it measure? Why is it important for social sustainability? Can it be monitored with existing data and models? Can it be reported adequately over time? And most

importantly, does it make any sense for social sustainability in a rangeland context? In that fashion – considering both social and economic indicators – we were able to eliminate several sustainable forest indicators that depend on the specific nature of timber production and timber-dependent communities. Others are being recast to be most relevant to rangelands and their management. The social indicators that remain are described in the next section.

Indicators

Our list of social indicators of sustainability is most definitely a work in progress (Table 1). For some we have been able to clearly articulate their importance, monitorability, and measurability. Others we are just beginning to explore.

Challenges and Opportunities

Perhaps the most useful – but also the most problematic – of the indicators is the final one listed above: "Viability and adaptability of social systems in range-dependent communities." At the core of the idea of social sustainability is the notion that human communities are better off if rangelands are both healthy and productive. Because maintaining the balance between rangeland health and productivity is at the core of most debates over rangeland policy, it is critically important that we develop methodologies for assessing how social conditions are affected by policies and practices. And while rangelands support both urban and rural communities, we believe rural communities are an appropriate focus for sustainability assessment because they are likely to be more sensitive both socially and economically to changes that have negative consequences.

Table 1. Potential social indicators of rangeland sustainability.

Potential Indicator	What It Can Tell Us
Area and percent of rangeland (relative to total rangeland area) managed to protect cultural and spiritual needs/values.	Extent to which rangeland management objectives continue to support these values. (E.g., can people gain access to places that offer spiritual benefits? Are there changes in protection of cultural resources?)
Non-consumptive-use rangeland values.	Extent to which values other than commodity outputs are supported by management. (E.g., is there an increase in actions that protect or diminish the scenic quality of rangelands?)
Area and percent of rangeland used for subsistence purposes.	Extent to which subsistence users, including but not limited to Native Americans, retain access to food, fiber, and shelter resources.
Land tenure and ownership patterns, including length of tenure and disposition of lands for which tenure has changed.	Extent to which changes in ownership, tract size, etc., occur that can affect sustainability. (E.g., are state trust lands being privatized, and if so, do new uses affect sustainability? Are ranches being fragmented? Aggregated?)
Extension and use of new and improved technologies related to rangeland improvement and protection.	Extent to which state-of-the-art practices such as riparian protection, rotation grazing, etc., are being adopted and implemented.
Viability and adaptability of social systems in range-dependent communities.	Extent to which changes in rangeland uses and conditions affect social conditions in rural rangeland-dependent communities.

There are great opportunities for measuring viability and adaptability because the federal government already monitors many social conditions at county levels. It is possible that several of these indicators can be incorporated into a defensible index of community sustainability. A highly abridged list of available data include:

- Demographic data such as in- and out-migration, percentage of population in certain age or gender categories, average education levels (critical to many economic diversification strategies);
- Data on community well-being including morbidity/mortality, poverty, water quality status, and availability of medical services; and
- Government/social services data such as property tax rates, social service expenditures and enrollments per capita (welfare, schools, school lunch program, public child care, etc), public safety expenditures, and municipal incorporations or disincorporations (an indicator of community viability).

We believe there are fundamental questions about such social indicators that have not been adequately addressed in research, at least as they pertain to the sustainability of rangelands. Most importantly, we're not convinced that we understand the linkages between social and ecological sustainability. Do breakdowns in ecological sustainability necessarily lead to loss of social sustainability? Not if one believes that cities such as Denver, Salt Lake, Las Vegas or Boise are sustainable. The rapid growth of these cities may be due partly to the fact that they are located on rangelands – not solely because of the values citizens can obtain from rangelands, but also because the economic value of rangelands is low enough to facilitate rapid urban sprawl, for better or worse.

It seems likely that the linkages are clearer in rural rangeland-dependent communities, but even in these cases, we are unsure whether a change in ecological sustainability necessarily leads to a change in social sustainability. Some associations seem obvious – for example, subdivision of ranches into 5- or 10-acre "ranchettes" has been linked not only to reduction in ecological sustainability (Knight et al. 1995) but also to breakdowns in the social fabric of ranching areas (Brunson and Wallace, in press). Other links are less obvious – e.g., if poor socio-economic conditions cause people to leave a rangeland setting, as has happened in parts of the Great Plains, is that occurring *because of* a loss of ecological sustainability or *independent of* changes in ecological sustainability? And does the change in population affect the ecological condition of those landscapes positively, negatively, neither or both?

Some methodological and theoretical challenges pertain to the nature of relationships between indicators and sustainability, the lack of (or difficulty in identifying) reference conditions, and the potential skewing of indicators by a few high-population areas.

Relationships between social indicators and sustainability are not always straightforward. One example is with the indicator, "Area and percent of rangeland used for subsistence purposes." Reduced access to rangelands for subsistence purposes may indicate a loss of social sustainability if there remains constant demand for such uses, or it may indicate improved sustainability if demand is lower due to increased availability of alternative sources of food, fiber, and shelter. Similarly, having fewer acres of rangeland available for subsistence uses may indicate improvement in ecological sustainability if such uses posed a threat to ecosystem components, or it may indicate a reduction in ecological sustainability if subsistence uses are concentrated to the extent that they become a threat.

While reference conditions provide important targets or thresholds for biophysical indicators, it may be impossible to identify reference conditions for some social indicators. For example, how much rural poverty is sustainable?

National-level measures of social conditions are often determined by conditions in population centers. For example, if there is an increase in the number of children enrolled in school lunch programs in rangeland regions, it may reflect a general downturn in the economy that is unsustainable, or it may reflect local economic conditions in the few large cities of the West that may not be found in smaller communities.

For that reason and because most social data are reported at the county level, we believe it will be important to identify what is a "rangeland county." Social indicators should be sampled from a subset of those counties that are representative of relevant rangeland characteristics, rather than measuring all counties. In so doing and by measuring as many indicators as possible relative to county populations, we can avoid the pitfall of a few localities dominating the statistics.

Conclusion

As can be seen, the Socio-Economic Criterion Group still has much work ahead of it. We need to fine-tune all indicators and to identify which measures are best for characterizing several of those we have listed. However, we are encouraged by the long history of using broad-scale indicators in

social research. We are further encouraged by the sheer number of social indicators that are already gathered by federal agencies, long-standing social surveys, the U.S. Census Bureau, and other entities. If we can identify which indicators are most indicative of social sustainability in rangelands, it seems likely that monitoring is possible without development of a major new infrastructure as may be needed for other aspects of rangeland sustainability.

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