Improving both communication and collaboration between rangeland managers and researchers are among the objectives of this special issue of *Rangelands*. The impetus for this series of papers was the article by Briske et al.,¹ which questioned the value of rotational grazing relative to continuous grazing for increasing plant and animal production. Although grazing and grazing systems are the focus, we suggest that the general principles contained in our discussion really should apply to a host of landscape-level issues.

If we are to improve communication between managers and researchers (those who develop the science), it would be helpful for each group to understand limitations facing the other, so we are offering a perspective we share as scientists. We can say without reservation that rangeland research is expensive (usually requiring substantial labor inputs), slow, and has to be very targeted. We have the resources to tackle only a small portion of the problems stakeholders bring to our attention. We try to focus on developing general principles because we know we can study only a limited number of plant communities, treatments, and years. In the sections that follow, we try to outline some of the limitations of traditional field research. We strongly believe that science has a major role to play in management decisions, but there are inherent limitations to science that define and constrain its role in informing management.

Spatial scale is one of the more difficult stumbling blocks for integrating science and management. Traditional experimental designs replicate experimental units (things that are measured to evaluate responses to treatments such as plants, plots, pastures, or animals) to account for natural variability so that treatment comparisons can be made. This often requires a relatively small-scale focus. Certainly, there are instances in which principles indentified from research at a small spatial scale have application at larger scales. For example, small-scale plot studies in the early 20th century clearly identified limits to seasonal and early growing season grazing use of individual perennial grasses, such as bluebunch wheatgrass and black grama. We know those identified limits have application to allotment and ranch-scale management decisions for maintaining important forage species. Another example would be small-scale work on plant response to fire. The nature of a fire may change with scale, but the principles of plant response are consistent across scales. Those small-spatial-scale principles, in a sense, scale up quite effectively. However, there are also cases in which research is difficult to scale up. For example, we may know how individual plants respond to grazing, but animal preference and grazing distribution come in to play at larger scales to influence plant community response. We may manage to maintain individual species and still shift community structure. We believe this issue of scale deserves much more attention from researchers.

There are reasons to be optimistic that we can overcome the obstacles to better integration of management and research. There have been and continue to be plenty of success stories. Some of the newer tools have helped us all gain a better appreciation and description of scale issues (global positioning systems and geographic information systems for example) and our analysis capabilities will only continue to improve. We believe that some of the tools for research on a larger scale will open the door for further collaborations between managers and researchers. We hope that the discussion that follows will 1) point out some of the limitations of traditional field-based research and 2) provide suggestions for some of the approaches that might help us move forward.

The Scientific Method
It is constructive to initially discuss some of the approaches used by both researchers and managers. In this and the next section we will outline some of the steps used by each group. These following comments should apply to most natural