Beef and Beyond: Paying for Ecosystem Services on Western US Rangelands

By Joshua H. Goldstein, Carrie K. Presnall, Laura López-Hoffman, Gary P. Nabhan, Richard L. Knight, George B. Ruyle, and Theodore P. Toombs

Rangelands provide a diverse array of vital services that pertain to human life: food and fiber, clean drinking water, climate regulation, recreational experiences, wildlife habitat, and others.1,2 With the notable exceptions of food, fiber, and other livestock products, most of these benefits from nature remain largely outside economic markets. For private landowners, mostly ranchers, who steward millions of acres of rangelands across the 17 states in the western United States, income is primarily generated through their livestock and less so from stewardship of the broader set of public benefits. Ranchers and diverse publics have shared interests in these benefits, and ranchers have a financial interest in maintaining the long-term productivity of these landscapes. Still, the lack of economic linkages means that the private financial interests of ranchers (e.g., earning a living) are not necessarily aligned with the public’s interest in maintaining and improving ecosystem health.

Every year, an estimated three million acres of private land across the United States are developed and urbanized,3 and this nationwide trend is indicative of what is happening to rangelands across the western United States. The pressures facing rangelands are complex and interconnected: population growth, with several of the fastest growing states in the nation in the western United States; conversion of rangelands from extensive livestock operations to intensive farming or exurban housing developments; thin profit margins for livestock operations (although livestock prices, cattle in particular, are relatively high, input costs have also risen substantially); aging rancher demographics driving uncertainty about who will be the future stewards of rangelands; expanding urban demands on natural resources, particularly water transfers from agricultural to urban uses; and many others. Collectively, these pressures highlight what is at stake regarding the life-sustaining and life-fulfilling benefits that rangelands provide to people. Equally important, society should not assume that private ranchers will be able or willing to provide these public benefits in the future without incentives.

Aligning private and public values in land management has long been recognized as a formidable challenge, and rangelands are no exception. Aldo Leopold wrote, “The crux of the problem is that every landowner is the custodian of two interests, not always identical, the public interest and his own” (p. 160).4 To address this problem, he continued, “What we need is a positive inducement or reward for the landowner who respects both interests in his actual land-practice” (p.160).4 Leopold elsewhere urged for the development of “practicable vehicles to carry that reward,” recognizing that these vehicles could take many different approaches.4

Here we explore one particular approach, payments for ecosystem services (PES), which is receiving widespread attention and investment across the world. Indeed, it is the active exploration and implementation of PES in rangeland systems and elsewhere that in part motivated the writing of this paper. Our objective here is to define and describe the PES approach and to place it in the context of rangeland systems. More specifically, we address the following questions: What are ecosystem services, and how might PES create incentives for their stewardship? What types of PES programs are currently in operation, and how are they working to better align private and public interests in rangeland management? Who are the buyers, and who are the sellers? What are the strengths and drawbacks of PES, and what issues need to be resolved to determine if PES can be a meaningful “workable vehicle” for rangeland systems? In addressing these questions, our aim is to provide background information and context for the rangelands community. We emphasize at the outset that we are neither advocating for nor against the development of PES programs or market-based approaches more broadly. Furthermore, insofar as the PES approach seeks to assign an economic value to ecosystem services, we acknowledge the importance of ensuring that a wide set of values, including...