

# Is Rangeland Health Relevant to Mongolia?

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Approximately 800,000 of Mongolia's 2.5 million people depend directly on livestock production and rangelands for their livelihood. Overgrazing is widespread in the western provinces and near the capital city of Ulaanbaatar, but forage is often underutilized in eastern parts of the country. Many important elements of an infrastructure needed to support livestock production systems, including supplemental feeds, spring grazing pastures, and veterinary services, are lacking, and further compound pressures on forage resources. There is an increasing awareness of the importance of healthy rangelands in protecting the country's natural resource base; however, most of the population continues to view rangelands primarily as a food source for livestock.

The rangeland health concept was developed in response to concerns that existing rangeland inventory, assessment, and monitoring protocols were inadequate.<sup>1,2</sup> This concept is based on the assumption that the sustainability of all environmental services, including livestock forage production, depends on limiting soil erosion and degradation; effectively capturing, storing and releasing water; and on maintaining productive, resilient biological communities (Fig. 1). However, rangeland health does not directly address forage production, or any other environmental service. Consequently, it is possible for land to be described as "healthy" while producing less forage than it could. Consequently, it is not clear that rangeland health is relevant to countries, such as Mongolia, that depend on short-term, as well as long-term, forage production.

To be relevant to Mongolian herders and policymakers, rangeland health must be integrated into a management framework that explicitly includes maximizing long-term

forage production as a primary objective. In this article, we 1) briefly review the current status of Mongolian rangelands, 2) discuss the relationship between rangeland health and sustainability, and 3) propose a management framework that uses existing rangeland evaluation protocols to identify early-warning signs of degradation. We believe that the issues associated with adapting the rangeland health concept with other rangeland evaluation and assessment tools for Mongolia are common to many parts of the world, including the United States.

## Land Rich and Cash Poor

Mongolia is the least-densely populated country in the world, with just two people per square kilometer, or an average of approximately 125 acres per person.<sup>3</sup> Even Australia and Canada (3 people · km<sup>-2</sup>) are more crowded. The United States by comparison has six times more people per area of land (12 people · km<sup>-2</sup>) than Mongolia. In contrast, Mongolia's economy is one of the smallest, with a per capita gross national product (GNP) of less than US\$500. The US economy generates over 70 times more per person (US\$35,400).<sup>3</sup> These figures help explain why Mongolia depends on rangelands to support its growing population (average 2.4% growth from 1980 to 2000 vs. 1.6% globally).<sup>4</sup>

## Current Status of Mongolian Rangelands

Mongolian rangelands are primarily grass-dominated and arid to semiarid. Annual precipitation ranges from less than 50 mm in the south to over 400 mm at upper elevations in the north.<sup>5</sup> This gradient generates correspondingly large differences in plant production. Although there appear to