SRM Society for Range Management

Evaluating an On-Ranch Rangeland Monitoring Program in Nebraska

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On the Ground

- Rangeland monitoring is an important component of rangeland management.
- The Nebraska Grazing Lands Coalition developed a rangeland monitoring program (RMP) in 2009 to assist livestock producers in monitoring rangelands on their ranches.
- Determining rangeland condition and fulfilling a requirement for conservation incentive programs were the most important reasons livestock producers participated in the RMP.
- Eighty-seven percent of survey participants indicated they had continued monitoring following the RMP and many indicated they had made management changes to their ranches.
- Monitoring is an important part of the adaptive management feedback loop. The RMP provided a resource to train producers in monitoring techniques. More tools to interpret monitoring data and increased follow-up by technicians may help producers better utilize their monitoring data.

Keywords: survey, rangeland monitoring, adaptive management, university extension.

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Rangeland monitoring to evaluate management practices is often taught as one of the basic tenants of sustainable rangeland management.[1] Monitoring fulfills a critical step in an adaptive management feedback loop where objectives are developed; specific management practices are applied; monitoring is conducted to evaluate the effectiveness of the management; and adjustments, based on the monitoring data, are made to better accomplish the stated objectives. Many university extension and federal and state agencies have recognized the importance of monitoring and developed educational programs to assist livestock producers in gaining rangeland monitoring skills.[2] However, despite concerted education and outreach efforts, adoption of rangeland monitoring by livestock producers has typically been low because of time constraints, complexity of the monitoring techniques, or lack in understanding or use of monitoring data.[2–4]

Range and pasture lands cover nearly 46% of the land area in Nebraska and are an important forage resource for the state's range beef cow industry, which in 2017 was ranked fourth (1,920,000 beef cows) in the United States in total number of animals.[5] Federal and state agencies manage only about 5% of Nebraska's land area.[6] As a result, conservation and management of most range and pasturelands falls on private landowners. On public lands, documentation of grazing management and monitoring of rangeland condition by livestock producers or land management agency personnel is often necessary for reporting within environmental assessment or agency management documents. Livestock producers grazing on private lands do not have the same requirements to monitor the ecological outcomes of their management practices. However, monitoring provides valuable information on how grazing management practices influence plant species composition, forage production, and rangeland health. Because of the value of monitoring to help producers analyze and document conservation management practices on private lands, federal conservation programs in Nebraska, such as the USDA-Natural Resource Conservation Service (NRCS) Conservation Stewardship Program (CSP), have provided financial incentives to livestock producers for monitoring their rangelands (N. Bishop, NRCS State Rangeland Management Specialist, personal communication October 12, 2016).

The Nebraska Grazing Lands Coalition (NGLC) developed a rangeland monitoring program (RMP) to provide on-ranch, one-on-one technical support to assist livestock producers in implementing rangeland monitoring practices. The NGLC is a state entity of the National Grazing Land Conservation Initiative that works to assist grazing managers in improving and managing their privately owned grazing lands. The NRCS and other sources provided funding for skilled technicians to visit ranches and train producers on basic monitoring techniques. This approach is different from many rangeland extension and outreach programs that invite

producers to a central location for one to multiday workshops. In 2015, the RMP's seventh year, the NGLC board of directors requested an evaluation of the efficacy of the RMP. The NGLC and the University of Nebraska-Lincoln Extension sent a survey to past participants of the RMP with questions focused on identifying the grazing management practices of the RMP participants and questions addressing the goals of the board of directors in evaluating the RMP. Key information solicited included the number of producers who continued monitoring following the training, feedback on the value of the program, and suggestions from past participants on how the program could be changed or improved.

The RMP Program

Between 2009 and 2014, 320 livestock producers voluntarily contacted the NGLC and participated in the RMP. When a producer requested training, a technician trained by the NGLC would coordinate an on-ranch visit. During the visit, the technician assisted the producer in establishing a monitoring site, showed the producer how to collect vegetation data, and discussed current grazing management practices. Producers could purchase a monitoring tool-kit for a minimal fee ($25). Tool kits included a clipping frame, grazing exclosure, scale, tape measure, clippers, clipping bags, and a meter stick.

The monitoring techniques the technicians demonstrated included estimating forage production with a biomass clip and weigh method; line-point transect to evaluate plant cover and species composition; long-term photo points; and rangeland trend, utilization, and stubble height. Technicians also collected and coordinated the laboratory analysis of soil and vegetation samples to give participants an understanding of soil and forage quality at the time of the training. The technician and producer discussed past management, future goals, and management strategies that could help them reach those goals. This typically included management decisions such as timing of grazing and stocking rate, and/or more complex discussions of rotational, multiherd, or multispecies grazing. The technicians encouraged producers to lead by example and show neighbors how they were using rangeland monitoring and how it had benefited them.

The Survey

Addresses were available for 230 past participants of the RMP (Fig. 1). Surveys were mailed to past participants in January 2016 with a return addressed, stamped envelope. Survey participants had the option to complete the survey online, but only five chose this option. Seventy-two surveys were completed and returned to the researchers for a response rate of 31%. No follow-up effort was made to reach nonrespondent survey recipients. While the response rate was relatively low, it was not greatly outside the response rates achieved by other published survey data focused on rangeland management or conservation programs.[7] Additionally, the goal of this survey was to evaluate one relatively small program and not to generalize to a large population of ranchers in Nebraska. As such, the survey data provide insight into the range monitoring program and the program's influence on Nebraska producers who participated in the survey. Some of the surveys had one or more of the questions left unanswered,

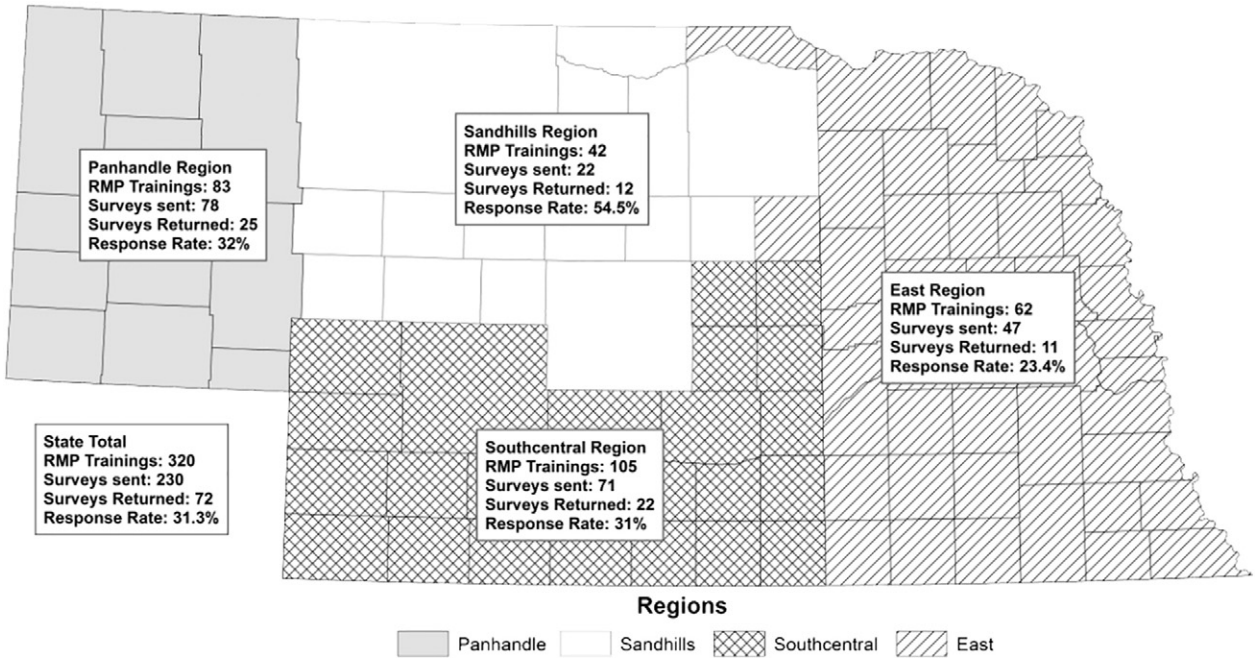

Figure 1. Number of participants, surveys sent, and survey response rate for the Nebraska Grazing Lands Coalition Rangeland Monitoring Program (RMP) from 2009 to 2014.