# Flexibility and Innovation in Public Land Grazing

## Interview Summary

MERIDIAN INSTITUTE

# ABOUT MERIDIAN INSTITUTE

Meridian Institute is a mission-driven, non-profit organization that has helped our clients and partners develop and implement solutions to complicated, often controversial problems—big and small, global and local—for over two decades.

We do this with an innovative approach that brings together three elements: our deep understanding of the issues at hand, as well as the people, politics, and power dynamics that surround them; our dedicated, expert team; and our ability to foster constructive discussions, manage decisions, and support actions that shape the world for the better. We work not only to shape meaningful consensus and action in the near term, but also to build our partners' capacity for cooperation that often continues for years, even decades.

We focus on five key services: collaboration, implementation, strategy, research, and philanthropic support. We bring our skills to bear on a diverse range of issues, including environment & natural resources, climate change, agriculture & food systems, forests, health, oceans & coasts, resilience, science & technology, and water. Across issues, boundaries, and systems, our work is a catalyst for powerful impact.

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# EXECUTIVE SUMMARY

A number of evolving conditions impact federal land management and livestock grazing in the Western United States, including precipitation variability, cultural and demographic shifts, policy and land use change, and economic pressure on ranches. Meanwhile, many of the current institutions and policies that guide decision-making related to public land grazing have not adapted to changing conditions and circumstances. Livestock producers and federal land managers alike often face administrative barriers that make it difficult to adapt grazing methods to conditions on the ground. And, while there is some flexibility in the existing agency regulations, other factors can influence a reluctance to use it.

To better understand key challenges and potential solutions for enhancing flexibility and innovation in public land grazing to support greater resilience of rangeland ecosystems and ranching livelihoods, Meridian Institute conducted 35 interviews with public land grazing permittees, state and federal agencies, consultants, academics, and non-profit organizations (NGOs). This analysis focused on grazing on public lands managed by the Bureau of Land Management (BLM) and the United States Forest Service (USFS). This work is guided by a multi-stakeholder advisory committee and is funded by the Walton Family Foundation and Conscience Bay Research.

## WHY (AND WHY NOT) FLEXIBILITY AND INNOVATION IN PUBLIC LAND GRAZING

Most, but not all, interviewees felt that flexibility and/or innovation could help support improved ecological outcomes and greater ranch resilience. We defined flexibility as adjustments in the timing, duration, or intensity of grazing and the ability to make changes to infrastructure like stock water tanks or fencing. Innovation refers to the process of adopting new technologies or management strategies to enhance grazing management knowledge and effectiveness.

In addition to being able to more readily adapt to changing conditions on the ground, there are multiple reasons for enhanced flexibility in permit terms. Flexibility could allow permittees to utilize more holistic, regenerative grazing practices that have been shown to improve landscape and herd health and require frequent, hands-on grazing adjustments. The ability to graze public lands is often a critical component of a ranch's sustainability – when ranching is no longer financially viable, intact landscapes and the critical ecosystem services they provide risk being sold and developed. Furthermore, enhanced flexibility can also foster (and often requires) stronger relationships and trust between permittees and their local agency representatives.

Some interviewees were concerned about additional flexibility. For example, some felt that after decades of overgrazing, rangelands need rest and that there is a need for better baseline rangeland health data as well as research on the connection between grazing strategies and conservation outcomes. Additionally, some permittees may take advantage of enhanced flexibility and graze in ways that lead to ecosystem degradation, an outcome that the National Environmental Policy Act (NEPA) is designed to prevent.

## BARRIERS AND OPPORTUNITIES

Interviewees identified specific barriers and opportunities for enhancing flexibility and innovation in public land grazing:

- **Data and Technology:** One of the most significant challenges in public land grazing decision-making is a lack of monitoring and data. In addition to supporting informed permitting decisions, greater availability of rangeland health data has the potential to enhance shared understanding of the effect of grazing approaches on rangeland health, improve accountability of permittees to agencies and the public, and ultimately fosters a higher level of trust among all stakeholders. Emerging technologies like remote sensing and virtual fencing offer ways to collect accurate and up-to-date data on grazing outcomes, though their use on public lands is currently limited. Third-party data collection and cooperative monitoring have been a useful tool for expanding data collection, especially when in alignment with federal agencies' monitoring protocols.

  "If we want the public to trust that our land management approach works, then we need to document it." —Rancher

- **Agency Capacity and Culture:** The lack of capacity within the BLM and USFS often stifles innovation and flexibility in public land grazing. Over the years, both agencies have faced budget cuts, hiring freezes, staff shortages, and expanded responsibilities, all of which directly affect their ability to monitor the lands they manage, collaborate with permittees, and effectively implement adaptive management strategies. These capacity constraints can contribute to a culture that favors the status quo and a lack of incentives for implementing change or taking risks. This aversion to innovation is compounded by the risk of litigation; many land managers (and permittees) are hesitant to make changes to permits due to the threat of legal challenges, even if the changes could improve land health. Despite these challenges, successful examples exist where agency staff have built trust with ranchers through field visits, collaborative monitoring, and outcome-based grazing. Enhancing mentorship programs, training programs, and resource toolkits could support agency staff in navigating increasing flexibility with the necessary accountability.

- **Collaboration and Trust:** Many of the places throughout the West where successful adaptive grazing management is taking place on public lands are the result of producers, agencies, and others working together – often over multiple years or even decades – to establish relationships and trust. Effective collaborations often involve shared and/or third-party monitoring, co-designed grazing strategies, and joint decision-making processes that foster mutual understanding and respect. However, the success of these efforts depends on consistent engagement, agency support, and the willingness of all parties to prioritize long-term land and ranch health outcomes.

  "We built trust one permittee at a time. Listened to them, developed plans together. The goal was always win-win – improving the profitability and sustainability of their small business and the health of the land." —Retired BLM Employee

- **Policy Opportunities:** Participants mentioned a few specific opportunities for policy reform that would enhance public land grazing flexibility while protecting ecological outcomes. For example, NEPA reform could include streamlining reviews for infrastructure projects, new technologies (e.g., virtual fencing), and endangered species or historic preservation consultations. Additionally, expanding the BLM's Outcome-Based Grazing Pilot Program, which emphasizes

data and monitoring as a foundation for working towards shared objectives, could continue to support flexibility with public accountability. In general, strengthening policies that support monitoring, agency on-the-ground capacity, and multi-stakeholder collaboration can enable more effective and sustainable grazing management.

"At the end of the day, it doesn't matter as much what the high-level policy is. What matters is the local offices having relationships with the ranchers to develop permits that work for them." —Ranch Data Consultant

## SYNTHESIS AND RECOMMENDATIONS

This study suggests:

- **Greater public land grazing flexibility with accountability can support both ranch and rangeland resilience.** Administrative barriers, threat of lawsuits, and narrow profit margins have stifled innovation, limited implementation of regenerative practices, and made it hard for agencies and permittees alike to adjust to conditions like drought and wildfire.
- **Agencies have a good amount of flexibility within current policies.** The factors that limit exercising this flexibility are the lack of data, the cost of monitoring, agency capacity and culture, the threat of litigation, and distrust between agency and permittees.
- **Strengthening data and monitoring can support flexibility with accountability.** Additional monitoring, coordination and utilization of existing data, and expansion of cooperative monitoring can support building trust, aligning outcomes, and enhancing accountability.

The recommendations below can be pursued by a wide range of actors, including philanthropic foundations, research institutions, producer-serving organizations, and multi-stakeholder collaboratives.

### Near-term Opportunities:

- **Data and monitoring workshop.** A multistakeholder workshop could support idea exchange and potential recommendations for how to strengthen data collection and utilization.
- **Stories of monitoring partnerships.** Examples of collaborative data monitoring could highlight the enabling factors leading to the partnership's success as a means of offering inspiration and guidance for other efforts to form.
- **Grazing on public lands campaign.** Deliver an outreach campaign targeted at public lands users that clarifies and demystifies how public lands are utilized and managed for livestock grazing.
- **Funding mechanisms for monitoring.** Creating new sources of public and private funding to support monitoring could support more sustainable livestock grazing practices and enhance public rangeland health.

### Mid-term Opportunities:

- **Resource and information toolkit.** Compile a list of examples and resources for leveraging current flexibility.
- **Federal agency mentorship program.** Establish regional mentorship programs where experienced (and particularly retired) agency staff share their knowledge with and support newer staff.

- **Opportunities related to policy.** There may be opportunities for multi-stakeholder bipartisan efforts to ensure policies are durable and balanced.
- **Opportunities related to agency capacity.** There may be an opportunity to build bipartisan support for on-the-ground positions that work directly with producers.

# BACKGROUND AND CONTEXT

Meridian Institute is facilitating the Western Rangelands Data Initiative (WRDI), an effort that seeks to identify data-informed, collaborative solutions to enhance ranch and rangeland sustainability in the West. To help guide this initiative, Meridian regularly convenes a small advisory group of producers and producer groups, scientists, non-profit conservation organizations (NGOs), agricultural business owners, and others to provide input on specific opportunities for collaborative action. Following a thorough scoping period, the WRDI advisory group encouraged Meridian to explore opportunities to enhance flexibility and innovation in public land grazing that could support improved ecological outcomes and agricultural livelihoods.

A number of evolving conditions currently impact federal land management and livestock grazing in the Western United States. For the scope of this work, the West is defined as the following 11 states: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. Factors such as a changing climate, precipitation variability, cultural and demographic shifts, changing policies and land uses, and economic pressure on ranches are all impacting the future of public land use in the West. In response, some livestock producers are embracing grazing strategies that are more adaptive to changing conditions, including making more frequent adjustments to herd size, herd density, and grazing timing and duration with the goal of improving both landscape and herd health. New technologies and tools (e.g., remote sensing and virtual fencing) are also changing the information landscape that ranchers and public land managers operate within. Meanwhile, many of the current institutions and policies that guide decision-making related to public land grazing have not adapted to changing conditions and circumstances. Livestock producers and federal land managers alike often find themselves facing administrative barriers that make it difficult to adapt grazing methods to conditions on the ground. And, when there is some flexibility in the existing agency regulations, other factors can influence a reluctance to use it.

To better understand the current state of livestock grazing on public lands and opportunities for data-informed solutions to enhance ecological, economic, and societal outcomes, Meridian conducted interviews with a wide range of individuals with experience and perspectives on public land grazing. For the purposes of this study, we looked exclusively at public lands managed by the Bureau of Land Management (BLM) and the United State Forest Service (USFS). This document summarizes our interviews, including both key challenges and potential solutions, and presents recommendations for future collaborative action. This work is funded by the Walton Family Foundation and Conscience Bay Research.

## Methods

The Meridian Institute team conducted 35 interviews, which included seven public land grazing permittees, nine state and federal agency staff, four consultants, four academics, and eleven NGO staff. We talked with individuals with a range of perspectives, concerns, and ideas related to public land grazing. See Appendix A for interview questions and Appendix B for a full list of interviewees.

The summary below does not attribute specific ideas to individuals. It is a synthesis of major themes and ideas from across interviews. Where relevant, we have included information on which categories of interviewees expressed which perspectives. Meridian intends to use this summary as a foundation for future solutions-oriented discussions with stakeholders. It will also be shared with the interviewees, project funders, WRDI Advisory Group members, and – as relevant – others interested in advancing data-informed and collaborative solutions for public land grazing in the West.

## Why Flexibility and Innovation in Public Land Grazing

Most, but not all, participants felt that flexibility and/or innovation could be helpful in supporting improved ecological outcomes and greater ranch resilience, especially in the face of climate change and its associated impacts in the West, such as drought, invasive species, and wildfire. For the sake of these conversations, we defined flexibility as adjustments in the timing, duration, or intensity of grazing, as well as the ability to make changes to infrastructure like stock water tanks or fencing. Innovation referred to the process of adopting new technologies or management strategies to enhance knowledge and effectiveness.

Below are some of the reasons why interviewees felt that greater flexibility or innovation in public land grazing was important:

**Resilience to Drought and Changing Conditions.**
Flexibility allows permittees (also referenced throughout this document as "producers" and "ranchers") to adapt their grazing strategies in response to changing on-the-ground conditions. For example, while early-season grazing may be a promising strategy for controlling the spread of invasive species like cheatgrass, permits may have strict season start dates or herd size restrictions that do not allow this technique to be utilized and/or effective. Additionally, a producer may be interested in building a stock water tank to draw cattle away from riparian areas, but current permit terms do not allow the construction of such infrastructure and changing the permit would require a potentially lengthy National Environmental Policy Act (NEPA) process. Other examples of interventions to support climate resilience and adaptation that may be limited include using virtual fencing, data collection, or targeted grazing to enhance wildfire resilience. Public land managers and permittees require flexibility – in grazing as well as other management strategies – in order to respond in real time to quickly changing conditions like drought, flooding, and wildfire.

"The world we are being presented with is asking for flexibility in every way – personal life, changing environmental conditions, and changing market conditions." —Producer and Conservation Organization Representative

**Regenerative Ranching.**
There is a growing set of producers who are engaged in livestock grazing practices that are often characterized as "regenerative" or "holistic." This includes strategies that typically encourage a greater density of cattle that move through a series of pasture subdivisions for short durations, with those pastures then left ungrazed for defined periods of rest. These practices have been shown to mimic natural processes and ultimately lead to improved soil health, animal health, forage yield, riparian and stream health, and carbon sequestration. For producers who graze on public lands, the terms of their

permits can limit their ability to implement these strategies, and updating those terms can be challenging. Permits typically specify the number of allowable Animal Unit Months (AUMs, the amount of forage required by a cow/calf pair for one month), grazing season start and end dates, where and how fences or off-stream stock water tanks can be placed, and other management strategies. As a result, the public land grazing permit system incentivizes more conventional, less adaptive modes of grazing. Some producers also indicated that even if they are not focused on incorporating specific regenerative practices, they still might want to implement other practices that work towards recovering degraded rangelands in which flexibility and adaptation are required.

**Flexibility to Pursue New Technologies or Incentives.**
Recent developments in technology – the most discussed by interviewees being virtual fencing – provide producers with more accurate, up-to-date information and feedback on grazing outcomes and land health. There are also emerging incentives, including payment for ecosystem services like carbon markets, that have the potential to compensate producers for land health improvements. We interviewed producers who were integrating both of these examples into their operations on the lands they own, however expressed that they struggled to get approval to extend the use of this technology or service on public leases.

**Building Relationships and Trust.**
Exercising flexible management approaches requires stronger relationships, trust, and accountability between ranchers and public land managers. Ongoing communication, a mutual understanding of one another's perspectives, and a willingness to work together builds the foundation for managing a landscape for multiple uses, minimizing conflicts, using data for shared decision-making, and ultimately supporting healthy rangelands. Collaborative approaches offer a new way of working and an alternative to the "us vs them" dynamic that can be typical of producer and agency relationships.

**Ranch Profitability and Shifting Land Use.**
Many ranches in the West face narrow profit margins and rely on a mix of private and public land grazing to be financially viable. When ranching is no longer economically viable, owners may feel compelled to sell their private land, especially as agricultural land is valued more and more for its development potential. Ranches that steward the land in ecologically responsible ways are better positioned to maintain intact rangeland landscapes and prevent the loss of critical ecosystem services such as water filtration, soil health and stability, wildlife habitat, and carbon sequestration, while also protecting rural Western culture, communities, and way of life. Enhanced flexibility can help support ranch sustainability, ultimately supporting the preservation of rangeland landscapes across ownership boundaries.

## Concerns with Flexibility in Public Land Grazing

Not all interviewees were supportive of greater flexibility or innovation in public land grazing. Some of the concerns include:

**Rangelands Need Rest.**
Due to decades of overgrazing, many federal rangelands are in decline or already degraded and would benefit from rest in order for ecosystems to fully recover. One interviewee noted that many of the grasslands in New Mexico, for example, are unlikely to recover in an individual's lifetime, which is

discouraging for producers and agency staff alike who know that they wouldn't see their restoration efforts come to fruition.

**Misuse of Greater Flexibility.**
Recognizing that not all ranchers necessarily prioritize rangeland health, the current permitting process and NEPA requirements provide oversight intended to limit the environmental harms of overgrazing. Some ranchers may have few incentives for improving the public lands they graze on. The administrative and legal due diligence required to alter permit terms protects rangelands from any "bad actors." There was also a concern that the stories that get shared showcasing how flexibility enhances rangeland health outcomes tend to feature ranches that have already established ecologically minded grazing practices and are invested in land health. While these producers are leaders in the field, they might not be representative of how all ranchers would behave if given additional flexibility. Should permits incorporate greater flexibility, some interviewees argued that requirements for added accountability must accompany these flexibilities – permittees must demonstrate that adaptive management is leading to improved ecological outcomes.

**Need for Better Baseline Data.**
There is a need for better rangeland health data before allowing greater flexibility in public land grazing. Transparent, trusted (by agencies, producers, NGOs, and the public), and up-to-date data is needed to understand the baseline conditions across BLM and USFS lands and monitor how ecological conditions change in response to management practices. While not all interviewees spoke to specific indicators that should be monitored, our understanding of common indicators utilized in rangeland assessments include percentage bare ground, vegetative diversity, key forage species productivity, and soil moisture. One participant noted that basic soil and stream health indicators have not been collected on many federal lands since the 1990s and should also be included in baseline data collection.

**Need for Research on Grazing Strategies.**
There is also a need for foundational research and studies on grazing strategies for conservation outcomes. For example, grazing is being proposed as a strategy for invasive species control or wildfire mitigation, however, some interviewees felt that additional research is needed to justify these claims and provide more specific guidance on these strategies. Additionally, cattle are increasingly being discussed as playing an ecologically important role by serving as a proxy for bison and antelope that historically grazed the region, yet more studies are needed to know if this comparison is accurate and, if so, in what circumstances. Finally, much of the West is still recovering from historic overgrazing and more studies are needed to better understand how to recover these landscapes and what level of ongoing grazing is ecologically beneficial to aid in that recovery, if any.

# Policy Context

Several laws and regulations guide the current system of grazing. These were brought up by interviewees as foundational to the flexibilities that are or are not available to permittees.

## TAYLOR GRAZING ACT OF 1934

The Taylor Grazing Act of 1934 is the federal law that regulates grazing on public lands in the United States. The Taylor Grazing Act established grazing districts and a system for apportioning and regulating grazing, including the AUM metric used today to determine grazing fees. While this policy has since been superseded, the legacy the Taylor Grazing Act established in terms of the allocation of permits, determining permit boundaries, setting seasons of use, and defining the carrying capacity of the range, received criticism from some of our interviewees. Several interviewees expressed that it is an outdated framework that does not account for the need for more flexibility in the face of a changing climate or current understandings of rangeland science and grazing to promote soil health and biodiversity.

## NEPA AND GRAZING PERMITS

To graze their livestock on public lands, ranchers enter into permits that stipulate specific terms regarding when, where, and how they can graze. These permits are typically renewed every 10 years. If permittees would like to change the terms of their permit (e.g., move the start date to one month later or install a stock water tank), the permit becomes subject to review through the National Environmental Policy Act (NEPA). The NEPA process requires that a comprehensive environmental assessment be conducted, including potential impacts to endangered and threatened species as well as historically significant archaeological sites. NEPA also involves a public review and comment period, opening up the permit to potential litigation by individuals or entities that believe there is evidence that environmental protections are not being upheld. Due to the amount of time and effort required to conduct NEPA – compounded by the staff shortages and high workloads already facing agencies – the process can take years to complete. If a permit is set to expire before NEPA is complete, federal law allows the BLM or USFS to renew the permit under the same terms and conditions until the NEPA process can be finalized. In some cases, this may incentivize land managers and producers to not make permit changes that may be beneficial for environmental and herd health, instead opting to maintain a status quo established up to decades earlier. We explore the dynamics of the NEPA process and litigation in more detail later.

## OUTCOME-BASED GRAZING AUTHORIZATIONS

In 2018, the BLM launched an initiative called the Outcome-based Grazing Authorizations (OBGA), involving 11 pilot demonstration projects designed to provide BLM managers and grazing permit holders flexibility in the management of permitted livestock in response to changing conditions. Specifically, it builds flexibility into the permit's terms and conditions, which are reviewed and analyzed as part of the NEPA process. Alongside the increase in flexibility, the program requires monitoring and evaluation plans. The monitoring plans are specific to the project and outline the information needed and data collection methods. The BLM also considers AIM data (see below), habitat condition, and vegetative trends. The program emphasizes establishing shared objectives and desired outcomes as well as ongoing communication on behalf of both the BLM staff and the permittees.

The program has been largely successful, with participants in the pilots emphasizing the increased trust and a shared understanding of on-the-ground conditions. Some interviewees mentioned, however, that

the pilot projects were selected in locations where BLM staff and permittees already had well-established relationships and trust and a history of well-managed rangelands, questioning the program's scalability.

## FLEXIBILITY WITHIN EXISTING REGULATIONS

One of the key questions WRDI Advisory Group members encouraged us to explore during the interviews was, "**Why do you think the flexibility available in existing regulation is not used to the degree it might be?"** This question acknowledges that while the rules and regulations governing grazing on public lands allow for adaptive changes to be made, these flexibilities are often not utilized. Discussions with interviewees engaged in public land grazing across the West revealed that flexibilities are being utilized in some cases, but not others. Part of our interview process sought to better understand the most significant barriers to exercising flexibility.

# BARRIERS AND OPPORTUNITIES

The following sections detail our findings on both the barriers and opportunities interviewees identified for enhancing flexibility and innovation in public land grazing. Each section also includes examples of emerging solutions, when relevant, as well as suggestions for future potential solutions that may merit additional consideration and discussion.

## Data and Technology

Across interviewees, we heard that one of the most significant challenges in public land grazing decision-making is a lack of monitoring and data. This includes both long-term rangeland health trend monitoring and real-time information that informs adaptive management from year to year. Greater availability of accurate rangeland health data has the potential to enhance shared understanding of the effect of grazing approaches on rangeland health, improve the accountability of permittees to agencies and the general public, enable more informed and responsible approaches to incorporating flexible permit terms, and foster higher levels of trust among all stakeholders.

> "Transparent, accessible, and digestible data about what our public lands are and aren't doing is a big part of changing policies and changing hearts and minds."
> —Ranch Data Consultant

### CURRENT AGENCY DATA COLLECTION METHODS

Below we provide an overview of the monitoring protocols utilized by both BLM and USFS. We also summarize interviewee feedback with regard to each.

#### Bureau of Land Management's Assessment, Inventory, and Monitoring Protocol

The Bureau of Land Management uses the Assessment, Inventory, and Monitoring (AIM) protocol to standardize the collection and management of data on land the agency manages. It is central to policy and management decisions, including public land grazing permits. For terrestrial monitoring, indicators include bare ground, vegetation composition, vegetation height, canopy gap, and distribution of nonnative/invasive species.

Proponents of AIM emphasize that it is a scientifically rigorous method for data collection and that stratified randomized sampling conducted through the protocol is important to understanding landscape scale trends over time.

Many of the people we interviewed had concerns about both AIM methodology and how the information is being used, however. Specifically:

- **Misrepresentative data:** Because BLM uses stratified random sampling to monitor conditions and trends over time, some felt that AIM data does not accurately represent landscape diversity or grazing impacts. For example, a few people raised the specific concern that if an AIM location is on a dirt road it might conclude that the entire allotment

is bare ground. Interviewees also flagged that a random sampling approach may incorporate plots where cattle are not present, leading to false conclusions about the effect of grazing. Two former BLM employees we interviewed noted, however, that in these cases, on-the-ground BLM staff could suggest to the National Operations Center (the entity within BLM conducting the plot randomization) that alternative locations be selected.

- **Top-down approach:** Some ranchers also expressed frustration with AIM being a top-down approach that does not involve others in design and the utilization of the protocol. There were concerns that it might not fully account for local knowledge or specific conditions. As a result, permittees spoke to being surprised by – and in disagreement with – the results. Another person suggested that future updates to AIM sampling design should be done via an independent analysis that consults academics and experts outside of the agency who can make potential recommendations for potential alternative sampling designs.
- **Need for more intensive data collection:** A few interviewees felt that there wasn't an inherent problem with the AIM methodology, but rather that the current implementation of AIM does not collect enough data over space or time to speak to localized or changing conditions. Interviewees suggested that AIM data was most useful with robust data point collection and when combined with other sources (e.g., remote sensing, third-party monitoring, etc.). One participant noted that trend monitoring is not consistently identified as a high priority by the BLM national headquarters – if it was, more funding would go towards the program and more monitoring would be accomplished.

### Forest Service Monitoring Protocols

While the USFS utilizes the Terrestrial Condition Assessment protocol to evaluate landscape health on national forests, the protocol is applicable primarily to forested landscapes. In speaking with interviewees familiar with the USFS, we understand that there is not a single, agency-wide rangeland monitoring protocol similar to the BLM's AIM, and as such, different monitoring approaches are used across different landscapes. For example, the Common Non-Forested Vegetation Sampling Protocol (CNVSP) is a rangeland assessment protocol often used in the southwestern United States. The University of Arizona uses CNVSP in their cooperative monitoring agreement (CMA) they have with the USFS, however the extent to which this protocol is used to monitor rangeland health on other national forests is unclear.

Interviewees specifically expressed frustration that the USFS and BLM do not use the same methods, which can be challenging for producers who graze on a combination of private and federal land. It can also make it difficult for all stakeholders and the general public to understand regional variations and trends.

### Rangeland Analysis Platform

The Rangeland Analysis Platform (RAP) is a remote sensing-based platform that was developed by the University of Montana in partnership with the USDA to portray annual vegetation data for the United States. RAP is informed by AIM and NRCS National Resource Inventory (NRI) data and was cited by interviewees as a useful online tool to visualize trends on the land over time. Interviewees noted its limitations, however, in informing specific interpretations, for example by depicting changes in biomass but not species diversity. Notably, this platform has not been adopted across agencies, and one USFS employee shared that, unlike the BLM, it is not an agency-wide practice to use RAP data. Furthermore,

several agency staff and producers alike highlighted accessibility issues with RAP, noting that its effectiveness is limited to people who know how to use it and interpret the data. Generally, folks agreed that while RAP is one of the best remote sensing tools currently available, there is room for improvement, and it should be used alongside other data sources.

## THIRD-PARTY DATA COLLECTION

Several producers we interviewed are investing in their own third-party data collection to have a more complete picture of grazing management outcomes. This is often due to an absence of comprehensive data collection on the part of agencies. This supplementary data can further inform land management approaches, equip producers with the information they need to initiate conversations with their permitting agency about adjusting management strategies (rather than waiting to be told what to do), and provide evidence useful in litigation defense (if the data suggests the ecological standards are being met). It is important to note that these third-party data collection services can be expensive and may be cost prohibitive for many producers.

"If we want the public to trust that our land management approach works, then we need to document it." — Rancher

Many third-party data providers use the agencies' monitoring protocols – often in addition to collecting other data points – so that the resulting information can be useful across ownership boundaries. One interviewee likened this to the strategy that many oil and gas companies use to move permitting forward – they conduct their own analysis and provide it to federal agencies. By bringing in a third party, however, interviewees highlighted the potential for contracted monitoring to increase disconnect and misunderstanding between permittees and the BLM or USFS. The lack of interaction can foster a lack of trust in the data itself. This underscores the importance and benefits of agencies, permittees, and third-party contractors aligning monitoring objectives and approaches at the outset.

## COOPERATIVE MONITORING AGREEMENTS

Cooperative Monitoring Agreements (CMAs) are a strategy to conduct rangeland monitoring and inform management. One interviewee described CMAs as a "powerful data revolution" because they allow ranchers and/or third parties to collect data on behalf of agencies using agency protocols. This can help address key capacity constraints within the BLM and USFS. Two examples of CMAs include agreements that the USFS and BLM have pursued with the Public Lands Council (PLC) and University of Arizona's Cooperative Extension, the latter of which supports long-term trend monitoring on public lands to inform grazing allotment administration and NEPA processes.

Successful experiences with CMAs seemed to stem from a willingness to divide the data collection responsibilities between permittees, agencies, and/or a third party. This approach to joint fact-finding creates mutual buy-in and trust

in the process of land health monitoring. In some cases, participants noted that despite the extra work to make a collaborative approach happen, the process of having agency staff train producers on data collection can be a critical way to build personal relationships out on the land and educate producers to "speak the same language" as agencies.

While CMAs have been a tool available to agencies for the past 30 years, they are not widely used. Depending on regional culture and funding, there seems to be varying levels of willingness across agency offices to entrust permittees with data collection or to hire third-party contractors. Ranchers also have limited time to conduct monitoring and a few permittees included in this study expressed concerns about taking on monitoring responsibilities for the agencies and essentially "doing their job for them."

## EMERGING TECHNOLOGIES

- **Remote sensing.** Many participants emphasized promising remote sensing technologies that have emerged in the past few years, but none are currently a perfect solution. In many cases, there is still a need to "ground-truth" this remote sensing data. Some interviewees felt that there was a lot of potential use of existing data and that an emphasis on data to inform decision-making should be prioritized.
- **Virtual fencing.** There was also enthusiasm for the potential for virtual fencing to provide important data that is useful in conducting more targeted and responsive grazing on public lands. Some early adopters ran into concerns from their local agency staff about data privacy and ownership issues, as well as whether NEPA is required (e.g., whether virtual fence towers are considered temporary structures.). Others found that the current technology does not live up to expectations in specific geographies (e.g., mountainous terrain with inconsistent GPS signal) and that the up-front costs make it difficult for ranchers to pursue without outside support (e.g., NGO or government cost-share funding). Overall, though, the interviewees saw tremendous potential for virtual fence technology to provide data necessary to support informed decisions about grazing, especially when combined with remote sensing.
- **Carbon markets.** While there was a general skepticism towards carbon markets among most of the people we interviewed, a few mentioned that if there were improvements in the data backing up soil carbon sequestration and potentially other ecosystem service claims it could potentially unlock financial incentives for ranchers focused on ecosystem health. A few federal agency employees and ranchers we spoke with expressed that they believe carbon finance could incentivize grazing approaches that result in positive ecological outcomes. Establishing a market would necessitate, however, that agencies provide further guidance on credits generated on federal lands. Existing projects referenced by interviewees required the agency to waive the right to profits from sale of credits, however the interpretation of the current regulations may vary among agencies, offices, and districts.

## WHAT IS CURRENTLY WORKING

### Emerging Solution: ROGER Grazing Management Planning Tool

The Results Oriented Grazing for Ecological Resilience (ROGER) Group in Northern Nevada has developed a web-based tool to inform grazing management decisions. It allows operators and BLM agency personnel to look at different grazing scenarios and understand how those might impact vegetation and sage grouse populations. It allows users to model different scenarios based on timing and duration of grazing, timing and duration of rest, and changes in stocking rates and animal location over time to better understand potential outcomes. It also considers cattle distribution—how they will move within an allotment using GPS data. The tool is currently restricted to a limited group of users but will be available to public agencies and producers in the future. As developed, the tool is most applicable to norther Nevada's geography, but it could be a good model for other geographies moving forward.

### Emerging Solution: Third-party Monitoring for the Three Creeks Allotment Consolidation Plan

Since 2010, a group of grazing permittees and personnel from the BLM, USFS, and state agricultural agencies have been working together to form the Three Creeks Allotment Consolidation Plan in Northern Utah. The effort brings together 37 permittees to collectively graze across 140,000 acres of private, state, and federal lands (including 5 BLM and 5 USFS allotments) under one permit. This approach reduces administrative burden and enables herds to be rotationally grazed across a larger landscape to allow for adaptive changes in grazing location, duration, and timing.

Working Lands Conservation (WLC) is a non-profit rangeland monitoring firm that joined the group in 2019. WLC monitors changes in environmental conditions as the partners implement new grazing strategies, then shares the data with permittees and agencies to inform their approach to adaptive management. WLC is intentional about collecting data that synergizes with data collected by the BLM to ensure it is valid and usable by the agency. The group discusses their data collection methods, shares protocols, and, at times, collects data together in the field. WLC works to collaboratively monitor 16 separate rangeland health indicators related to vegetation, soil, and water to inform understandings of impacts on vegetation productivity and recovery, sage grouse habitat, erosion, soil health and carbon sequestration, and water quality.

**Emerging Solution: Third-party Monitoring for the Three Creeks Allotment Consolidation Plan *(continued)***

A few keys to success cited by those involved in this effort include:

- Bringing in a trusted and effective third party to conduct monitoring that tells a more comprehensive story of grazing and land health (as compared to selective sampling conducted by federal and state agencies)
- Building relationships, sharing information, and co-monitoring to ensure data being collected across ownerships is in alignment with agency requirements
- Having innovative people within BLM who were willing to "stick their necks out" to further an approach they believed in
- Amidst BLM and USFS personnel turnover, having consistent participation from permittees and key state agency personnel to see the project through to fruition
- As a social process, intentionally taking time to build trust between members

## POTENTIAL ADDITIONAL SOLUTIONS

Across the board, we heard from interviewees that better data, monitoring, and transparency represent a significant opportunity for building flexibility, allowing for innovation, and enhancing accountability in public land grazing across the West.

Below are some specific ideas for potential future solutions:

- **Socialize AIM with range cons and ranchers.** Right now, trust and confidence in the AIM protocol varies widely. Building a shared understanding of how the protocol works, best practices, and limitations would be helpful in supporting transparent decision-making. For example, range cons could invite permittees to collect data on their allotment as a way to familiarize them with the process and build trust.
- **Expand opportunities and strategies for third-party data collection.** This approach has the potential to expand the collection of high-quality data, support shared learning, and foster trust-building while also adding capacity (both time and funding) that agencies and producers may not have to conduct monitoring themselves. Third-party monitoring often requires additional funding -- grants and other funding sources (e.g., Sustainable Agriculture Research and Education [SARE]) could be looked to support this.
- **Create supporting environments for emerging technologies.** Pilot projects, cost share, and other incentives can help further refine our collective understanding of best practices for

these new technologies. Virtual fencing in particular would benefit from additional funding to support greater uptake.

# Agency Capacity and Culture

The lack of capacity within the BLM and USFS often stifles innovation and flexibility in public land grazing. Over the years, both agencies have faced significant budget cuts, hiring freezes, time-consuming and complicated hiring processes, staff shortages, and expanded responsibilities, all of which directly affect their ability to monitor the lands they manage, collaborate with producers and other stakeholders, and effectively implement adaptive management strategies. Agency staff must also balance diverse and wide-ranging responsibilities for public land management, including wildfire mitigation and response, an increase in outdoor recreation, and new policies such as the Public Lands Rule. These additional activities, initiatives, and mandates require staff capacity, time, and resources. When agency staff are overburdened with heavy workloads, they have less time to engage in creative problem-solving, research new approaches, or support permittees to implement innovative grazing approaches. The result is that many agency staff perpetuate the status quo.

## LACK OF LOCAL RANGE CONS

Historically, Range Conservationists (range cons) within BLM and USFS played an important role in working with producers to align their activities with the agencies' goals for public lands. However, many of the interviewees indicated that these ground-level positions sit vacant or experience high turnover. The people we interviewed had a list of potential explanations for this, including low pay compared to similar jobs in other sectors, unmanageable workloads, a dominance of paperwork rather than work in the field, lack of affordable housing, and low interest in living in more remote areas. Career advancement within agencies can also contribute to turnover as moving to higher-ranking positions often requires changing regions/districts. This can contribute to an absence of institutional knowledge within an office and fewer opportunities for mentorship and guidance from more seasoned staff. Furthermore, some interviewees noted that high rates of agency turnover impede innovation or flexibility by not allowing permittees and agency personnel the time required to build common knowledge and establish mutual goals.

## THREAT OF LAWSUITS

A recurring theme throughout the interviews was how the threat of lawsuits has had a chilling effect on flexibility and innovation in public land grazing. Producers and agency staff alike are often unwilling to incorporate new strategies into permit renewals due to the fear of litigation by environmental groups. Instead, many stakeholders expressed making decisions on whether they thought their actions would be "defensible" or "durable" rather than what they thought would be best for the land.

One interviewee mentioned that agency leadership, in particular, has concerns about the potential for a precedent-setting lawsuit that ties the agency's hands moving forward. Additionally, when BLM or USFS offices face multi-year lawsuits, priorities shift to supporting their defense and the rest of their responsibilities are placed on the back burner, creating a cascading impact of strain and stress for an already limited staff.

## AGENCY CULTURE

As mentioned above, due to a lack of capacity within BLM and USFS, staff often feel overworked. Many staff do not have the bandwidth or resources for the additional paperwork and relationship-building required to exercise innovation and flexibility. Additionally, interviewees spoke about a lack of incentives and rewards for agency staff who take risks or try new things. The agency career track does not incentivize staff to be innovative. Similarly, although it is possible to exercise flexibility within the current regulations, agency staff often do not feel supported by management in taking risks. This leads to what multiple interviewees referred to as a "can't do" attitude rather than a "can do" attitude within agencies. This aversion to risk-taking is compounded by the risk of litigation.

## WHAT IS CURRENTLY WORKING

- **Agency staff and producer field visits.** Several people shared examples of where a local federal agency staff member built trust and relationships with local producers through hosting field visits, having direct conversations, and other in-person activities that framed rangeland health objectives as shared problems to solve. One former BLM employee shared an example of making a personal visit to the permittee to discuss the goals associated with permit renewal when an allotment didn't meet a minimum health standard. This individual emphasized that they approached the conversation by emphasizing the goal was a "win-win solution" that would achieve both land health goals and work for the rancher.
- **Agency tools to support flexibility and outcome-based grazing.** The BLM is currently developing several tools to provide internal guidance on how staff can incorporate flexibility into existing grazing permits based on insights from the Outcome-based Grazing program pilots. Specifically, three activities are underway: 1) there is currently an internal site with resources and examples of flexibilities and monitoring plan examples; 2) there is an Instruction Memorandum Policy with updated internal guidance; and 3) an Instruction Bulletin is being drafted that will host training modules and other resources. These are not yet finalized, but when they are, the goal is to have the internal agency resources to incorporate some of the best practices from the Outcome-Based Grazing program into other geographies.

## POTENTIAL ADDITIONAL SOLUTIONS

Interviewees had a few additional suggestions for addressing agency capacity and culture:

- **Revisit job descriptions.** Some interviewees suggested working with the federal Office of Personnel Management to broaden the required education and credentials for some jobs (most notably, Range Cons) to diversify the degree and experience required to qualify. The current degree requirements favor candidates from land grant universities and require a degree in range management and/or plant, animal, and soil sciences. Some felt this could be expanded to other relevant sciences. Broadening qualifications could expand the pool of eligible employees to those that 1), possess non-traditional backgrounds or skills complementary to rangeland science, and 2) reside locally and are familiar with regional geography, resources, culture, and communities – an additional factor highlighted by interviewees as important to an agency staff member's success. Several people we interviewed emphasized approaching this with caution, however. Being a range con is a job

that requires a scientific background and the right qualifications and those shouldn't be watered down.

- **Agency toolkit for flexible grazing.** Interviewees suggested that it could be helpful to have a toolkit or guidance from within the agencies outlining opportunities for flexibility within the grazing permit process. While we learned that the BLM is already developing a toolkit to provide guidance to staff within their agency, this model could potentially be expanded to the USFS or be adapted for permittees. These toolkits could help local agency staff and/or permittees better understand what they can and can't do and how to set up the necessary accountability within existing regulations. Furthermore, toolkits could address some of the inconsistencies between regions where flexibility is or isn't offered and help ensure that permittees aren't experiencing discrepancies in processes at the district level.
- **Agency training.** Several interviewees emphasized the need for incoming range cons or other agency staff to receive training to help them understand the responsibilities of their new position and deliver the knowledge and skillsets they'll need to be successful. We learned about a partnership effort between the BLM and the University of Idaho to develop a "Range 101" course that involves teaching rangeland science as well as the practical skills (e.g., fixing fence or setting up a water tank) and social skills (e.g., how to talk to ranchers) needed to succeed in rangeland management positions. Upon completing the class, students are invited to participate in an ongoing peer-learning network to continue exchanging questions, learnings, and ideas. These educational models – and particularly the partnership approach to creating and delivering them – could be expanded to other educational institutions around the country. To support incoming staff, an agency employee also recommended agencies establish mentorship programs for experienced (and even retired) personnel to share their knowledge and support the next generation of range program staff.
- **Seasonal crews.** Some BLM regional offices have used seasonal monitoring crews for collecting annual AIM data and trend monitoring. One interviewee noted that this model is mutually beneficial for the agency and seasonal employees because it augments agency capacity and allows employees to come back over multiple years to gain experience.
- **Leadership.** Agency leadership support is important to supporting district/field management level range cons in approaching relationships with local producers with a spirit of shared problem-solving. Strategies to get buy-in from agency leadership could include field visits, trainings, or additional resources or tools to get greater buy-in and trust from staff further up the chain of command. Interviewees also emphasized that it would be beneficial if leadership positions had spent time as a range con so they could better understand the circumstances on the ground.

"I firmly believe that the private industry can provide much-needed capacity to the federal agencies to help create and support this work through drafting plans and assisting with cooperative monitoring, but this requires a field office to embrace contractor management." — Ranch Data Consultant

# Collaboration and Trust

Many of the examples referenced throughout this summary where enhanced flexibility is yielding improved rangeland health are the result of producers, agencies, and others working together – often over multiple years or even decades – to establish relationships and trust. In these cases, shared understanding, mutual respect, and a shared vision for rangeland health were often the foundation for ongoing innovation and adaptive management. Some of the interviewees who spoke to successfully exercising flexibility involved producers working proactively with federal land managers and third-party data collectors to identify shared priorities for land health, conduct shared monitoring, co-design grazing strategies, and work together to make decisions and adaptively manage the landscape. Strong relationships between range cons and lessees are potentially the greatest key indicator of whether or not flexibility is exercised successfully.

## THE ROLE OF LOCAL/REGIONAL COLLABORATIVES

A few interviewees included in this study also spoke to their participation in larger, more inclusive collaboratives as a key to their success. They also emphasized the importance of the authenticity of these approaches – that is, that they do not take the form of simply consultation, but rather meaningfully involve and incorporate input from all stakeholders. One rancher noted that it was only after years of conversations with an informal working group including the Natural Resources Conservation Service (NRCS), BLM, state agencies, as well as a third-party contractor for data monitoring, that they were finally able to pursue an outcomes-based grazing approach. This rancher also noted, however, that building these relationships has paid dividends in terms of land health improvements and has also opened the door for new partnerships with The Nature Conservancy and the World Wildlife Fund. These NGOs can be valuable allies in not only offering producers services akin to technical assistance but also sharing messages about the benefits of grazing and shaping public attitudes about ranching.

> "We built trust one permittee at a time. Listened to them, developed plans together. The goal was always win-win – improving the profitability and sustainability of their small business and the health of the land." —Retired BLM Employee

## STRENGTH IN NUMBERS

As mentioned in the Data and Technology section above, involving third-party data collectors as objective partners can be beneficial for enhancing accountability and building public trust. In one landscape, ranchers are utilizing third-party data collection services as a group. A rancher involved referred to this as a "strength in numbers" approach taken by them and the other ranchers within their region to collect and share data across their multiple allotments to alleviate the fear that any single rancher would face legal challenges alone.

## WHAT IS CURRENTLY WORKING

### Emerging Solution: Building Trust through Joint Fact Finding

A retired federal agency employee we interviewed spoke about a couple of practices they implemented on their district to enable stakeholder participation while conducting land health assessments. First, they worked with producers during the NEPA process to conduct a single watershed-wide Environmental Assessment (EA) spanning 40 allotments. Not only did this approach enhance efficiency, it united producers in the process. Prior to conducting the EA, the agency engaged producers in conducting data collection across all these allotments. The group then entered NEPA with data demonstrating that grazing practices were meeting landscape health standards. The office was sued by an environmental group five years in a row and won nearly every time. At one point, a representative of the litigant group participated with the assigned interdisciplinary team in the land health assessment effort, and after seeing the rigor with which the assessment was completed using long-term trend data remarked, “if everyone did this process like you, we wouldn’t need to be here.”

### Emerging Solution: Shoesole Resource Management Group

The Shoesole Resource Management Group in Northern Nevada is comprised of federal and state agencies, universities, community members, three ranches that lease surrounding BLM and USFS land, and, as one ranch participant described, “anyone who wants to help.” The group was established in 2000 to take a proactive, collaborative approach to public rangeland management. At the time, the group’s facilitator asked – and leadership within the BLM and USFS agreed – that a three-year grace period for experimentation and learning be allowed, an important component of adaptive grazing management. The group of approximately 30 individuals meets three times per year to design a grazing plan in the spring, conduct a field visit of the leased grounds in the summer, and evaluate outcomes in the fall. This model cultivates shared understanding, relationship and trust building, incorporates multiple perspectives in collaborative decision-making, and ultimately results in improved rangeland health. In addition, permits are more quickly approved by federal agency personnel – and, because they have a seat at the table -- less likely to be litigated by environmental groups.

The group has not gone without challenges, however. The local USFS district has experienced substantial turnover over the lifetime of the group and due to the threat of litigation, one incoming USFS District Ranger

**Emerging Solution: Shoesole Resource Management Group *(continued)***

recently opted to rescind the permit allowing for a holistic grazing management plan to be utilized. While the permittee is appealing this decision, they must operate under an older, more restrictive permit. As was described in the Agency Culture and Capacity section above, this scenario underscores the importance of participants – especially agency decision-makers -- having a collaborative, solutions-oriented mindset in order to make models like this work.

### POTENTIAL ADDITIONAL SOLUTIONS:

- **Share the success stories.** In addition to the Shoesole Resource Management Group, other efforts like the Southwest Montana Sagebrush Partnership's Flexible Grazing Pilot Project, the Range Monitoring Group in southcentral Montana, and the Three Creeks Grazing Project in northern Utah are piloting collaborative approaches to monitoring and adaptive management on public land leases and seeing improvements in rangeland health. The stories of these "bright spots" could be collected and shared with decision-makers within the BLM and USFS, including field- and office-level staff as well as state and regional directors to inspire greater support for collaboration.

## Policy Opportunities

### NEPA REFORM

Many of the interviewees specifically mentioned frustrations with the NEPA process, with a few suggesting reforming the law. However, interviewees also emphasized that NEPA is an important policy for preventing environmental harm and many were hesitant to advocate for wholesale reform. The most significant concerns with the current NEPA process cited by interviewees included the length of time caused by agency backlogs, a lack of tools for navigating straightforward infrastructure projects (e.g., water improvement projects), and delays related to implementing new technology (e.g., virtual fencing). One interviewee suggested that NEPA have mechanisms for streamlining innovative approaches and controlled risk-taking. Other people suggested that there could be opportunities to use modeling to streamline Endangered Species Act and State Historic Preservation Office consultations in places where these concerns are likely minimal.

### OUTCOME-BASED GRAZING AUTHORIZATIONS

BLM's Outcome-based Gazing Authorization Program appears to be a relatively successful program at exercising flexibility for the reasons cited above (namely, a foundation of strong relationships between agencies and permittees and a legacy of responsible land stewardship). In addition, discussions with interviewees underscore the importance of trusted data. A defining feature of the program is that it prioritizes monitoring and considers data a critical part of the decision-making process. Both producers

and agency staff involved in the pilots spoke about the value of additional monitoring. It gave them a common foundation for working towards shared objectives. Some producers, however, (both those that participated in the program and those that opted out) expressed concern about the amount of additional work required on their behalf to conduct the monitoring. This feedback that monitoring is both important and time-consuming underscores the opportunity for third-party data collection.

Furthermore, we queried interviewees about their perspectives on the recently introduced Operational Flexibility Grazing Management Program Act (S.4454), a bill that would support and reinforce the flexibilities within BLM grazing permits that were piloted in the Outcome-based Grazing Program. While most interviewees were not familiar with the proposed legislation, those that were expressed concern that it does not offer any significant changes — the proposed flexibilities already exist (e.g., the ability to extend the grazing period up to 14 days before or after the permit timeframe, and the ability to develop cooperative monitoring plans). Some also felt, though, that introduction of the legislation could heighten awareness and create momentum to encourage policymakers and BLM decisionmakers to support greater flexibility in more regions.

> "At the end of the day, it doesn't matter as much what the high-level policy is. What matters is the local offices having relationships with the ranchers to develop permits that work for them." – Ranch Data Consultant

### BLM'S PUBLIC LANDS RULE

Several interviewees brough up the BLM's recent Public Lands Rule, which was finalized in April 2024. The objective of the Public Lands Rule is to address ecological degradation of BLM-managed lands. It directs the BLM to manage for landscape health and provides a mitigation lease mechanism for restoration. We heard mixed responses to the new rule. Some producer groups are concerned about the new rule and its impact on public land grazing. A few people expressed frustration that it wasn't developed with enough input from producers who utilize public lands. Others were concerned that it reflects shifting priorities and additional responsibilities for an agency that is already under-resourced.

However, others saw it as an opportunity for nuanced improvements in the data collection, monitoring, and reporting of BLM landscape health. Some BLM staff feel that the restoration leases have protections for current leases but also establish a mechanism for partnerships that can ultimately improve land health.

## Attitudes Toward Ranching

Several interviewees spoke to the need for a new narrative that tells the stories of ranchers who are partners in managing public landscapes. Several people suggested a public messaging campaign could build public awareness and trust. Both ranchers and agency staff expressed the desire for grazing to be seen as a land management tool rather than resource extraction.

People also talked about the challenges facing the next generation of ranchers and potential generational shifts away from ranching. They wondered if telling some of the inspiring stories of next-generation or innovative ranches would motivate young people to pursue this career.

Interviewees shared a few recent videos that focus on innovation and rangeland health: For example, the ACES Rock Bottom Ranch, Life in the Land video series, Intermountain West Joint Venture video series, Profiles in Land and Management, and the short film, "Against the Herd," are among the initiatives that help elevate stories of producers working in partnership to improve land and resource health. In these examples, it is often important who is telling the story—non-profits and other multi-stakeholder organizations lend credibility and objectivity to these stories and can reach conservation-focused audiences.

## Rancher Risk Aversion

Innovation often requires risk-taking. The current context (low trust, threat of litigation, narrow profit margins) can make taking risks or experimenting unrealistic for many producers. This makes the transition to new technologies or management techniques particularly challenging. One interviewee emphasized that most ranchers get 40 chances — that is, they get 40 seasons to try new approaches, learn from those, and adjust their approach in the next season accordingly. While adaptive management is happening on public lands in isolated examples, the current lack of agency capacity and high litigation environment make it hard to achieve at scale. For example, one rancher shared his experience of implementing intensive rotational grazing on public land with the primary goals of reducing cheat grass and increasing soil health. They implemented extensive land health monitoring and found the project had great ecological outcomes. However, his cows didn't gain weight. The producer is enthusiastic about continuing to experiment and seeking solutions that work for land health and his operation, but not all ranchers can tweak variables year after year. Interviewees also shared a reluctance to try new approaches because of the potential additional scrutiny from either litigation-focused environmental groups or agency staff. Several producers expressed a concern that making changes, even ones they were confident would be ecologically beneficial, made them vulnerable to additional oversight.

# SYNTHESIS AND RECOMMENDATIONS

Below are our takeaways of the most significant insights and opportunities from the interviews:

- **Greater public land grazing flexibility with accountability can support both ranch and rangeland resilience.** Administrative barriers, threat of lawsuits, and narrow profit margins have stifled innovation, limited implementation of regenerative practices, and made it hard for agencies and permittees alike to adjust to conditions like drought and wildfire. Enhancing adaptive management in public lands grazing can support both ecological recovery and ranch sustainability.
- **Agencies have a good amount of flexibility within current policies.** The factors that limit exercising this flexibility are the lack of data, the cost of monitoring, agency capacity and culture, the threat of litigation, and distrust between agency and permittees. Policy reform of solutions might be helpful, but more significant opportunities might come from other strategies.
- **Strengthening data and monitoring can support flexibility with accountability.** Across a wide range of stakeholder groups, we heard about opportunities for additional monitoring, coordination and utilization of existing data, and expansion of cooperative monitoring as tools for building trust, aligning outcomes, and enhancing accountability. Increased data collection also has the potential to support payment for ecosystem services or other incentives that could reward producers whose stewardship activities might not otherwise be economically feasible.

The Meridian Institute team has reflected on what we've heard through the interviews and has considered strategies to enhance public land grazing flexibility with the accountability needed to build trust. (locally, regionally, and nationally). Additionally, it merits noting that many of the emerging solutions outlined throughout this document are the result of local or regional relationships, trust, and ingenuity, not federal policy action. The ideas presented below are those that we believe are durable in the next administration, lay a foundation for longer-term change, or do not directly require near-term federal action. While some may be useful in the near term, others are dependent on agency capacity and might shift based on the incoming presidential administration's priorities and agency appointments.

Based on these considerations and the insights presented above, our recommendations include:

### Near-term Opportunities:

- **Data and monitoring workshop.** A multistakeholder workshop could support further idea exchange and potential recommendations for how to strengthen data collection and utilization. It could explore specific topics that came up in the interviews, such as utilization of third-party data collection, cooperative monitoring agreements, improving (and

potentially aligning) agency data collection protocols, incorporating additional data sources and existing information, and other topics.

- **Stories of monitoring partnerships.** Highlight examples of geographies where data monitoring is happening across public and private ownerships, including through the Outcomes-based Grazing Authorizations pilot program and otherwise. These stories could highlight the enabling factors leading to the partnership's success as a means of offering inspiration and guidance for other efforts to form. We are aware of existing efforts to do this. These efforts could be coordinated and aligned to enhance consistency in messaging, center producer voices from rural states in the storytelling, highlight the importance of data collection and partnerships, and strategize on ways to get these stories in front of priority audiences (e.g., range cons and public lands grazing policymakers).
- **Funding mechanisms for monitoring.** Hiring third-party consultants to conduct monitoring is expensive and can be cost-prohibitive to some permittees. Creating new sources of funding to support monitoring that require recipients to demonstrate enhanced ecological outcomes (with potentially some risk allowance as new practices are implemented) could support more sustainable livestock grazing practices and enhance public rangeland health. Funding programs could be both private (akin to PERC's Virtual Fence Conservation Fund) and public (e.g., a new NRCS cost-share program funded through the Farm Bill).
- **Grazing on public lands campaign.** Deliver an outreach campaign targeted at public lands users (e.g., the recreation community) that clarifies and demystifies how public lands are utilized for livestock grazing, including describing who public lands permittees are; how permits are designed, allocated, and renewed; and how monitoring is conducted to ensure land health standards are met. Methods could include signage in areas where public lands grazing and recreation interface.

### Mid-term Opportunities:

The following opportunities are more dependent on federal agency engagement or leadership and may be more impactful once the incoming presidential administration's priorities are clarified and agency appointments made.

- **Resource and information toolkit.** Compile a list of examples and resources for leveraging current flexibility. It would be important to consider the audience (e.g., agency or producers) and who is best positioned to communicate with that audience.
- **Federal agency mentorship program.** Establish regional mentorship programs where experienced (and particularly retired) rangeland personnel can share their knowledge with and support the next generation of range program staff.
- **Opportunities related to policy.** There may be opportunities related to federal policy, including NEPA reform, the Operational Flexibility Grazing Management Program Act, federal hiring processes, or other activities. There may be opportunities for multi-stakeholder bipartisan efforts to ensure policies are durable and balanced.
- **Opportunities related to agency capacity.** It is unclear how the new administration's emphasis on government efficiency will play out for public land management agencies and particularly the gaps in range cons and other field-level positions. With the potential for changes in personnel or funding for government agencies, there may be an opportunity to build support across groups for on-the-ground positions that work directly with producers.

# Appendix A: Interview Questions

1. Could you tell us about your experience with and connection to livestock grazing on public lands?
2. Do you think there is a need for greater innovation and flexibility in public lands grazing? Why or why not?
3. What are the most significant opportunities to support innovation in public land grazing?
4. Why do you think the flexibility available in existing regulation is not used to the degree it might be? What could be done to unlock or increase use of flexibility that is already available?
5. Are there opportunities to enhance ecological monitoring and data collection that could strengthen accountability and public confidence?
6. Are there any new technologies that you think can enhance grazing innovation on public lands? What are the barriers to their utilization or adoption?
7. (*Specific to those involved in or familiar with the BLM's Outcomes-Based Grazing Pilot Program*) What have you learned from those projects? Are there outstanding questions or concerns?

# Appendix B: Interviewee List

**Andrew Anderson**
J Bar L Ranch

**Drew Bennet**
University of Wyoming

**Rachel Burke**
Bat Conservation International

**William Burnidge**
The Nature Conservancy

**RC Carter**
Carter Country Meats

**Adam Dixon**
World Wildlife Fund

**Kathryn Dyer**
Bureau of Land Management

**Pat Fosse**
Bureau of Land Management (Retired)

**Steven Gibson**
U.S. Forest Service

**Kaitlynn Glover**
National Cattlemen's Beef Association, Public Lands Council

**Todd Graham**
Ranch Advisory Partners

**Jon Griggs**
Maggie Creek Ranch

**Maggie Hanna**
Central Grasslands Roadmap Initiative

**Kris Hulvey**
Working Lands Conservation

**Gilbert Jackson**
U.S. Forest Service

**Bryce Jones**
Consultant

**Jesse Juen**
Bureau of Land Management (Retired)

**Karen Launchbaugh**
Professor and Director, University of Idaho Rangeland Center

**Aaron Lien**
University of Arizona

**Katlyn Mendive**
Resource Concepts, Inc., and ROGER Coordinator

**Wendy Millet**
TomKat Ranch

**Bill Milton**
Milton Ranch

**Toner Mitchell**
Trout Unlimited

**Andrew Olsen**
Intermountain West Joint Venture

**Josh Osher**
Western Watersheds Project

**Bre Owens**
National Grazing Lands Coalition

**Taylor Payne**
Utah Dept of Agriculture

**Matt Preston**
Bureau of Land Management

**Reyer Rens**
Bureau of Land Management

**Agee Smith**
Cottonwood Ranch

**Jared Talley**
Boise State University

**Laura Van Riper**
Bureau of Land Management

**Kevin Alexander Watt**
TomKat Ranch Educational Foundation

**Jenny Watts**
Woodwell Climate Research Center

**Mellissa Wood**
Wildlands Consulting