

VIEW Points

The Quandary Over Short-Term Indicators

The dilemma between administrative performance for grazing permits and management tools for effective rangeland management

By C. Rex Cleary, Sheila Anderson, Don Henderson, and John McLain

Declining budgets leave public land management agencies seeking administrative efficiency. However, administrative solutions that do not heed sound science and lack awareness of natural resource conditions are doomed to continual frustration and continuing litigation.

Many agency administrators have adopted short-term indicators as the solution to their need for administrative efficiency and cost containment. A case in point is land management agencies' use of short-term management indicators, e.g., utilization and stubble height, as decisive standards of acceptable performance in meeting the conditions of a grazing permit.

Limitations of Short-Term Indicators

Utilization estimates and stubble height measurements are short-term management indicators because they express the relationship between forage growth and consumption within a single growing season.ⁱ Utilization guidelines may be used with other information to make short-term management adjustments, but they are poor administrative objectives and are inappropriate as performance standards.¹⁻⁷ With this body of evidence, it is difficult to understand why short-term indicators are still being used by themselves to judge grazing performance.

Scientists have reported for years on the limitations of short-term indicators.⁸⁻¹⁰ The originators of the utilization and stubble height monitoring methods never intended them to be used in isolation from other data, or as the sole basis for permit regulation. They were designed to yield approximations of use levels at relatively low cost. They were intended for use with other monitoring information to

serve as a guide for managing grazing systems to accomplish ecological objectives.⁷

Grazing permit terms and conditions embody performance standards. The terms and conditions are legally binding on the permittees. Failure to comply with these provisions constitutes a permit violation that subjects the permittee to penal action including permit reduction or cancellation. Grazing permit administration based upon short-term indicators as performance standards provides no direct measure and little insight into how livestock grazing is actually affecting the vegetative resources. Reliance on utilization standards alone to make grazing decisions is not using the best science to manage rangelands.¹¹

Using short-term indicators in permit terms and conditions effectively negates the advantages of adaptive management. The range manager is denied the process through which the inevitable uncertainty regarding the response of natural resources to specific management can be dealt with in a collaborative manner.^{1,12}

Use limits (either utilization or stubble height) are only one of several grazing management tools available to the land manager. Ironically, while use limits may currently be popular, they are likely the least effective management tool. Proper season of use and rest are far more effective for dealing with most grazing problems than are use limits.⁷ Research in Utah found no significant correlation between yearly utilization and changes in long-term trend, regardless of the number of years of utilization data used. A summarization of data indicates that *when* plants were used was more important than *how much* was used.¹³

As pointed out in the Nevada Rangeland Monitoring Handbook, 2nd ed.,ⁱⁱ the assessment of both utilization and

ⁱ Long-term indicators are expressions of ecological characteristics such as frequency, cover, vegetation composition, stream width (greenline-to-greenline), bank stability, and woody species regeneration. The long-term indicators are used to determine ecological trends over time.

ⁱⁱ The Nevada Rangeland Monitoring Handbook, 2nd ed. was recently completed and approved by the leaders of 12 agencies and organizations in Nevada, including the Bureau of Land Management and Forest Service.

stubble height is to determine if grazing-use left resources in an appropriate condition for moving toward objectives. Generally, end-of-season indicators cannot by themselves determine whether a particular grazing system is contributing to recovery, or conversely, contributing to degradation. This is especially true of a single year's values.¹⁴

Forage utilization indicators must not only measure and evaluate whether the allowable numeric performance standard was met, but also whether the standard itself is correct.¹⁴ When the value is embodied in the permit it is fixed and not subject to evaluation. If it turns out that the "specific number" isn't producing the expected results, i.e., not leading to an upward trend in resource condition, then the permit will have to be amended to change the terms and conditions and the amendment requires reanalysis under the National Environmental Policy Act.

Utilization methodology lacks sufficient precision to be the basis for decision-making.¹⁵ Departures between independent observers could range as high as 15%.⁵ If the grazing permit condition included a 40% utilization standard, for example, and the utilization estimate indicated 41% use, the permittee would technically be in violation and the permit would be in jeopardy. Thus, we suggest the imprecision of the methodology is inconsistent with the precision level of the enforcement, which is therefore arbitrary and capricious. Further, the inappropriate use of utilization estimates or stubble height measurements as performance standards results in agency orders that constitute a de facto permit reduction without benefit of due process.

There are certainly important uses for short-term indicators. Utilization estimates and stubble height measurements can be used as valuable indicators of grazing effects upon the true resource objective.³ "Within-season" indicators are designed as guides for livestock managers to make adjustments or move livestock during the grazing season to help meet "end-of-season" indicators.

Administrative Challenges and Responses

Both the Bureau of Land Management (BLM) and Forest Service (FS) have a dilemma with the administration of grazing permits caused by the wide range in approaches on how to use short-term indicators. The variation represents basic ideological and philosophical differences in the agencies. The two camps are identified here as "Conventional Wisdom" (business as usual) and "Prevailing Science."

Conventional Wisdom contends that removing short-term indicators from the performance standards would wreak havoc with grazing permit administration because grazing administration is primarily a matter of effectively controlling the amount of forage that can be consumed. When forage use limits are written into land use plans and grazing permits as performance standards and enforced, the perception is that good management has been achieved. With those steps accomplished, grazing administration is seen as relatively simple. The performance standards are

anointed with the power of law. There is no recourse. Failure to comply puts the permit in jeopardy. It does not rely on the science needed to interpret the long-term trends and changes in rangeland plant communities.

On the other hand, Prevailing Science asserts that the short-term indicators were not designed nor intended for use as performance standards, and that they are seriously flawed for such use. It implores that such use be stopped. It provides guidance on how short-term indicators can be used productively and asserts that management should be based on long-term indicators of desired ecological characteristics.^{1-3,16-18}

The contrast is vivid. Conventional Wisdom employs the "one size fits all" cookbook approach that provides step-by-step instructions with a minimal need for independent thinking. It applies a classic draconian model and ignores prevailing science. Prevailing Science uses ecology and management as its foundation and promotes means that focus on desired ecological outcomes by managing trend.

In response to the challenges, Idaho BLM State Director K. Lynn Bennett and US FS Intermountain Regional Forester Jack G. Troyer jointly commissioned the University of Idaho³ to conduct a study of the use of stubble height standards. The University of Idaho found that the agencies were inappropriately using stubble height as a performance standard in grazing permit terms and conditions and land use plans. Bennett and Troyer then created an interagency team to devise the most effective strategy and procedures to implement the report. Accountability was a fundamental element of that study.¹⁹ Bennett and Troyer accepted the interagency team report in 2005 and issued implementation instructions to their field offices. They established that annual indicators, including stubble height, were not to be used as a term and condition on permits and issued the following guidance^{16,17}:

- 1) If stubble height is measured and used properly, it can be used as a guideline or indicator for evaluating and/or changing annual management in the *Annual Operating Instructions*.
- 2) It is inappropriate to use stubble height numeric values as the sole means to manage toward achieving the long-term objectives. When analyzed with other short-term indicators such as stream bank disturbance and woody stem use, stubble height can be used to identify progress toward achieving long-term riparian management goals.
- 3) Stubble height can be used as a prompt to investigate and assess the resource condition and implement appropriate changes in annual management.

To establish accountability and transparency, they created a "Decision Tree," designed for interpreting short-term indicators to achieve long-term objectives.^{1,12,16,17} Idaho BLM now includes terms and conditions in new grazing permits that state that grazing will be conducted in accordance with *Annual Operating Instructions* (or the equivalent). The instructions address within-season and end-of-season indicators.¹

Similar findings regarding utilization monitoring by Smith et al.² led FS Region 3 Regional Forester, Harv Forsgren, to issue an instruction memorandum to implement these findings. With this action, the Southwest Region took an important step in the right direction to make prudent and proper use of short-term indicators and stop the misuse.¹⁸

Summary

The plea of many scientists, that short and long-term monitoring of ecological objectives is a prudent and sound approach to *grazing management—not administration*, falls on deaf ears. So, rangeland scientists and administrators have been talking by each other without hearing for decades.

The administrative dilemma is complex and is further complicated by budget shortfalls. The alternative administrative approaches for both the BLM and FS have been developed and peer-reviewed by a broad array of range scientists. The process for implementing the recommendations and procedures of the University of Idaho³ and Smith et al.² has been successfully demonstrated. Both agencies should adopt and implement both reports agency-wide. These actions, along with the current emphasis on cooperative monitoring plans and adaptive management, would improve the agencies' science-based management, elevate credibility, and greatly reduce their vulnerability to litigation.

References

1. STUBBLE HEIGHT REVIEW TEAM. 2006. Using stubble height to monitor riparian vegetation. *Rangelands* 28(1):23–28.
2. SMITH, L., G. RUYLE, J. MAYNARD, S. BARKER, W. MEYER, D. STEWART, B. COULLONDON, S. WILLIAMS, AND J. DYESS. 2005. Principles of obtaining and interpreting utilization data on southwest rangelands. Tucson, AZ, USA: University of Arizona Cooperative Extension. 11 p.
3. UNIVERSITY OF IDAHO STUBBLE HEIGHT REVIEW TEAM. 2004. University of Idaho stubble height study report. Moscow, ID, USA: University of Idaho Forest, Wildlife & Range Experiment Station Contribution No. 986. 26 p.
4. CLARY, W. P., AND W. C. LEININGER. 2000. Stubble height as a tool for management of riparian areas. *Journal of Range Management* 53:562–573.
5. LAYCOCK, W. A. 1998. Variation in utilization estimates caused by differences among methods, years, and observers. Corvallis, OR, USA: Oregon State University Agricultural Experiment Station Bulletin 682. 72 p.
6. SANDERS, K. D. 1998. Utilization standards: the quandary revisited. Corvallis, OR, USA: Oregon State University Agricultural Experiment Station Bulletin 682. 72 p.
7. BURKHARDT, J. W. 1997. Grazing utilization limits: an ineffective management tool. *Rangelands* 19(3):8–9.
8. STODDARD, L. A., A. D. SMITH, AND T. W. BOX. 1975. Range management. 3rd ed. New York, NY, USA: McGraw-Hill, Inc. 532 p.
9. COOK, C. W. AND L. A. STODDARD. 1953. The quandary of utilization and preference. *Journal of Range Management* 6:329–336.
10. HEADY, H. F. 1949. Methods of determining utilization of range forage. *Journal of Range Management* 2:53–63.
11. SHARP, L., K. SANDERS, AND N. RIMBEY. 1994. Management decisions based on utilization—is it really management? *Rangelands* 16:256–259.
12. WILLIAMS, B. K., R. C. SZARO, AND C. D. SHAPIRO. 2007. Adaptive management: US Department of the Interior Technical Guide. Washington, DC, USA: Adaptive Management Working Group, US Department of the Interior. 68 p.
13. RASMUSSEN, G. A. 1998. Interpretation of utilization and long-term frequency measurements for rangeland management. Corvallis, OR, USA: Oregon State University Agricultural Experiment Station Bulletin 682. 72 p.
14. SWANSON, S., B. BRUCE, R. CLEARY, B. DRAGT, G. BRACKLEY, G. FULTS, J. LINEBAUGH, G. MCCUIN, V. METSCHER, B. PERRYMAN, P. TUELLER, D. WEAVER, AND D. WILSON. 2006. Nevada rangeland monitoring handbook. 2nd ed. Reno, NV, USA: University of Nevada Cooperative Extension Educational Bulletin 06-03 & 06-04. 101 p.
15. SMITH, E. L. 1998. Seasonal effects on the measurement and interpretation of utilization. Corvallis, OR, USA: Oregon State University Agricultural Experiment Station Bulletin 682. 72 p.
16. BUREAU OF LAND MANAGEMENT. 2005. Implementation of the University of Idaho's Stubble Height Review Team recommendations and upcoming training. From K. Lynn Bennett to District Managers. Boise, ID, USA: Bureau of Land Management EMS Instruction Memorandum No. ID-2005-074. 3 p.
17. USDA FOREST SERVICE. 2005a. Implementation of the University of Idaho's Stubble Height Review Team recommendations and upcoming training. File Code: From Jack Troyer to Region 4 Forest Supervisors. Ogden, UT, USA: USDA Forest Service. 2 p.
18. USDA FOREST SERVICE. 2005b. Implementation of the principles of obtaining and interpreting utilization data on southwest rangelands. File Code: 2210. From Harv Forsgren to Region 3 Forest Supervisors. Albuquerque, NM, USA: USDA Forest Service. 2 p.
19. BUREAU OF LAND MANAGEMENT. 2004. Stubble height study update. From K. Lynn Bennett to Idaho Leadership Team. Boise, ID, USA: Bureau of Land Management EMS Information Bulletin No. ID-2005-018. 2 p.

Authors are Senior Resource Specialists (Cleary, Anderson, and Henderson), and Principal Resource Specialist (McLain), Resource Concepts, Inc., Carson City, NV 89703, USA, rexalc@msn.com.

Editor's Note: United States Forest Service and Bureau of Land Management officials were invited to respond to this article. Forest Service officials did not respond. Bureau of Land Management officials provided the following statement: "The BLM Washington Office Rangeland Resources Division is aware of the issue with appropriate and inappropriate uses of utilization and stubble height measurements. We are not in a position to respond in any depth to this article since BLM is currently drafting national policy on this subject."