

Grazing System Identification

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Abstract

Grazing system terminology is a problem in the range management field. The proposed dichotomous key standardizes terminology and facilitates communication.

Grazing systems have been clearly defined as the manipulation of animals to accomplish a desired result (Range Term Glossary Committee 1964, and Soil Conservation Society 1976). Unfortunately, "grazing system" terminology has not been consistently defined. The "confusing terminology" (Shiflet and Heady 1971) disrupts communication between rangers in the field.

The purpose of this paper is to stress the need for standardizing grazing system terminology and to present an approach which can be used to consistently classify grazing systems.

Problems

The problems created by including many range management practices in grazing system terminology are evident when grazing literature is reviewed (Hickey 1969). In the early 1900's, deferred grazing was defined as "grazing after seed maturity" (Jardine and Anderson), but Dyksterhuis (1949) modified the definition to the "practice of taking all the livestock out of one pasture for certain months." However, Shiflet and Heady (1971) concluded that deferred rotation grazing is discontinuing grazing on various parts of a range in succeeding years. Then, the Range Term Glossary Committee (1974) felt they had developed a precise meaning when they wrote "deferred-rotation is any grazing system having a stocking density greater than one and less than two which provides for a systematic rotation of the deferment among pastures."

With the above definitions, it is not surprising that there are inconsistencies among authors. For example, Schmutz's (1973) 3-pasture deferred-rotation alternately rests or "defers" grazing on the pasture during critical growing periods. Each pasture is grazed 4 months of the year. Schmutz's system is patterned after Martin's (1973) 3-pasture system. Both utilize one herd; however, Martin's provides 12 months, instead of 16 months of nonuse. Merrill's (1954) deferred rotation system differs. It utilizes three herds, and each pasture is grazed 12 months, then rested 4 months.

In the early 1900's, the life cycle of forage plants was tied to grazing management (Sampson 1913). These principles were formulated into the rest-rotation grazing system by Hormay and associates (Hormay and Evanko 1958; and Hormay and Talbot 1961). Rest-rotation is a grazing system in which at least one range unit is left ungrazed for 1 year, and then this rest is rotated among units in succeeding years (Range Term Glossary Committee 1964, Soil Conservation Society 1976; and Gifford and Hawkins 1976).

Rest-rotation systems have been extended to areas where they do not apply. Land management agencies are implementing rest-rotation grazing systems in regions with yearlong grazing seasons, although Hormay and associates (Hormay and Evanko 1958; and Hormay and Talbot 1961) designed the system for bunch grass ranges with a 3- to 6-month grazing season. This has created a terminology problem. Depending on locale, rest-rotation grazing may imply growing season or yearlong nonuse.

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Some authors have used the rest-rotation terminology to describe different systems. Gibbens and Fisser (1975) discussed results of a system where some pastures were not used from May through October, but were winter-grazed by sheep. Their system was termed a rest-rotation system; however, it did not include a period of yearlong nonuse. The rest-rotation system described by Edwards (1972) contained yearlong nonuse. It also contained a management technique which separates it from other rest-rotation systems. Rather than systematically rotating rest among pastures, rest was scheduled on the basis of need. Pastures in poor condition received more rest than did the pastures that were in higher condition classes.

Proposed Solution

This paper is not intended to "correct" anyone. Each of the authors cited fully understands his system. However, the above review does illustrate the need for a certain degree of standardization in grazing system terminology. The standardization would minimize misunderstanding and facilitate communication. We feel that a dichotomous key¹ can be used to consistently classify grazing systems. For example, when use and nonuse periods in Schmutz's (1973) deferred-rotation grazing system are analyzed, the 16-month periods of nonuse become evident (Fig. 1).

Thus, according to the key, (Table 1), the system is identified as a rest-rotation grazing system.

¹ This concept came from James K. Lewis, South Dakota State University.

Table 1. Dichotomous key for classifying grazing systems.

1. Grazing a unit ¹ for an entire year	
2. No rotation among pastures	yearlong
2. One or more pastures rested yearlong	
3. Scheduled, systematic rotation	rest-rotation
3. Flexible selection of pasture to rest	selected-rotation
2. One or more pastures rested less than yearlong	
3. All pastures grazed once or twice per year	
4. Scheduled grazing	
5. Systematic rotation during growing season	deferred-rotation
5. Systematic rotation during non-growing season	rotational-deferment
4. Flexible rotation without regard to season	intermittent-rotation
3. All pastures grazed 3 or more times per year	short duration-rotation
1. Grazing a unit less than a full year	
2. No rotation among pastures	continuous-seasonal
2. One or more pastures rested seasonlong	
3. Scheduled, systematic rotation	rest-seasonal
3. Flexible selection on unit to rest	selected-seasonal
2. One or more pastures rested less than seasonlong	
3. All pastures grazed once or twice per season	
4. Scheduled grazing	
5. Systematic rotation during growing season	deferred-seasonal
5. Systematic rotation during nongrowing season	rotational-seasonal
4. Flexible rotation	intermittent-season
3. All pastures grazed more than twice per season	short duration-seasonal

¹ An entire ranch or grazing allotment.

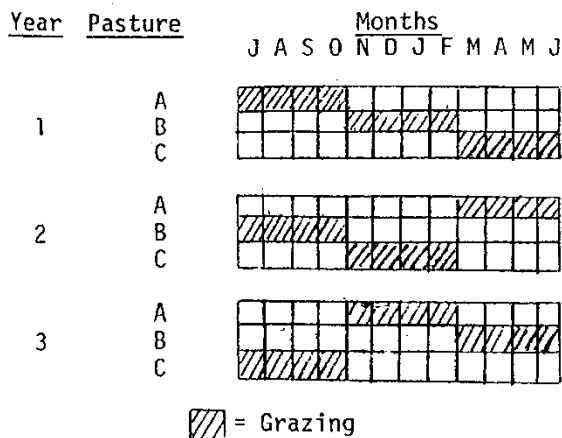


Fig. 1. Grazing scheme outlined by Schmutz (1973.)

It is interesting to classify other grazing systems that are described in literature. The "rest-rotation" system described by Gibbens and Fisser (1975) becomes a deferred-rotation. The system described by Edwards (1972) becomes a selected-rotation. The best-pasture system advocated in the Southwest (Herbel and Nelson 1969) is identified as an intermittent-rotation. When Merrill's (1954) "deferred-rotation" system is classified in the key, it remains identified as a deferred-rotation.

A fine distinction separates deferred-rotation grazing from rotational deferment systems in the key. A grazing system is classified as a deferred rotation if livestock are rotated into a fresh pasture during the major growing season. If livestock are rotated during the nongrowing season, the system is classified as a rotational-deferment.

Conclusion

In summary, dichotomous keys can be used to consistently classify grazing systems. Keys may be designed to apply to large geographical areas, such as the Southwest, or modified to fit the specific needs of an area. Yet, if more keys are developed for localized

situations, the confusion will probably be perpetuated. Thus a universal key is needed if the multiplicity of terms and confused terminology are to ultimately disappear. This would be accomplished with the proposed key.

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