

Letter to the Editor

By Lamar Smith

Dear Editor:

The August 2010 issue of *Rangelands* contains an article by Daniel W. Uresk entitled “Cattle Weights on USDA Forest Service Lands by State With Cow and Calf Forage Consumption.” This article indicates that cattle weights have increased in states where the Forest Service permits grazing, and that, consequently, the forage consumption per animal has also increased. It was suggested that the definition of an animal unit month (AUM) may therefore need to be revised. I do not agree with Dr Uresk’s conclusions for several reasons.

While I would not dispute the statement that average cow size has increased over the past 20–30 years, some of the figures shown appear suspect (Table 1). For example, the average weight for Arizona is listed at 1,377 pounds—the highest of any state reported. In my experience, that is a very high figure for *range* cows in Arizona. The variation in weights among other states is also hard to understand.

The Society for Range Management (SRM) defines an animal unit as “one mature cow of about 1,000 pounds (450 kg), either dry or with calf up to 6 months of age, or their equivalent, consuming about 26 pounds (12 kg) of forage on an oven-dry basis. Abbr. AU, cf. animal-unit-equivalent.”¹ An AUM is the amount of forage consumed by an animal unit in one month. There is no reason to change those definitions because the average size of cows exceeds 1,000 pounds. For example, bulls and horses have always been considered more than 1 animal unit, and young cattle, sheep, goats, deer, and other animals have been considered less than one animal unit in terms of forage consumption. The conversions are usually based on metabolic body weight rather than actual body weight. So, if cow sizes have increased it only means that the average cow is more than 1 animal unit. There is no reason to change the definition of animal unit or animal unit month.

The forage requirement for an animal unit varies considerably based on environmental conditions and diet (as Dr Uresk pointed out). SRM has used the figure of 26 pounds per day as an average intake for an animal unit of 1000 pounds. Dr Uresk used a figure of 20.3 pounds for a cow and 9.7 pounds for the calf to get a total of 30 pounds per day. These figures are not unreasonable, but it must be acknowledged that consumption rates under range

conditions are not widely documented, and those reported range from about 10 pounds to more than 30 pounds per day for an AU. Consumption is highly influenced by digestibility of the forage and other factors.

The first sentence of Dr Uresk’s article is “Forage consumption of cows and calves is used to establish stocking rates for grazing public lands.” That is the crux of the problem. The “haystack” approach to estimating stocking rates (i.e., trying to estimate total forage production and divide by an AUM forage requirement) is not a reliable way to establish stocking rates and has limited value except where no other information is available. The “stock and monitor” approach is preferred because it eliminates the need to make assumptions about forage consumption and other variables. Using the stock-and-monitor approach, the size of the cattle is irrelevant because the stocking rate is adjusted based on observed impacts on soils and vegetation (trend and utilization). The number of AUMs is then only a bookkeeping device used to record actual use and grazing fees or for planning purposes. SRM has a position statement that reads as follows:

The processes on rangelands are dynamic thus making it impossible to directly measure grazing capacity for herbivores. Carrying capacity is dependent on the characteristics of the range resource, management intensity, management objectives and related variables. In the absence of other information, rangeland inventories done at one point in time can be used to provide general estimates of present or potential grazing capacity of management units. Such estimates are based on many attributes including topography, ecological sites, present vegetation, water distribution and other measurable factors. These estimates should be combined with animal intake, diet preference, animal distribution and other similar attributes to evaluate grazing capacity. Carrying capacity estimates based upon one-point-in-time rangeland inventories do not produce results of sufficient accuracy to be the sole basis for adjusting time of grazing or stocking rates on specific grazing units. Carrying capacity should instead be based on impacts of historical and current stocking rates, grazing management, and weather. Adjustments in carrying capacity should be made

through monitoring over time to ensure progress toward desired resource conditions.” (bold emphasis added)²

There is no need to alter the basic concept of animal units or AUMs, which has been long accepted. To do so will lead to confusion and uncertainty when such terms are used in publications, ranch plans, or other documents. The reason SRM first adopted a definition was to avoid confusion. If average cattle size on a public land range has increased, the animal unit equivalent (based on local actual weights) can simply be adjusted to reflect that an average cow is more than 1 animal unit—or in some cases perhaps less than 1.

Dr Uresk's Response

By Daniel W. Uresk

My response to comments by Lamar Smith on my article published in the August 2010 issue of *Rangelands*, “Cattle Weights on USDA Forest Service Lands by State With Cow and Calf Forage Consumption,” are as follows:

Current cattle weights from 30 states with USDA-Forest Service managed lands have, for most states, increased since 1980.^{1,2} Dr Smith referred to Table 1 entries as suspect. However, he presented no supportive data or citations to refute the data in Table 1. I leave it to *Rangelands* readers to decide which source is more authoritative.

Models based on dry matter forage consumption with cow and calf weights were developed from data cited in the article by D.C. Church, the National Research Council, and Oregon State University. These models, though linear for ease of use, account for metabolic weights and other variables when determining dry matter consumption for both cows and calves.

Dr Smith refers to adjusting for larger cow and calf weights as a “haystack approach” with limited value. I agree with Dr Smith in preferring the “stock and monitor” approach—if effective monitoring actually occurs. In my experience, it does not always occur—for reasons good and bad.³⁻⁷ My paper addresses only the “stock” part of “stock and monitor” and is meant to encourage range managers to account for current cattle weights in establishing initial stocking rates and adjustments of current stocking. It is essential to adjust up front for larger cows and calves to reduce overgrazing. If monitoring does occur, then only small adjustments in stocking should be required; if it does not, then the likelihood of overgrazing will be reduced.

In summary, increased cattle and calf weights is a serious, not a trifling, issue when it comes to maintaining range quality. Accommodating increasing cattle weights was first recommended in *Rangelands* by R.T. Hinnant in 1994.⁸ Hopefully, I have made it easier for range managers to adopt

References

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his advice. It is clear that some adjustment for heavier range cattle is required.

References

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