

# MANAGEMENT AND UTILIZATION OF RANGE IN FLORIDA

**Robert S. Kalmbacher**

Agricultural Research and Education Center  
University of Florida, Ona

## INTRODUCTION

Fifty years ago when the Range Cattle Station was started at Ona, cattle relied on range for almost all their forage. Range was managed by burning and grazing with little thought toward sustaining the yield of some of the potentially higher yielding grasses (such as the bluestems and indian grass that I'll refer to as the tall grasses) and little regard was given to pine tree regeneration or wildlife. Cattlemen knew burned grass improved cattle production, and on open range cattle controlled themselves by moving from burn to burn. This cut-over pine land was land of little current worth, and if you could make a few dollars from cattle to pay the taxes plus a little extra - so much the better. Then and now, in order to maintain ownership, this land had to generate revenue.

Research in the 1940's and 1950's at Ona (Jones et al., 1960), at the Caloosa Experimental Range near Ft. Myers (Hughes, 1974) and at the Alapaha Experimental Range near Tifton, GA (Lewis and McCormick, 1971) showed that further improvement in cattle production could be obtained when flatwoods range was combined with pasture. Providing pasture, usually bahiagrass, in spring and summer helped stop the weight loss cows experienced on range and allowed them to rebreed. Instead of a 50% calf-crop, crops of 75% and better were possible. Summer pasture helped provide nutrients needed for milk production, hence larger calves. Economic analyses indicated greater profitability when Florida range was combined with pasture compared to either range or pasture alone (Anderson and Hipp, 1974).

In the 1960's, Soil Conservation Service

and U.S. Forest Service Range Scientists showed that dramatic improvements in range forage yield could take place as a result of roller chopping, resting range and managing the tall grasses (Yarlett and Roush, 1970). Burning and uncontrolled grazing became associated with wiregrass management, which was considered poor management.

## OPTIONS FOR MANAGEMENT

The range site, which is the soil and naturally occurring plants and their interactions, determines the potential of that range to produce forage. Many ecosystems come under classification as range, but even that referred to as the south Florida flatwoods range ecosystem is highly variable and difficult to speak of in generalities. Slight differences in soil classified by the same name result in great differences in kinds and amounts of grasses grown. A Myakka soil at Ona supports abundant bluestems, whereas a Myakka soil studied at the Babcock Ranch in Charlotte County scarcely supports these same grasses. This site is predominantly wiregrass. Changing grazing management on such range doesn't alter botanical composition. We studied this range in a replicated trial over 9 years and even with no grazing, bluestems have not increased. This is wiregrass range and always will be.

Just as range site determines the potential to produce forage, it also determines management options. On the Myakka soil with wiregrass and no potential for tall grasses, burn and graze management for wiregrass must be used, if range is to effectively fit into the cycle for beef production. Fire must be used on wiregrass range to produce grazable, relatively

nutritious forage. On the Myakka soil at Ona, where the tall grasses make-up a large portion of the forage, range can be burned less often, and forage can be accumulated during spring and summer for fall-winter use. Relatively great amounts (2,000 lb/A annually is common) of forage can be accumulated on south Florida flatwoods range in good condition, which means that 50% or more of the forage comes from these tall grasses. Compared to unburned wiregrass, these stockpiled tall grasses are more acceptable to the cow, but I think we have focused on their yield and not enough on their nutrition such that we have taken a step backwards in range nutrition.

We know how to get more grass (on some range sites), but we haven't learned how to best utilize it. In 1979, we roller chopped palmetto dominated range at the Ona AREC and increased the annual dry matter yield of forage from 880 lb/A to 2580 lb/A, 3 years after chopping (Kalmbacher and Martin, 1984). If I stop here, it would be a success story, but I have not described what I have accomplished nutritionally. I assumed that in order to best manage these tall grasses, I would graze them September to February and rotate cows to bahiagrass March to August. I would burn range at the end of February every third year. This, I felt, would be most considerate of the needs of the tall grasses I wanted to foster. It turned out that this was not considerate of the needs of cattle in terms of nutrition.

During the winter the diet dry matter was composed of 54% grasses (45% of total diet was tall grasses); 41% shrubs and 5% forbs (non-woody, non-grassy plants) (Kalmbacher et al., 1984). By early January, digestibility of the diet had declined to 35% from about 45% in September (Long et al., 1986). Crude protein in the diet declined from September (8.5%) to December (7.0%), but increased after February and especially March (9.0%).

Make no mistake, I continue to believe that ranchers who have the option of managing

for the tall grasses should do so, but these ranchers are going to have to apply some management beyond that required to grow and foster these tall grasses.

## **FITTING RANGE INTO THE CYCLE FOR BEEF PRODUCTION**

Dr. Hembry has outlined the adult cow cycle and has introduced several important points. To me his most important point is that the greatest supply of nutrients must be provided at the time of greatest [cow] nutrient demand. This is not possible when Florida range is used in its traditional fashion as a winter feed source (Figure 1). Quality of unburned range is poorest in December, January and February, which is when cows need protein and energy for lactation. There are several ways around the problem, depending on expected animal production and capability of the range. Here are some possibilities.

**Alter the Calving Season** The more a rancher depends on range to supply forage, the more important it becomes to shift the calving period to a later time in order to match the quality of the range forage. For example, calve March, April and May (Figure 2).

**Rotational Burning** In the 1940's, Dr. Kirk at the Range Cattle Station used that he called rotational burning (Kirk et al., 1970). Dr. Kirk burned one half the range each year: one quarter in the fall and one quarter in the winter. In the next year, the unburned half would be treated similarly. By just applying this simple practice, he increased calving percentage (5 yr avg.) from 56% on unburned, unsupplemented range to 75% on rotationally burned range.

I am not advocating burning and uncontrolled grazing, but I think there is a lesson here. The very best quality that we can obtain from flatwoods range is that from regrowth after a burn. Yield, crude protein and TDN in creeping bluestem are shown in Table 1. Forage quality is never really great, and it

declines rather rapidly after burning, but it is improved by the burn. In order to be considerate of the needs of the animal, why not burn range and graze it? In order to be considerate of the needs of the plant, why not allow time for regrowth before grazing and remove cows in the spring? Both are possible.

At the Ona AREC, we use two range units per herd. Range is grazed September to February at one head/13 acres. In September, cows graze one range unit until the end of December. In late September or October, depending on moisture, the unit that cows did not graze was burned and allowed to regrow until January. Cows graze both burned and unburned units January and February, then cows move to bahiagrass. In the next fall, cows graze the range unit that was burned the previous fall. Range units are burned alternately every 2 years. Forage regrowth on the burned unit is less than half that on the unburned half, but quality is twice as good. Cows have molasses/protein supplement at 5 lb/hd/day beginning in mid December.

**Supplemental Plantings** No matter what range managers do to improve the quality of the range forage, it will always be below that necessary for the lactating cow. Lactating cows will lose weight on range regardless of management, and that is not necessarily bad for profitable calf production. The objective is to not allow the weight loss to go so far as to affect the ability of the cow to rebreed.

Around the margins of maidencane ponds there is a zone of relatively fertile soil with good moisture. Limpograss or *Hemarthria* is an introduced grass developed by IFAS that is tolerant of high soil water, adapted to relatively low fertility, and it maintains its digestibility fairly well into the winter.

I have planted margins of ponds at the Ona AREC with various levels of lime, NPK and found that under my conditions I could grow limpograss successfully without lime or fertilizer. I disked the pond margin once, spread

the planting material, disked a second time and rolled it, and in September had an average of 2200 lb/A of dry matter. Cows ate all this rough forage during the fall.

Here is a way that a relatively high amount of digestible forage can be introduced to the cow herd at low cost. A five acre maidencane pond with a 50' limpograss margin around the outside is 2 acres with 2.5 ton/A of dry matter with estimated 45% TDN. Much research has been done in IFAS on fall fertilization of limpograss for its use as a stockpiled forage (Quesenberry et al., 1984), and there is no reason why this could not be practically applied here. Maidencane ponds are spread-out all over south Florida and cover an estimated 15% of the area.

For every mile of a 14' fire guard around and through range, there is 1.7 acres of easily plantable area. *Aeschynomene* and hairy indigo, although dependent on rainfall for establishment, are good naturally reseeding legumes in Florida. Initial cost for establishment, including liming, fertilizer, disking and planting are \$99.94/acre of \$169.38/mile (Prevatt and Mislevy, 1990). Disking once annually at the beginning of the rainy season in June provides about a ton/acre of high protein dry matter from September until frost. This is not a new idea (Lewis, 1965), but I think this is an excellent practice for both cattle and wildlife management. These plantings should not be viewed as a replacement of range forage, but as supplements to keep cow weight-loss in check.

## **FLORIDA RANGE AS A UNIQUE ECOSYSTEM**

I have focused on managing range to increase profitability of beef production, which is the framework Dr. Hembry has established, but I want to end with a much larger theme for range and one that becomes more abstract.

Today there are about 7.6 million acres of land classified as range (3.6 million) and

scrub and palmetto brush (4.0 million). In 26 counties (excluding Dade, Pinellas, and Monroe) south of Ocala, where two thirds of the state's cattle are found and where range is still an important part of the state's cattle program, there is a total of 3.9 million acres of range, scrub and brush. Nineteen of 26 counties each contain at least 100,000 acres, and some counties, such as Osceola, Polk, Hendry, Highlands and Glades (in decreasing order of acreage) have more than 200,000 acres in each. Of the 19 counties, an average of 40% of their agricultural base is range.

By sheer size, south Florida range, which private ranchers own and control, is an important resource, but its size is only part of its grandeur. This land supports a very unique and diverse group of plants and wildlife. Wildlife offers an opportunity for revenue. In 1984, the average cost of a lease to hunt in Florida was \$2.98/acre (Marion and Gates, 1989). Some range with abundant wildlife and near urban areas, leases for much more. At Deseret ranch in 1991, the average lease sells for \$5.75/acre. There are 43 hunting clubs with 500 acres/member. The average hunter pays \$3,000/year and some pay \$5,000 to \$8,000/year.

Other opportunities for revenue from Florida range include sale of forest products, but these opportunities have been hindered by poor markets. We can grow pine commercially in south Florida, and some foresters believe that the market situation will improve. To me, it makes sense to manage range for natural pine regeneration by using good burning practices if for no other reason than this is beneficial to wildlife and good for public relations.

Cattle, wildlife and timber are important sources of revenue from range, and management for one does not exclude the other, nor does good management for cattle or timber abuse the resource. I think this is an important realization for those who believe otherwise. It is necessary for owners to

generate revenue from their land if they are to maintain ownership. Certainly, some native land will be converted to other more profitable agricultural uses. Some unique areas may be set-aside by state and private conservation groups, but the majority will remain in private hands. Good management and stewardship will assure this.

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**Table 1. Yield, Crude Protein and TDN of Whole Plant Samples of Creeping Bluestem at Various Months After a February Burn**

<b>Item</b>	<b>April</b>	<b>June</b>	<b>Aug.</b>	<b>Oct.</b>	<b>Dec.</b>
Yield DM, lb/A	250	700	1800	1900	1900
Protein, %	10	7	4	4	4
TDN, %	61	50	40	33	30

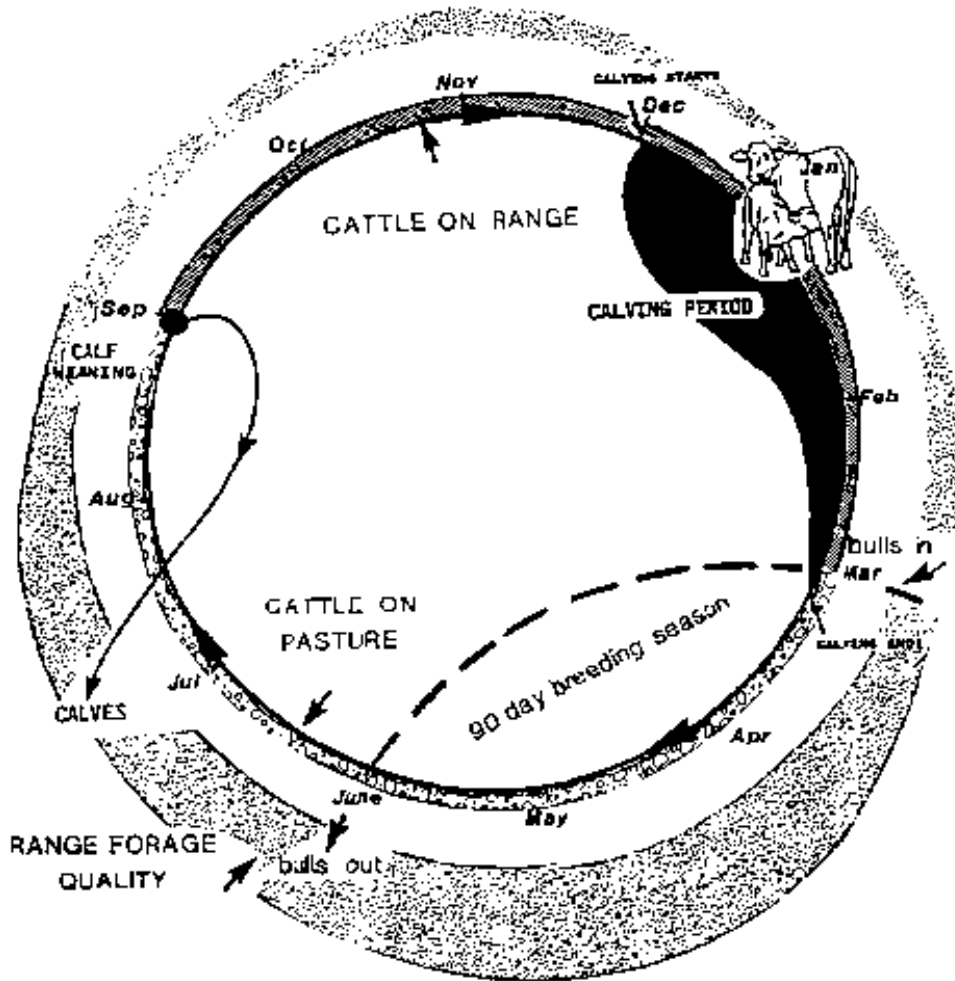


Figure 1. Adult Cow Cycle on a Combination of Pasture and Range.

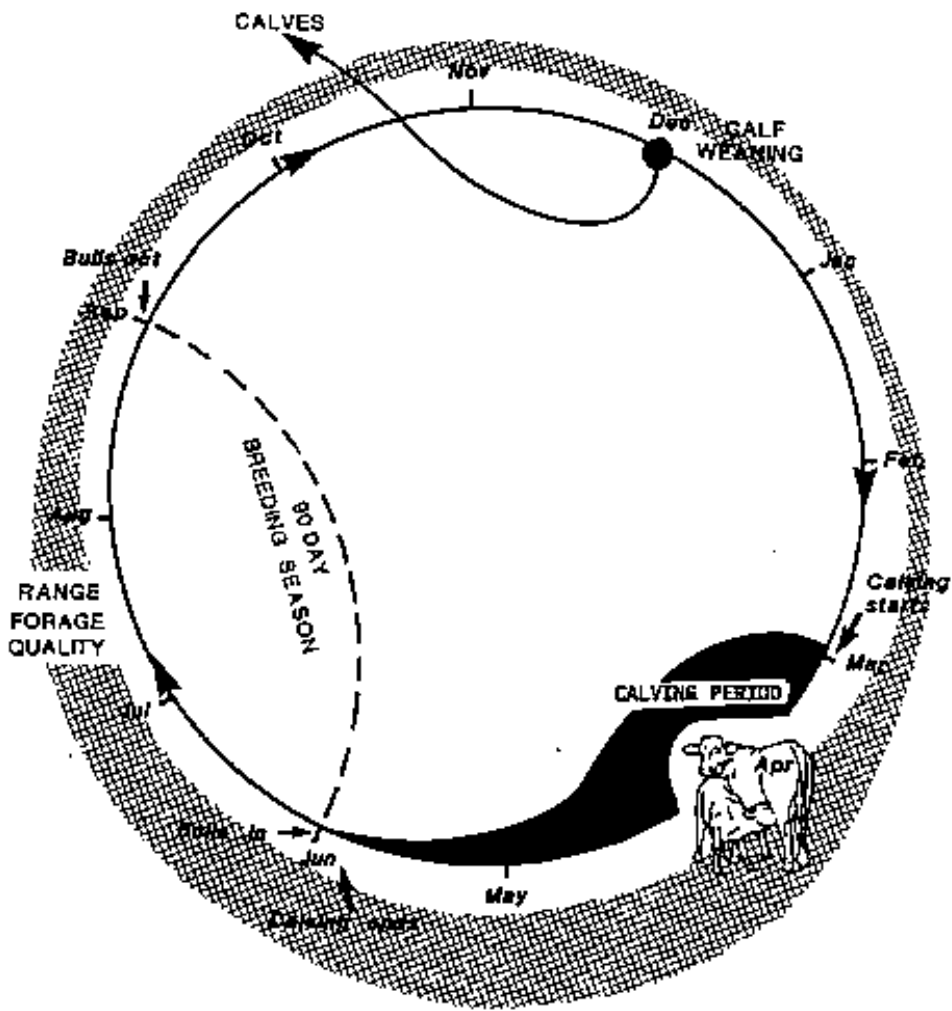


Figure 2. Adult Cow Cycle on Range Alone or with Limited Pasture.