chronic shortages of personnel. The lack of field personnel has caused exactly the kinds of delays and frustrations that are feeding the Sagebrush Rebellion, and it has prevented the direct, personal contact in the field that is needed to adjust policy to local circumstances and to gain landowner support for management programs. Over the next several years, personnel levels, even more than funding, will determine success or failure.

In conclusion, our position (Izaak Walton League) can be summarized briefly:

- We are committed to the principles of multiple use and sustained yield, and to the type of balanced management those principles require.
- We are committed to the goal of restoring depleted rangelands to their full productivity, to benefit all users.
- We support an active, professional management style that stresses a good neighbor policy, but that will also make hard decisions where needed to protect the resource base.
- We support ranching as an important use of the public lands and want to protect the fabric and economic base of western rural life.
- We believe these goals can be achieved if the public lands remain in federal multiple use management. We believe these goals are most unlikely to be achieved if the lands are transferred to state or private ownership.
- Although we have sympathy for the frustrations and economic fears that have attracted stockmen's support, we do not see the goals of the Sagebrush Rebellion as a legitimate solution. The public lands belong to all Americans; they form an essential element of our shared national heritage. They are not up for grabs.

A far better solution is for all users of the public lands to cooperatively focus their energies on making federal multiple use management more effective and more sensitive to the needs of all interests. ●

The Savory Grazing Method

Allan Savory and Stanley D. Parsons

Civilized man has marched across the face of the earth and left a desert in his footprints.
—Anon.

With our knowledge of today this statement is known to be true of vast areas of the world and we now know that simple range deterioration played a bigger part in the destruction of past great civilizations than did any barbarian hordes. In fact, Carter and Dale wrote an excellent account of the fate of past civilizations in their book *Topsoil and Civilization* (Univ. of Oklahoma Press, 1976). In it they warn Americans that their rangelands have deteriorated at a staggering rate in the last 200 years and that, regretfully, it has not ceased.

Range deterioration continues to be one of the major problems facing agriculture and indeed civilization throughout the world. We personally have heard of many examples in the southwestern United States where the carrying capacity of the range has decreased considerably in living memory. In one or two notable cases, it now takes 100 acres to carry a cow where previously 10 acres of the same land carried a cow.

Despite the fact that universities, research stations, extension services, and ranchers have over the last century or so spent many of millions of dollars researching the problem of range deterioration and productivity, we still see the range deteriorating at an alarming rate, or at best just holding its own at great expense. This is not a problem that has concerned only the American people. It is one that is of concern to all developed and developing countries throughout the world and no less so in Rhodesia (Zimbabwe), a much younger country than the United States and inhabited by commercial ranchers practicing so-called advanced grazing methods for a far shorter time than many parts of the United States. Nevertheless, even in this short period of time we have seen tremendous degradation of natural rangelands. Flash flooding and droughts have increased as available rainfall has become less effective through increased runoff.

In Rhodesia, the senior author was fortunate to have an opportunity few trained ecologists have had, being able to witness parts of Africa almost uninhabited by man that still carried vast game herds. Years of observing these herds

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Editor's Note: *There is a great deal of interest about the Savory Grazing Method and I'm sure this article will stimulate much interest among* Rangelands *readers.*

caused him to recognize the importance of the hoof impact, dung, and urine in maintaining healthy grassland. Observation of lightly stocked, but heavily overgrazed cattle and sheep rangelands in Africa and America, showed that they were actually suffering from a lack of adequate physical animal impact while simultaneously being overgrazed and overbrowsed. (Incidentally, John Acocks, a South African botanist, was the first man to make the statement that South Africa was overgrazed and understocked—a remark equally true of America).

As the range deteriorated in Rhodesia, ranches suffered increasingly from recurrent droughts and the government got involved repeatedly in financial rescue efforts. As private consultants, we put out the public challenge that the problems were not in fact due to drought but to poor range management and faulty government policies. A handful of progressive ranchers liked the simplicity of the ideas we put forward and began to work with us to solve the problem. From these small beginnings, working on a purely private basis between consultants and ranchers, the Savory Grazing Method was developed.

In the early stages of development, we were calling the method Short Duration Grazing to try to lessen the official government opposition to what the ranchers were calling the Savory System. At this time, Sid Goodloe of Capitan, New Mexico, visited us and was shown several schemes in their infancy. He realized that we were onto something promising and took the idea back to Texas A&M—thus introducing short duration grazing to America.

Meanwhile, the early schemes were running into considerable problems in Rhodesia, mainly in the form of reduced conception rates, and reduced weaning weights and summer weight gains. As we encountered these problems and came to understand their causes, we developed and improved our method. In particular, we developed a new fencing layout—the "grazing cell," with radiating fence lines— which proved to be the biggest single factor in overcoming stock stress with frequent moves. The basic ecological principle of short periods of high animal pressure on the land interspersed with short rests did not change; the methodology, however, was refined considerably. In fact, the application of the Savory Grazing Method is constantly improving as we keep learning more about its effects on terrain as varied as deserts and jungles, where rainfall averages from 2 inches to over 100 inches and growing seasons vary from 1 month to 12 months.

All of this development took place despite severe opposition from range management specialists throughout the world whose thinking was completely contrary to ours. The one ecological principle which was really revolutionary and thus hard for trained people to accept (because it was contrary to their teaching) was that physical animal impact is not detrimental to deteriorating arid ranges but is in fact desirable to hasten the advance of plant succession. This is achieved through hoof action, which improves water penetration by breaking up hard surface capping and algae, lichen and moss communities, and allows for greater grass seedling success.

The other underlying ecological principles are essentially the well-known ones of reducing stress on the vegetation by controlling the amount of time the animals are on and off the land. The length of time spent in each paddock (pasture) of the grazing cell, and the level of stocking density, will influence the severity and frequency of bite on the plants and the recovery growth period.

What are the principles of the Savory Grazing Method and how are they applied?

1. First of all, we prefer the term "method" as opposed to "system" because a system implies rigidity. We advocate no set number of paddocks (pastures), no set grazing periods and no set rests, stock densities, or stocking rates. Also, there is no set use of fire or other range reclamation aids. A group of principles are simultaneously applied in a concurrent manner in a highly versatile method after thorough planning. Versatility is a necessity. When you appreciate all of the variables facing a rancher in a harsh environment you realize why no rigid grazing system can lead to success in the long run.
2. The stock (cattle, sheep, or goats) are concentrated into substantial herds wherever possible for the desired "herd effect" of trampling, dunging, and urinating as they move around the paddock. The smaller paddocks used in themselves increase the "stock density" but, over and above that, the herd provides for even greater effect. (This is why trials with high stock density achieved through placing two steers in a one-acre paddock could not work as two animals could never provide significant herd effect.)
3. The concentrated stock are held in each paddock for a very short time through the range's growing months. These short periods are ideally anything from one day to about five days. However, in the buildup phase on a ranch we often have to use periods as long as 10 days until there is sufficient fencing to enable us to reduce the grazing periods to a more desirable length for the stock and the land.

In the range's non-growing months both the grazing and the resting periods can be considerably lengthened, although even then we try to maintain the concentrated stock principle. This latter point is of particular importance in handling drought and in reclaiming a range in very poor condition.

4. The short grazing periods are interspersed with short rest periods ranging in the growing months on most range types from about 30 to 60 days. On planted pastures and with grasses of a runner nature, these rests are further reduced, although not as a general rule on natural range.
5. Stock levels (stocking rate) are generally raised as soon as it is considered safe. Destocking has never yet had to be advocated by us even on the apparently extremely overstocked ranges in some of the tribal areas of Africa. We can, as a rule, begin with whatever stock is on the land and generally start to increase fairly soon after starting the Savory Grazing Method.
6. The method is generally, but not always applied through the use of a "grazing cell" layout of fencing. These areas or "cells" are developed with a very simple, inexpensive form of fencing from a central point called a "cell center". The cell center generally contains the water and whatever handling facilities are desired but there are several variations of this theme depending upon the topography, herd structures, and fixed features of the ranch.

The grazing cell was developed by us initially for the benefit of the stock and served to overcome much of the stock stress we were experiencing with frequent moves. Subsequently the grazing cell was found to have great benefits to administration, labor organization, and handling.

The grazing cell was not developed for the benefit of the range and it is not at all necessary from a land management point of view. At times other layouts can be, and are, used.

Several combinations and variations are used in rugged mountainous country.

7. The method is always applied by us in conjunction with what we have termed "holistic ranch planning" to ensure that all aspects are in perspective. It has been our experience that there are more failures or mediocre results caused by a lack of adequate ranch or business management than by poor range management. A highly sophisticated method of range management should not be applied to a ranch on which general management is not up to handling it, as failure is the likely result.

When management must be limited, as in African tribal situations where land and/or stock are held communally, the method is applied with considerable background planning to ensure simplicity at the operational level. The actual operators in this instance, are given simple, easy to understand parameters within which to work. Where applied, this approach has been highly successful.

What are the benefits of the Savory Grazing Method?

1. The economics of the ranch are greatly improved. This is especially true of America with its very high land values. On a recent grazing cell, put in as part of a whole ranch development near Midland, Texas, the cost was $4.80 per acre for complete installation including water and fencing. In this cell the stocking rate has been more than doubled already and thus the layout of $4.80 per acre has paid for itself several times over.

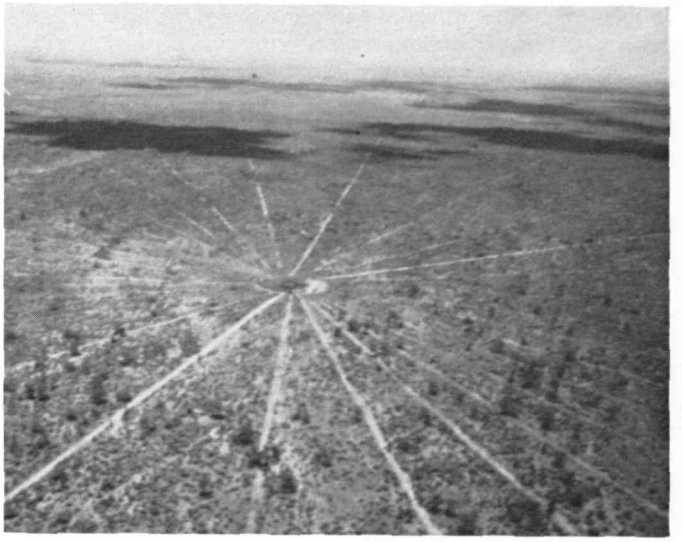
There is a mistaken notion that only the wealthy can afford the new method with all its fencing, whereas in fact with the high land values it is the poorer ranchers who cannot afford not to do it. In essence, the method enables the rancher to increase his turnover without substantially increasing the large "fixed cost" base on his ranch.

2. The method enables ranches to carry more stock while improving the land. The grazing cell shown (first picture) was installed over 10 years ago. This was on land considered overstocked and needing brush clearing, reseeding, and destocking. It cost, at the time, $1.80 per acre to install and we immediately doubled the stocking rate while taking no other range reclamation measures. After the first season we found this stocking rate too low and brought it up to treble the old rate. This grazing cell has been run at this stocking rate ever since, through a variety of seasons, with no setback of any sort. The range is steadily improving and the stock have consistently outperformed most herds on that division of this large, one-and-a-quarter million-acre ranch.

This is not an isolated experience and, as near as a generalization can be true, we can expect to run at least double the conventional stocking rate in most areas. Such increases are often brought about remarkably soon after introducing the new method. Our judgment on when to implement such large increases is based on the rancher's level of understanding and management as much as it is on the land's condition.

3. We can expect steady range improvement in most situations. The rate of improvement is linked to the level of paddocking in the cell: the more paddocks, the higher the stock density. The higher the stock density and "herd effect" and the shorter the grazing periods, the faster the land improvement.

4. We can expect stock improvement as well. We would anticipate this with stock being moved onto fresh grazing every few days provided that there is no stress induced by the actual movement. As shown above, the cell layout alleviates



An advanced "Grazing Cell" at the 30 paddock level on the giant Liebig's Ranch. Rhodesia/Zimbabwe.

A view of the cell in picture #1 on the ground at the point of maximum concentration of cattle at the cell centre, showing dense perennial grass growth.

Typical view of range on a ranch in the San Angelo area of Texas showing overgrazing, undergrazing, brush clearing and brush regrowth all taking place on an overcapitalised and understocked ranch, at the same time under current range management thinking.

movement stress. In the early learning phase on some ranches, and research stations, there can be a nutritional stress through inadequate understanding on the part of the operator. Common causes are: (a) holding stock too long in paddocks; (b) too low a stock density combined with too fast a move, causing a low density grazing mosaic pattern to develop on the range; (c) accelerated grazing with rests becoming inadequate.

5. Most importantly, we can enable ranchers to get into perspective such things as stocking rate, brush clearing, overgrazing, and overresting. Picture 3 is a very recent picture taken in the vicinity of San Angelo, Texas. It is a typical view of what can be seen on many thousands of acres over many ranches in the area. It is a view of the range of a conscientious rancher who is stocking at a moderate level and has done much brush clearing. Looking at the area closely we find overgrazing taking place on all of the actual patches the cattle are using. Overgrazing as we know is one of the major causes of brush encroachment. Because there are not enough animals on the ground some patches have not been grazed at all and we find the grasses overrested, going senile and unpalatable and even dying; all of which is another major cause of brush encroachment. The brush has been cleared but is regrowing rapidly encouraged by the two practices (overrest and overgrazing) which stimulate brush growth.

We believe this illustrates a classical case of one of the major problems facing American ranchers: overcapitalization produced by high land prices combined with low stocking rates, and premature and often unnecessary brush clearing. This rancher like many thousands of others is not to be blamed for this situation or the series of incorrect measures being taken, as it is the widespread practice of the country. What matters more is that the dangers of such practices be recognized. For it was essentially the same range management philosophy which destroyed the lands between the Tigris and Euphrates rivers, the cradle of our western civilization, and will ruin America just as surely in time unless changed.

What we aim to do with holistic ranch planning is to tackle overcapitalization as quickly and economically as possible by increasing stocking rates with little increase in the fixed cost structure. Overgrazing can be halted by changing to the new method which involves short grazings. Overresting and low density grazing problems can be cured by increased low-cost fencing in cells. Finally, and with both causes of it removed, we can handle brush encroachment if we are satisfied that such clearing would give us the highest marginal reaction per dollar invested in the ranch at its current stage of development. There is a time and place for brush clearing but done prematurely it can be very costly.

Conclusion

In closing we make one final appeal to ranchers and that is that you do not repeat the error so many have made of thinking that it is simply a matter of installing a grazing cell and moving the stock around it every few days. Ranchers in this position are rather like the man who bought himself a Rolls Royce and parked it in his garage but does not know how to drive it. An expensive game.

Apart from anything else, at double the stocking rate and on even a low level cell of eight paddocks the daily consumption with grazing will be 16 times as heavy as it ever was before. This does not allow much room for slackness and error if stock performance is not to drop. At treble the stocking rate and with an advanced cell as shown in Picture 1, the *daily grazings are 90 times as heavy as they were!* In American terms, it is a whole new ball game, and it is wise to learn the game before playing. The problem for American ranchers is further aggravated by several misconceptions already widespread such as that the forage should be fully harvested when the stock are in a paddock, that the rests should be of several months and that herds can be divided for calving and lambing regardless of the time of year.

There is a great need for education and training on the new approach. Members of several universities and extension services have displayed much interest and have discussed the need for such training. Hopefully, it will be pursued. In addition, we have started a holistic ranch management training school to help ranchers to do it themselves.

Several research stations have started "trials" on the method. Although the intention is good, such trials pose a problem as they are really tests of the level of knowledge of those running the trials rather than tests of the method. If it was a set grazing *system* then a trial would be easy; but in a case such as this where principles are applied flexibily, a trial, which is rigid, falls shorts. It's not unlike performing a trial study on cooking. The results would only tell us that one person cooked differently from another, even though the basic principles they applied were the same. They would not tell us whether cooking works! After 15 years of results we can state emphatically that the method works. We find that poor stock performance only results from errors in application (the range generally improves even with bad application).

Apart from the new principle of the desirability of hoof action, all of the other principles involved in the Savory Grazing Method have been exhaustively researched in America (and elsewhere) and were written in text books before we were born. What is needed in America is education and application of the established principles rather than repetitious research and unnecessary delay. ●