

Rangelands

**Society
for Range
Management**

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August 1988

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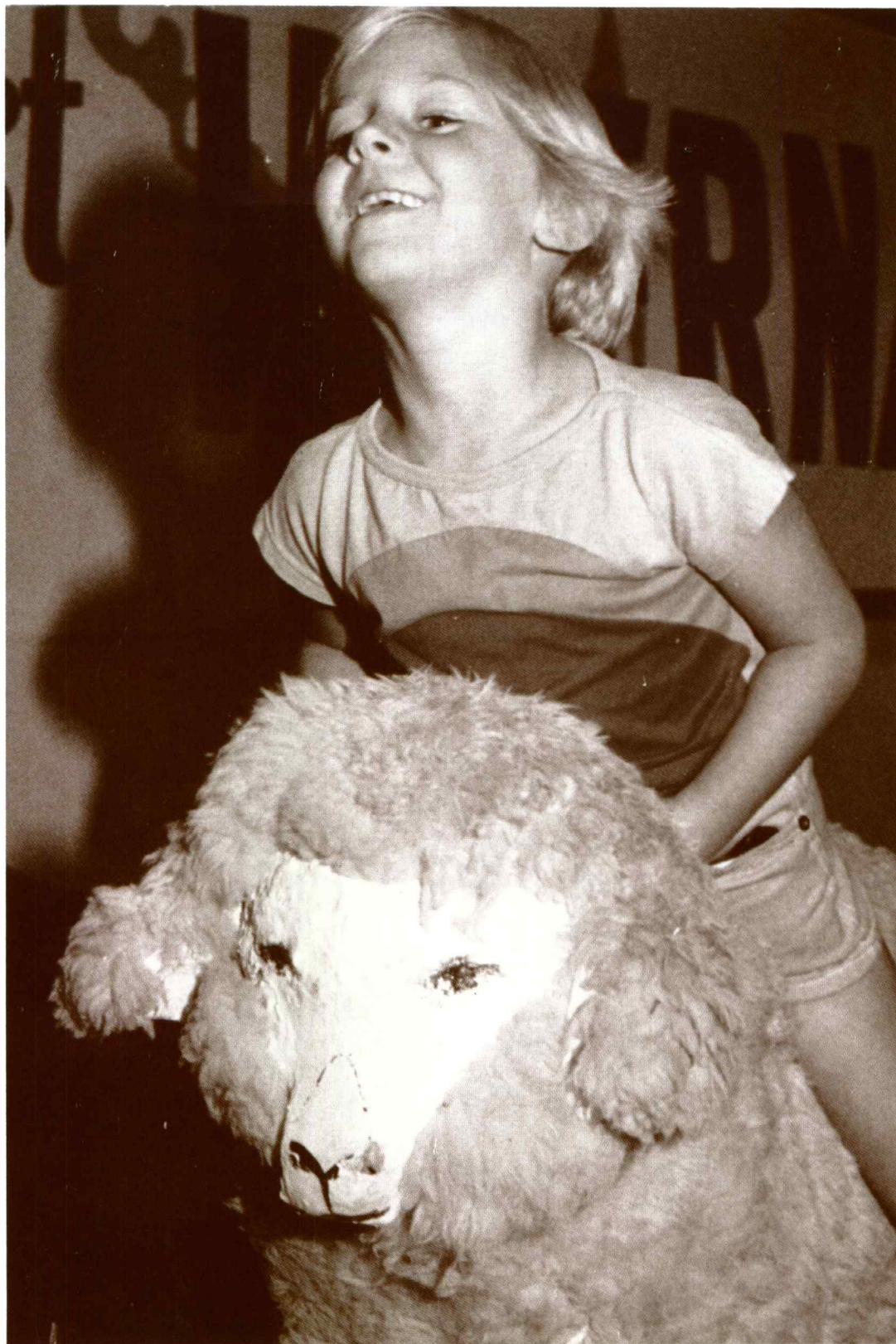
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The term of office of all elected officers and directors begins in February of each year during the Society's annual meeting.



THE TRAIL BOSS

The **Society for Range Management**, founded in 1948 as the *American Society of Range Management*, is a nonprofit association incorporated under the laws of the State of Wyoming. It is recognized exempt from Federal income tax, as a scientific and educational organization, under the provisions of Section 501(c)(3) of the Internal Revenue Code, and also is classed as a public foundation as described in Section 509(a)(2) of the Code. The name of the Society was changed in 1971 by amendment of the Articles of Incorporation.

The objectives for which the corporation is established are:

- to develop an understanding of range ecosystems and of the principles applicable to and the management of range resources;
- to assist all who work with range resources to keep abreast of new findings and techniques in the science and art of range management;
- to improve the effectiveness of range management to obtain from range resources the products and values necessary for man's welfare;
- to create a public appreciation of the economic and social benefits to be obtained from the range environment;
- to promote professional development of its members.

Membership in the Society for Range Management is open to anyone engaged in or interested in any aspect of the study, management, or use of rangelands. Please contact the Executive Vice-President for details.

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COVER: As you get ready to travel to the next International Rangeland Congress, enjoy this picture from the First International Rangeland Congress, sponsored by SRM and held in Denver, Colo. The name of the "rider" and the photographer have been separated from the photo, but if they will come forward, we'll be glad to give credit next issue.

Rangelands serves as a forum for the presentation and discussion of facts, ideas, and philosophies pertaining to the study, management, and use of rangelands and their several resources. Accordingly, all material published herein is signed and reflects the individual views of the authors and is not necessarily an official position of the Society. Manuscripts from any source—nonmembers as well as members—are welcome and will be given every consideration by the editors. Rangelands is the nontechnical counterpart of the *Journal of Range Management*; therefore, manuscripts and news items submitted for publication in Rangelands should be a nontechnical nature and germane to the broad field of range management. Editorial comment by an individual is also welcome and subject to acceptance by the editor, will be published as a "Viewpoint."

Forces Shaping Range Resource Management—Coordinated Resource Management

Based on a Presentation at SCSA Annual Meeting, Billings Montana—August 5, 1987

C. Rex Cleary

I see Coordinated Resource Management as a powerful force shaping resource management. Bear in mind, however, that it is a social more than a technical force. It is primarily a function of altering human behavior.

We have available an abundance of technical knowledge and skills. The problem has been getting adversaries to listen and understand one another's needs so they know what knowledge and skills to bring to bear on problems.

My experience with the Modoc/Washoe Experimental Stewardship Program (ESP for short) in NE California and NW Nevada strengthens my confidence in Coordinated Resource Management. I want to share some of what has been learned that makes ESP a good example of Coordinated Resource Management.

ESP was authorized by the Rangeland Improvement Act of 1978. Congress asked the Secretaries of Agriculture and Interior to develop and implement an experimental program providing incentives or rewards for the holders of grazing permits whose stewardship improved the condition of the lands. I believe Congress was searching for a way to allow special interest groups and resource managers to settle issues at the local level.

The founders of, and participants in, the Modoc/Washoe Program see range management, or stewardship, as more than livestock management. We address all resources of the rangelands to accommodate, if possible, all needs of public land users in our planning and management. Thus, we attempt to incorporate representatives of those agencies, organizations, and associations having direct interest in management of the resources. Livestock and timber industries, county government, university range science departments, Extension Service, Soil Conservation Service (SCS), Resource Conservation Districts (RCD), Agricultural Stabilization and Conservation Service (ASCS), Audubon Society, State Game and Agricultural Departments, Fish and Wildlife Service, and the National Wildlife Society joined the Forest Supervisor and myself as equal participants in operating the program.

Our organization is highly structured, guided by a Steering Committee composed of management level representatives.

The technical experts belong to Technical Review Teams (TRT) assigned to problem solving for specific issues or specific allotments. Each TRT has a minimum of five people with an environmental representative, a rancher, a Fish and

Game Department employee, a SCS employee, and one from the Forest Service or BLM. Others, such as representatives concerned with wild horses or archeology, are added if warranted. Additionally, we have over two dozen standing subcommittees on Incentives, Wild Horses, Riparian Habitat, Grazing Fee Credit Experiment, etc. Work constantly flows at all levels of the organization.



A Modoc/Washoe Technical Review Team hard at work resolving a land management conflict.

Rancher representative Jean Schadler, who served as Steering Committee Chairman for the first 2 1/2 years put it this way:

The Modoc/Washoe Program is successful, in part because we spent several sessions developing a common understanding of each other's philosophical viewpoints. Then, we agreed to the philosophical principles under which we would act. We agreed that our long-term goal is to "foster cooperation and coordination among the various users . . . and agencies" to achieve three objectives:

1. Environmental improvement.
2. Integrated and improved management of all ownerships.
3. Through improved management, long-term stability of the economy.

We still spend time and energy in philosophical discussions. We still frustrate and anger each other with our biases, assumptions, and fears. However, we agreed, early on, not to just let each other live, but to strive to improve the quality of life for all of us by advocating our own needs clearly and hearing the needs of others."

The program enjoys nationally recognized success. ESP is endorsed by the Range Resource Management Task Force

The author is SRM 2nd Vice-President and BLM District Manager, Susanville, California.

of the National Governor's Association. In a letter to former Secretary of the Interior William Clark, Montana Governor Ted Schwinden, Chairman of the Committee, urges "expansion of the program and its management processes throughout the West." The letter is co-signed by former Wyoming Governor Ed Herschler and former Idaho Governor John F. Evans. The three governors agree, "if compromise and stability can be achieved among social, environmental, and economic interests surrounding the vast public rangelands, they can be achieved in other areas of natural resource management." They told Mr. Clark: "The Experimental Stewardship Program should be expanded because it:

1. Has become the most outstanding example of a state/federal/public/private partnership in natural resource management.
2. Has saved legal fees through the prevention of conflict and litigation and, by targeting money and resources for the most needy areas, has secured a better return for dollars invested in range management.
3. Involves all people and interests at all levels in the decision-making process governing specific land resource units.
4. Places the highest priority on rangeland resources and their improvement and allows the management process to transcend administrative and jurisdictional boundaries.
5. Encourages agency cooperation—reducing administrative duplication—and facilitates cooperation among public and private interests."

I believe the single most important factor that shaped the success of the Modoc/Washoe program is an operating principle we adhere to without exception. All decisions, recommendations and actions taken are with unanimous agreement, or they aren't taken. We agreed at our first Steering Committee Meeting to take this ultimate risk in a negotiation setting. Any issue not receiving unanimous resolution is sent back to a working committee for further study or is tabled. We extend this operating rule to all levels. No level of the structure can pass a recommendation onto the next level without unanimous agreement.

I feel the unanimous agreement rule has been particularly instrumental in the success story. Yet, the idea is controversial itself. It is frightening to some, a threat to others. Without

fail, the idea has generated the greatest reservation. Frankly, it creates a remarkable change in behavior. Folks soon realize they alone may bear the burden of voting against and killing a proposal. With that in mind they listen better, hearing the needs of others. They search harder for solutions satisfactory to all.

All at once it becomes contagious with everyone seeking new solutions to old problems. No one wants to admit defeat in not being able to find a solution and immense group pride is generated in the creative solutions that are found.

The Cambridge Study, a human behavioral study conducted in Massachusetts, summarizes behavior of thousands of people as they worked in small groups to solve problems. We in the Modoc/Washoe ESP unknowingly experienced the same characteristics identified by the researchers as vital to successful problem solving and conflict resolution.

Successful groups were found to have a number of common traits: (1) motivation and commitment to seek a solution and carry it through; (2) willingness to listen to and understand others, weighing both the advantages and disadvantages of an idea; (3) dealing with an *idea* rather than a *person*; (4) fewer ideas were "lost" and a higher proportion of these ideas were developed into practical alternatives.

I believe that the unanimous agreement rule effectively helped us develop this kind of behavior and results.

Within the Society for Range Management, I have had the chance to encourage broader application of Coordinated Resource Management. The SRM has formed a partnership with the National Association of Conservation Districts in designating a team of two in each state. An SRM and an NACD representative are appointed to these advocacy teams to foster and encourage Coordinated Resource Management. Teams have been designated for fourteen states and more are in the mill. Ultimately, every State is a candidate to have such a team.

This joint venture is off to a slow start, but it is a solid foundation to build on. Most of the teams aren't sure what they should be doing yet, but all the appointees are committed to furthering Coordinated Resource Management in principle. Workshops are being scheduled to generate more specific ideas on what they can do to help.

As coordinated Resource Management gains momentum, it will become an even more potent force shaping resource management.



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Natural Resources and the 21st Century

Increasing Income with Diverse Sources

Dixie M. Hollins

It wasn't so long ago in Florida when cattle were worth more than the land they grazed on. Those were the open range days, the good old days, when the cattle grazed for miles and miles without any fences.

In 1942 my family bought 16,000 acres of the prettiest land in Florida, which consisted of oak hammocks, Florida flatwoods, virgin pine timber, and miles of waterfront along the Crystal River and Gulf of Mexico.

Our land was once roamed by Indians. The famous Crystal River Indian mounds are close by, dating back to the Inca and Aztec eras.

The old stage coach road runs right through the ranch. Judah Benjamin, the Confederate Secretary of State, also rode through there on his way south to escape the Yankees after the fall of Richmond.

Hollinswood Ranch has always been worked. Even in the open range days there was a great deal of turpentine produced here. Some of the old pine trees still bear the scars of slashes cut into the bark to let the sap run down. The still, living quarters, and general store were located across U.S. 19 in what is now a subdivision. Now and then as I walk through the woods, I find a turpentine pot.

Hollinswood was a home to some early pioneer settlers. Also on our land there is a cemetery which dates back to before the Civil War. The old, hard pine Red Level Baptist Church is more than 100 years old.

Let me tell you how my family came to own the ranch.

The Hollins family had a golf course in St. Petersburg which faced hard times during the last stages of the Great Depression. We bought 500 head of cattle and let them graze on the fairways. When the golf course was ready to reopen we needed a new home for the cattle. We purchased 16,000 acres from an estate for development as a ranch. The price was \$1 per acre. The taxes that first year were more than that so we sued and won. The taxes last year were \$32,000. We paid.

Some of my earliest memories go back to the annual round-ups. To use an old saying, my sisters and I always had "our hands in the fire." I got into a lot of trouble at Hollinswood but I had a lot of fun, too.

I graduated from the Rochester Institute of Technology in 1971 and went to work in the family printing business in St. Petersburg. We sold the printing business in 1973. I moved up to Citrus County to run the ranch and have lived there ever since.

The rising costs of fuel, equipment, and labor have made cattle ranching an unprofitable business in many parts of Florida. We prefer not to sell any land, so at Hollinswood we have diversified.

This is the land of Osceola, the warrior chief of the Seminole Indians who fought the United States Army to a standstill 150 years ago and have yet to sign a peace treaty.

When we bought the ranch in 1942, the population of the entire county was less than 5,000—and declining. Things stayed pretty much that way until about 1960, when developers discovered the beautiful rivers, lovely hills, and cheap land.

In 1960 the population was 17,000, in 1970 it was 50,000 and in 1980 it was 70,000. The 1990 Census is expected to show more than 90,000 people, and about 125,000 will be living here by the turn of the century—just 12 years away.

Oranges and grapefruit were the big crops in Citrus County when it was formed in 1887; thus the origin of its namesake. Today we grow retirees. They come down by the thousands from New York, New England, and the Midwest.

The planners say we will see younger people moving in during the next few years to fill the jobs in the service industries and manufacturing plants that are just beginning to spring up. Citrus County is on the northern fringe of the booming Suncoast area of Tampa-St. Petersburg and the southern edge of the even faster-growing Gainesville-Ocala area.

Hollinswood has not entirely escaped the effects of that growth. The Florida Power Corp. took a portion of our Gulf frontage for its principal generating complex, which includes Crystal River III, the only nuclear power plant on Florida's west coast.

The northern part of Hollinswood is home to the straightest river you have ever seen—the western terminus of the Cross Florida Barge Canal. The barge canal was the dream of the 19th Century pioneers who saw it as a shortcut to the long voyage around the peninsula and through the Florida Keys.

During the late 1960s, the Nixon Administration killed the canal under pressure from railroad interests and environmentalists cutting clear through our property, much work had been completed before the canal project was abandoned. Most everyone feels the land along the canal will eventually develop industrially, though no-one is holding his breath waiting for it to happen.

Obviously, Hollinswood is no longer an isolated piece of Florida hinterland. We are being hemmed in on all sides by development and are ideally situated for eventual industrial development ourselves.

Remember, however, I am a rancher and plan to stay that way. I have a plan for developing Hollinswood to take advantage of the land's potential but to also leave me with little bit of Heaven—about 5,000 acres of improved pasture and virgin forest, wetlands, and natural beauty. Actually "plan" is not a good word. Much of it has already been put into action. Hollinswood is now in the cattle, mining, timber, nursery, and hunting business.

When the federal government started serious work on the Barge Canal, we called in Reynolds, Smith, and Hill, Florida's largest engineering company, to develop a plan for turning part of the property into an industrial park. Though the barge canal will never be finished, we still see developmental potential for that portion of the property.

During the 1960s, while I was in school and my father was running the ranch, we began the diversification program.

Planted Timber

At that time we had between 1,200 and 1,500 head of cattle with about a 50% calf crop for market each year. Due to the rising costs of everything but the price of meat, it turned into a losing operation. My father entered into a 30-year contract with the Brunswick Pulp and Paper Company and put 5,000 acres into planted timber.

The Brunswick contract put some money in our pockets. It pays more than half of the property taxes for the entire ranch every year, and, when the it expires in 1996, we hope to split about \$6 million with them.

Back in those days timber and cattle didn't mix. So we sold all our cattle. But once a cattlemen, always a cattlemen, so we bought a small herd of purebred brahma cows, which to us were pets. But then Florida got into the brucellosis program and I haven't petted once since.

The herd grew. We ran out of improved pasture and in the 1970's the timber company agreed to let our cattle back into the planted timber. Today we have about 800 head of crossbred cattle.

The cattle operation generates about \$45,000 a year but is not profitable. Like many of you, I am encouraging all of my friends to forget their doctor's advice and eat more beef.

Mining

In 1972, Gulf Coast Aggregates contracted with Hollinswood Ranch to mine limerock on our property for shipment via the Cross Florida Barge Canal to areas along the Gulf coast. The good Lord blessed Hollinswood with a great deal of high quality lime rock.

The 30-year contract calls for a minimum of \$60,000 per year in royalties and last year generated about \$80,000 for Hollinswood.

For those of you who don't know, mining is a "hard hat" business. You need to protect yourself from the rocks, the insults, and other verbal abuse neighbors and bureaucrats throw at you.

I spend a lot of my time at public hearings explaining the effect of mining on the aquifer, the environment, and on my neighbors' homes and peace of mind. Despite the frustrations, mining is a good business and we are now preparing to expand into a second operation elsewhere on our property.

Hunting

We are also in the hunting business. It may sound strange, but on a cost-versus-income basis, we make more money from our deer herd than we do from our cattle herd.

Hunting has always been a prime activity at Hollinswood. Several years ago we noticed the doe-to-buck ratio was out of balance and asked the state for some help managing our herd.

A biologist from the Florida Game and Fresh Water Fish Commission has been working with us for about six years now. About three years ago we set up a hunting lease on 2,000 acres of land at \$4 per acre. We had to close lease when the mine expanded. We now have another hunting lease on 6,000 acres of land at \$11 per acre.

We anticipate setting up one or perhaps two additional hunting leases on the property. It is one of the most enjoyable businesses we are in and I highly recommend it to those

of you with suitable property.

Palm Trees

As all of you owners of raw land know, people are forever knocking on your door and asking if they can dig up a few trees. Most of them bring three trees to the front gate to pay you and take about 30 out the back gate.

We happened to come across an honest man who wanted palm trees. We let him dig on the ranch for about three years. He took out about \$35,000 worth of trees before he retired in 1985. That ended the palm tree business at Hollinswood but we are now into a much more profitable tree business.

Tree Nursery

Hollinswood Tree Nursery is a fairly new business. We have approximately 20 acres in live oaks, laural oaks, magnolias, and crepe myrtle.

As I mentioned earlier in this speech, Citrus is a fast growing county. Developers need trees for their homesites.

Last year we sold \$120,000 worth of trees. As you can imagine, many of those were simply brokered by us. It takes about three years to prepare a tree for transplanting. Eventually we hope to supply all our needs from our own nursery and are in the process of planting an additional 20 acres.

Other Businesses

We also, from time to time, get into other small businesses. Right now we combine bahia seed in our improved pasture, which helps pay for fertilizer for the pasture. We also have some beehives under contract, which doesn't generate much money, but does produce a lot of honey for gifts at Christmas time.

As you can see, the diversification program at Hollinswood has been underway for more than 20 years.

It reminds me of the story about a young bull and an old bull on a hill. The two bulls stood on the hilltop and looked down into a pasture full of heifers. The young bull said, "Let's run down and breed a few of those heifers." The old bull replied, "Let's walk down . . . and breed them all."

We are trying to take our time at Hollinswood and "breed all our heifers."

As I mentioned, we have a very sophisticated plan for development for Hollinswood. Over time we expect to see much of the property near the barge canal developed for industrial uses. However, the plan has set aside about 5,000 acres for permanent protection as a ranch and natural area. Everything we are doing is designed to enable us to generate sufficient income so we can enjoy the undeveloped portions of Hollinswood.

I would like to tell you that I spend all my time managing the property, but that isn't so. Times are changing everywhere and it is just about a fulltime job to keep up with land use regulation and its effects on our property and businesses. I spend a lot of time at zoning and planning hearings, water management board meetings, state legislative hearings and with lawyers, engineers, accountants and other consultants.

100 years ago, ranchers had to defend their property from the Indians. Today it is a war of words but the fight goes on.

Owning and operating a ranch the size of Hollinswood is a much more complicated affair than it was 50 years ago, but it is still a fascinating business and I wouldn't trade it for any other job in the world.

Developing Opportunities for Marketing Rangeland

Wilson Scaling

In my keynote address, I wore my government hat—my public servant hat. Now, I can put my rancher's hat back on and talk about the profession where I've spent most of my life. . . a life in the private sector.

I want to remind you of the link this session has with the National Range Conference that USDA helped sponsor in Oklahoma City in 1985. That conference was all about "Opportunities for the Future." It's important that we tie this symposium to the '85 conference, because in Oklahoma City we challenged our traditional ways of thinking as ranchers. We looked at ways to diversify our operations. . . and to find new products and new markets. . . and new ways to sustain our range resources.

Multiple use of rangeland is the wave of the future for ranchers. At Oklahoma City, we all heard the message that, yes, forage for livestock will continue to be the primary use; but other uses will be economically desirable for the private operator. . . and desirable for the public land manager and the community as well.

There are opportunities out there. . . if we keep an open mind as to what we can produce and how we can market it! I've seen us become more creative in marketing our traditional product—livestock. A real good example is the use of satellite video to exhibit the animals up for bid. . . and arm-chair bidding by telephone. . . with no stress on the animal or the bidder.

Another real good example is the "natural beef" kind of operation serving health food stores. One such operation has its own controlled feedlot and packing plant. No implants, antibiotics, growth hormones, or anything unnatural are used.

As to our less traditional products, I never cease to be amazed at the things people will buy. . . especially when they're things I'd normally take for granted, or even consider a nuisance. A lot of folks in this country will pay dearly for chips of mesquite wood, which they toss on their barbecues. Creosotebush has a market, too, at least for camel feed.

Sometimes we're walking over what turns out to be good landscaping stone. In the Wichita Falls area, many homes use live oak and cedar elm and rock for landscaping that came from my family's ranch. I get a percentage for firewood harvested from my ranch. . . and I never have to handle the wood.

Some ranchers find they can turn a profit from raising Christmas trees or exotic animals.

Hunting leases are big money in range country, and have been for 50 years or more. I have a vested interest in this. Not everyone hunts with a gun; photographers and bird watchers

will pay for access to your property also. It's reported that in Texas there are more wildlife photographers now than hunters. . . and that bird watching is the fastest growing form of recreation in the Lone Star State.

There are plenty of other opportunities to turn a profit by providing access to your land; trail rides, dude ranching, camping, cross-country skiing, snowmobiling, rock collecting, and historical tours. In all, recreation should be a "boom" industry for ranchers.

To make the best of tourism, ranch families may want to get into the "bed and breakfast" business. Western hospitality is legend throughout the world, and there should be little doubt that one of the most valuable things about rangeland is its contribution to a better understanding of western life. Of course, in some areas, there may be obstacles to overcome, mainly liability questions. Certainly, I think, the Society for Range Management has an opportunity to help by working with state and local legislative people on behalf of ranchers, to ensure that liability is reasonable for private enterprise. In some states there may be restrictions on hunting leases; those need attention, too.

The demand for vacation homes "on the range" is another opportunity. . . one that we should approach cautiously if land development is involved. I've heard of one rancher who chose to sell easements, stipulating that his livestock operation not be disturbed. This arrangement worked out well for all concerned. The tenants have access to the entire ranch for outdoor activities. . . and they have been an asset to the rancher by providing volunteer help.

So far, I've talked about marketing plants, animals, scenery, and the flavor of the "Old West." But, people today assign other values to rangelands. People are becoming more aware of the offsite benefits of our range management practices. . . and how soil erosion control and other actions save tax dollars and natural resources.

Again, let's be aware that multiple uses may increase pressure on our rangelands. There may be competition, for example, between livestock and recreation uses.

No matter what marketing ideas we have, as range managers we must stay on top of the condition of our rangeland. It's a responsibility not just to ourselves, but to our communities as well.

Stick to the fundamentals of good ranching, no matter what other ideas evolve. If you have a livestock operation, keep it a good, sound one. . . with a good, balanced grazing system. . . and base any additional programs around that.

There are lots of good grazing systems. Choose one carefully and stick with it. Don't jump around, because range recovers slowly. Keep an adequate cover of grass and other forage to hold your soil and to protect water quality. Native grass is the cheapest feed for domestic livestock. You'll max-

Remarks by Wilson Scaling to the "Marketing Rangeland Products" Symposium, Society for Range Management 1988 Annual Meeting, Corpus Christi, Texas, February 23, 1988.

The author is Chief of the Soil Conservation Service.

imize your net profit with the right quantity and quality of native forage.

The off-ranch benefits of a well-managed livestock enterprise can make you real popular with your agricultural and nonagricultural neighbors. The Rocky Creek Watershed story is a classic example of this. It's a story I don't think can be told too often.

In the early 1960's, landowners of five ranches covering about one-half of the watershed began extensive range improvement. By 1970, springs that had been dormant since the 1930's began to flow on all five ranches. West Rocky Creek now supplies about 7 percent of the water supply of San Angelo, 20 miles away.

How did these ranchers do it? They enhanced grass cover by reseeding the range, controlling brush, and managing grazing more closely. The grasses help to hold both soil and water on the land. That reduces sedimentation of downstream water supplies and allows water to soak into the aquifer. More water. . .and better water. . .that's a real plus.

The public is aware of the environmental consequences of our actions as ranchers. What better proof is there of this than the 1985 Farm Bill? It makes us look at the kind of land, including rangeland, we've been putting into crop production in years past and reconsider the wisdom of our actions.

The Conservation Reserve Program has some attractive incentives for taking highly erodible land out of production and restoring a good cover of grass or trees. Of course, there are pros and cons to it all. . .and uncertainty about the future, 10 to 15 years from now, for the range industry when some of that grassland comes out of the Reserve. But, working together, I think we can help each other make the right decisions.

If you are participating in the CRP and plan to leave your land in permanent vegetation, I encourage you to put the best possible cover on the land you've enrolled. Kansas is on the right track with 92 percent of its CRP land in native grass. Strive for the best permanent cover you can. If you can't get the seed you want right away, keep the land in temporary cover. Seed dealers are committing a lot of their resources to providing you the best. I think you'll find that optimum ground cover will pay dividends down the road.

I know what it's like to make conservation and untraditional marketing decisions for a ranch. I've had to make plenty of long-range decisions that affect my own operation and my neighbors'. We keep our country in good condition by using proper stocking rates. We manage for quantity and quality of grass. And we have a brush-control program that we've used since 1936. This program affects the availability of water on and off the land. . .as well as wildlife habitat conditions.

Earthen tanks we built ensure good grazing distribution and attract wildlife. Conservation tillage and contour terraces are a must on our cultivated acreage.

It's a profitable operation managed for domestic livestock, and bobwhite quail hunting is a valuable byproduct, thanks to good conservation measures. If I can do it, you can do it!

To gain the most of what your rangeland has to offer, work closely with your friends in the Society, with your local conservation district, with your state and local agencies and universities, and most of all with your neighbors.

Ranchers have a proud tradition of good business sense as well as stewardship. Let's keep sharing ideas that will keep this tradition going.

A National Outlook on Ranching's Future

Wilson Scaling



Wilson Scaling

It's a real privilege and honor to have this time on your agenda.

Fred Bryant asked if I'd bring you my perspective on ranching and perhaps a look down the road into the next century.

You should be aware that, basically, my perspective comes from rural Texas, where I've spent my private life. But today I'd like to bring you a national outlook from my public life.

I think all of us who are ranchers have at least the same set of values, if not the same perspectives: And that is, we want to make our own decisions for our own operations, and we want to keep our country in tip-top condition. Our pride and our good business sense wouldn't let us do it any other way. And that's why the ranchers that are here today are members of the Society. . .we share a concern for good range management.

As to the future, I doubt any of us has a crystal ball that's very accurate. But from my perspective, our future in the ranching industry depends on four driving forces:

1. Economics will continue to be a driving force in our decisionmaking. The economic forces are no longer just local or national; they are global. Out of economic necessity, range managers are breaking with some traditions. . .and becoming more resourceful than ever before. We're diversifying our operations, looking to multiple uses, and, most important, sharpening our marketing skills. We must look ahead to new opportunities—new traditions—for profitability and sustainable use of this resource. We're more of a dynamic industry than we ever were.

2. All too often, the public views the Nation's range resources as entirely publicly owned. They are wrong! There is a lack of understanding not only about the extent of private ownership but also about the extent of contributions those owners make to wildlife habitat, riparian areas and resource improvement. The private rangeland owners are integral to this vast resource system. Their contributions are real contributions. I see us working harder than ever before to ensure our private property rights are protected. . .and, at the same

time, to meet our private property responsibilities as good resource stewards.

3. How we treat our soil and water is becoming more and more a public concern. People are recognizing that conservation is not work for a few but work for everyone. Consequently, our actions as range managers are becoming subject more and more to public scrutiny. Range managers must stay on top of needs and changes in the range ecosystem and adapt management accordingly. In this regard, our agricultural colleges and federal and state agencies must provide better services and advice to the range sector.

4. As we deal with complex economic and environmental issues, we're finding more cooperation and mutual respect between private landowners and others who have interest in the management of range, such as the federal government. This cooperation is doing far more than any regulation can do to protect the rangeland environment.

Let's take a closer look at each of these forces in our lives.

Although multiple use of rangelands is nothing new to the industry, more and more of us are getting in step with the practice. Forage for livestock will continue to be the traditional primary use, but other uses will be economically desirable. Wildlife habitat, recreation, and crops for industry, energy, and food are market demands we can meet if we're willing to break away from some of our traditional grazing uses. The bottom line is we're becoming more flexible and market-wise.

We're finding also that we cannot not put all our "eggs" in the production "basket." In other words, income from production is not the only end. We're becoming conscious of the offsite benefits of our management practices. . . and how our actions save tax dollars, for example, by cutting offsite damage caused by erosion and by improving water quality.

Let's be aware that multiple uses may increase pressure on our rangelands. There may be competition, for example, between livestock uses and recreation uses. It's important to recognize that recreation uses need not compete with the livestock industry. In fact, I envision them working for the good of ranching by increasing the value of the resources and helping improve the economic climate for an important segment of our economy. . . and also educating our urban population as to the values and hardships as well as the opportunities of ranching. I believe that the future is bright for the sheep and cattle industries, but we may have to be managing differently in the future.

Proper management of our rangeland in a watershed can be critical to local communities as well as to the individual rancher. Brush management on Rocky creek here in Texas is a classic story of how management on private land benefited a municipal water supply dramatically. Our management practices also affect water quality, a major issue we're only just beginning to face.

Along with our private property rights, we have to be alert to our private property responsibilities in the management decisions we make. . . and their effects on society.

We are letting the courts decide too many disputes over rights and compliance with laws and regulations. Any case that goes to court is a signal that the people closest to the issue have failed to find a solution to the problem. Remember, only attorneys win in the courthouse. I think we often could

find solutions out of court if everyone involved shows respect for the rights of others and understands that changing long-standing uses and traditions takes time and patience.

Of course, because we stand to gain or lose the most as ranchers, we need to work out our own course of action. But, management of natural resources on public or private land is under greater public scrutiny than ever before.

There's a growing awareness and concern about the environmental consequences of current farming and ranching methods. . . especially their impact on water quality and quantity. And there's growing political strength behind the environmental concerns. The '85 Farm Bill is a perfect example. Who would have thought 5 or 6 years ago that Congress would enact the conservation compliance, sodbuster, and swampbuster provisions?

The '85 Farm Bill is putting a lot of good conservation on the land. . . but it is adding to the number of critical management decisions that ranchers already have to make. In all, it's good that we're required to look at the kind of land we've been putting into crop production in years past. . . and reconsider the wisdom or stupidity of our actions.

The Conservation Reserve Program has some attractive incentives to take highly erodible land out of cultivation and restore a good cover of grass or trees. Of course, there are pros and cons to consider. Last September in Denver, I asked the Society for Range Management to play a major role in helping ranchers and farmers make wise decisions as to the disposition of CRP land after the 10-year contract period is up. I'd like to repeat that challenge right now:

1. Help identify which land is best suited for use as range, and thus help to prevent adverse effects of the CRP on the range industry or on individual producers.

2. Use your society's resources to help educate and persuade operators with CRP land to make the correct decisions now so that the land will stay in grass after 10 years.

3. Help show the wildlife benefits, water quality benefits, and other erosion control benefits that result from permanent vegetative cover on these fragile, erodible lands.

4. Be a leader! Work closely with other organizations to build a consensus—not just a group of single-interest decisions.

5. Encourage state and local hunting laws that allow CRP land to be maintained for hunting and thereby kept under protective cover.

6. Work with the U.S. Department of Agriculture and other agencies—and also private sector sources—in identifying needed legislation, policy, and procedures to continue the benefits of the CRP on beyond 10 years.

7. Improve marketing for the livestock industry. Most important is to work with the National Cattlemen's Association or others to dispel the "12 Myths About Red Meat," because without the red-meat market, grass production drops significantly in value.

Good cover on our rangeland watersheds benefits water quality. And as you all know, water quality is becoming a key public concern.

I think we all recognize that prudent use of agricultural chemicals is a must in the future of agriculture. I'd like to give SRM's President Jack Miller a pat on the back for the Society's well-thought-out response to the Environmental Protection Agency and the Fish and Wildlife Service concerning

their joint effort to link pesticide use with the endangered species program.

There's another water quality issue that's real sensitive also. . .fencing of riparian areas.

Economically and managerially speaking, fencing riparian areas under range conditions is an impossibility for private operators.

Yet, it is true that much of the water that falls on a watershed eventually must pass through a riparian area to reach a stream. Therefore, as the Nation's riparian areas go, so goes the quality of the Nation's streams.

SCS understands the concerns over riparian areas. So we are helping ranchers handle riparian concerns by planning sound grazing management.

SCS is working hard and taking a leadership role in the water quality arena. . .to help make sure that a balanced conservation program is recognized by the policy-making agencies. . .and to help conservation districts find practical and reasonable ways to help production agriculture and other landusers address water quality issues.

I believe that federal agencies have come a long way in the last several years toward better cooperation and coordination of our efforts to help American agriculture. I see much greater cooperation and mutual respect among ranchers and government technical specialists they deal with. We have found that it's just as easy to build a bridge of effective communication as it is a wall of silence. I'd like to give a special pat on the back to—

- The Forest Service for its poster on managing range. . . and for Dale Robertson's leadership in total reevaluation of the agency's range program.

- The Bureau of Land Management (BLM), Extension Service (ES), Forest Service (FS), conservation districts, and others for cooperating in the coordinated resource management (CRM) planning process in areas where private and public lands are intermixed. We feel that leadership by BLM, ES, and FS, along with SCS, will be important to broaden the use of the CRM process to other areas and uses.

- The Forest Service cooperated with SCS on the 1987 National Resources Inventory to develop procedures to reduce the differences between the resource data that are gathered and presented by our agencies.

- Frank Dunkle, director of the Fish and Wildlife Service, deserves acknowledgement for his support of the practical use of chemicals on rangeland. Frank also helped postpone the Endangered Species Act for a year so as to establish a common-sense rationale.

I'm pleased to see our increased involvement in range issues in USDA. Since the 1985 Range Conference in Oklahoma City, we have taken action on several conference recommendations:

1. We're funding university positions at Texas A&M, Texas Tech, and Utah State University for studies on (a) range data automation and software development, (b) nontraditional

uses and economics of rangeland, (c) rangeland hydrology.

2. We've assigned an SCS range specialist to work with the Agricultural Research Service on improved erosion-prediction technology.

3. Close to \$1 million has gone to 23 state SCS offices during each of the last 2 years to accelerate range activities. This money is being used to hire additional range conservationists, provide training, and fund special range projects.

4. We're upgrading our computer equipment and we're automating our resource data in all SCS field offices so we can do a better job of helping ranchers look at range resources and economics.

5. We're moving to implement the intent of the memorandum of understanding on coordinated resource management.

Although the '85 Farm Bill has demanded a lot of our resources and time, SCS continues to emphasize rangeland conservation and we're striving to upgrade our range expertise.

In our 1987 National Resources Inventory, we collected the best range data that we've ever had on a state-wide basis. As in past NRI's, we included erosion rates and range trend, but this year we improved certain data elements such as range condition by range site, and canopy cover to measure the amount of brush infestation on rangeland.

SCS participates on USDA's Range Issues Working Group, which has set about the task of updating Department range policy.

In September of this year, SCS range specialists will meet in Fort Worth to discuss our range work in the agency and to make sure we're capitalizing on the important technical information we gather from this week's conference. We're also participating later this year with Range Conference leadership to see where we all are in terms of the recommendations drawn up at the '85 conference.

I thank the Society for Range Management for putting together such a fine agenda for this week. SCS puts high value on field experience and on the quality research contributions discussed at every one of your conferences. They will be of tremendous value in the development of SCS technical assistance today. . .and as we go into the year 2000.

I hope everyone here has the opportunity to go on the King Ranch tour. You'll find it a real eye-opener on the past, the present, and the future. They're high-tech, and they've got some real history behind them to match. I know these folks personally, and they're constantly on top of their agricultural operations.

I have great pride in the men and women of the ranching industry, who care for nearly two-thirds of the Nation's range resource. From my perspective I can truly say you deserve your country's gratitude for responsible management of that resource. Rangeland is in good hands. . .and I'm confident it will stay that way, come the year 2000 and beyond.

Thank you all. Have a good meeting!

'Cedar' Palmer Penstemon: A Selected Penstemon for Semiarid Ranges

Richard Stevens and Stephen B. Monsen

Recently 'Cedar' Palmer penstemon (*Penstemon palmeri* var. *palmeri*) was developed and released by Utah Division of Wildlife Resources and the Intermountain Research Station, Forest Service, and Soil Conservation Service, U.S. Department of Agriculture. The Agriculture Experiment Station of New Mexico State University, Colorado State University, University of Idaho, and Utah State University also participated in the release.

'Cedar' has the ability to establish, persist, and to provide forage diversity on winter, spring, fall, and summer game and livestock ranges. Small birds, big game, and livestock selectively use 'Cedar'. It produces a considerable amount of succulent foliage during the spring and summer growing periods. This selection also provides high quality forage during the winter. A large percentage of the basal leaves remain green during winter months, providing succulent feed during critical periods. The forb provides good ground cover for erosion control and stabilization of disturbed sites and burns. A thick fibrous taproot up to 3 feet deep is produced that aids in its ability to persist under semiarid conditions. Because of the abundant flowers, pleasing aroma, and persistent foliage, 'Cedar' is also useful for horticultural and landscape plantings.

'Cedar' has long (over 4 feet), erect, flowering stalks that arise from a thick crown. Large pink to lavender-pink blossoms with red-violet throats occur along the stalks for several weeks in late spring and early summer. The flowers have a unique and pleasant fragrance not found in other penstemon species. As seed matures the flowering stalks dry.

Origin and Study Sites

The original seed of 'Cedar' was collected in 1939 by A. Perry Plummer from a native stand approximately 15 miles west of Cedar City, Utah (see map), in a mixed pinyon-juniper, big sagebrush community. The area, at an elevation of 5,800 feet, receives 9 to 12 inches of annual precipitation. The soil is a Hiko Peak gravelly loam, deep, well drained, moderately to strongly alkaline, and is strongly calcareous below a depth of approximately 16 inches. Seed from the original site was entered into comparative study at 20 locations in Utah, with up to 17 other accessions. Additional test



Original collection site and areas where 'Cedar' Palmer penstemon has been tested. Black dots indicate test sites, and the circle indicates the original collection site.

and range plantings were subsequently extended to sites in Idaho, Montana, Wyoming, Nevada, Colorado, New Mexico, Arizona, and Oregon. 'Cedar' was also evaluated for revegetation of mine spoils and disturbed areas within the Intermountain Region.

'Cedar' was adapted to more sites, established better, was generally the most aggressive spreader, and produced as much or more forage than the other accessions tested. Test plantings have been extended to large tracts in conjunction with other herbaceous plants. Even though 'Cedar' originated on a gravelly loam soil it has proven well adapted to heavy soils, fine sandy loam, and rocky soils ranging from slightly acid to strongly alkaline. It has performed well in tests on infertile, disturbed soils. 'Cedar' grows best in areas receiving 10 to 16 inches annual precipitation, but once established, it will persist on sites receiving as low as 8 inches of annual precipitation.

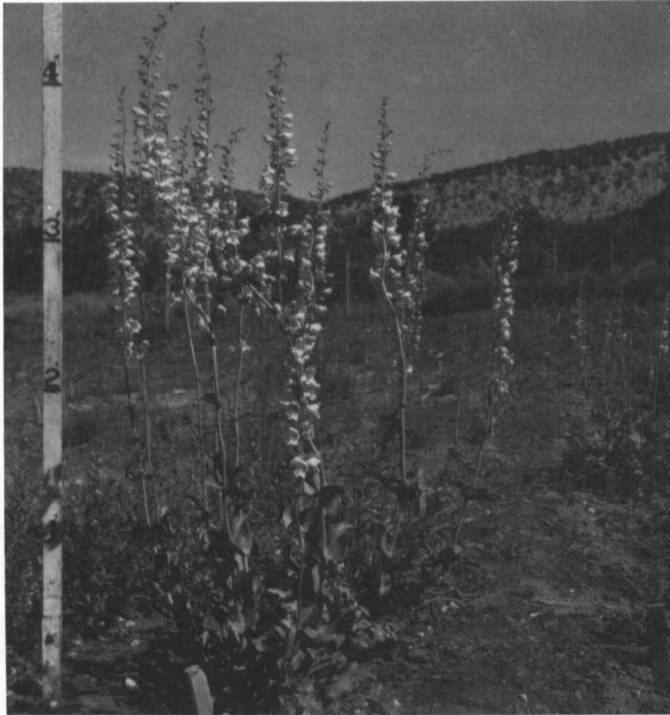
Establishment

'Cedar' has been successfully planted on rangelands, road cuts and fills, mining disturbances, and as an ornamental. Seed can be broadcast (by hand, ground rig, aerially) or

Richard Stevens is project leader and wildlife biologist for the Utah Division of Wildlife Resources, Great Basin Experimental Area, Ephraim, Utah 84627. Stephen B. Monsen is a botanist with the Intermountain Research Station, Forest Service, U.S. Department of Agriculture, Shrub Sciences Laboratory, Provo, Utah 84601.

The authors wish to thank A. Perry Plummer, Kent R. Jorgensen, Charles Howard, and Wendall Oaks for assistance in various phases of work leading to the release.

Funds from the Pittman Robertson W-82-R (job #1, #2, and #5) project helped facilitate portions of this research. Some work was performed at the Snow Field Station, which is operated cooperatively by the Intermountain Research Station, the Utah Division of Wildlife Resources, Snow College, and Utah State University.



This 'Cedar' Palmer penstemon is 3 years old and 4 feet tall.

drilled. If drilled we recommend that 'Cedar' be drilled through a legume box or with a seed diluent such as rice hulls. Seeds are small and may separate from other seeds during planting. The seeds should be covered but not more than a quarter inch deep. Due to seed dormancy, fall seedlings are recommended. Although seeds are small, they have firm coats and may persist in the soil for a number of years. Seedlings and mature plants of 'Cedar' have excellent winter hardiness and drought tolerance. Seedlings are well adapted

to mixed plantings and compete successfully with most herbaceous species. The forb performs best in open stands but will grow in association with grasses, low shrubs, and intermediate shrubs including big sagebrush and antelope bitterbrush. Extensive regeneration can occur by natural seeding. Mature plants are not long-lived, living 5 to 7 years.

Plantings for seed production should be in rows spaced 30 to 42 inches apart, with seeding rates of about 1 to 2 pounds per acre pure live seed. Seed yields have averaged about 100 pounds per acre on nonirrigated sites. An abundance of seed is normally produced even during dry years. The seed normally ripens from mid-August to mid-September and is mature when the seed capsule dries and becomes hard and dark in color. Seeds will shatter once capsules have opened. Seeds can be collected by hand beating or with commercial combining, and separated from the capsule by use of a hammermill or barley debearder followed by fan cleaning. Seeds can be easily cleaned to a purity of 95%. Cleaned seed should be allowed to dry and then can be stored in an open dry warehouse. An after-ripening of 2 to 3 months is needed before germination is determined. There are approximately 600,000 seeds per pound. Seed germination averages about 80%, yet a variation of 15 to 20% in the germination rate has been recorded from different years of production. Seeds retain viability when stored in an open warehouse for up to 7 years.

'Cedar' is subject to diseases associated with alfalfa and potatoes. When grown on cultivated fields, infestation may occur particularly on heavy, poorly drained soils. Flowers are insect-pollinated, and a reduction in seed yields may occur if insect populations are reduced.

Where Seed Can Be Obtained

Recognized classes of seed are breeder, foundation, registered, and certified. Breeder seed will be maintained at Soil Conservation Service, Los Lunas Plant Materials Center, Los Lunas, New Mexico.

Call for Associate Editor Nominees

We are seeking nominees to replace associate editors who will be leaving the editorial board of the *Journal of Range Management* in February 1989. Scientists in range wildlife, animal nutrition, and forage selection and quality are especially needed. Associate editors serve a 2-year term with an additional 2 years possible. Attendance at the editorial board meeting at the Society's annual meeting is strongly encouraged. Candidates should be experienced in research and show sound judgment in dealing with others. They may be asked for a list of representative publications as well as references for their work as reviewers of articles. Nom-

inators should determine first that the nominee is willing to serve as an associate editor.

The office of Associate Editor is critically important for both the Society and the profession and ultimately for rangelands. We need the best.

To nominate: Send the name, address, and telephone number of the nominee, along with brief comments on the nominee's qualifications to Pat Smith, Editor, *Journal of Range Management*, 1839 York St., Denver, CO 80206 by September 30, 1988. For additional information, contact Dr. Smith at (303)355-7070.

MORE THAN YOU EVER WANTED TO KNOW about scientific writing will come to you in a plain brown journal in the September issue of the *Journal of Range Management*. Look for it. You won't forget it if you read it: articles by Dick Hart, Jim Young, Dave Fischbach, Gary Frasier, Henry Wright, Thompson Hobbs, and Alan Beetle.

Rangelands Can Be Forever

John W. Bohning

"Rangelands can be forever." This is the title of a pamphlet prepared by the Society for Range Management. It describes the many-faceted values of rangeland and their meaning for all of us. By utilizing the wide variety of skills that are available in the numerous individuals and groups concerned about proper range management, the 47% of the earth's surface which is rangeland contributes immeasurably to meeting the needs of the world's population.

Man has been a herder or shepherd for centuries. Rangelands have been key to man's existence since the days of hunters and wild food gatherers. From this historical background, many branches of agricultural science have evolved such as animal husbandry, plant physiology, agronomy, soil science, wildlife biology, and hydrology. In both the Old and New World, a tremendous body of knowledge has been accumulated to meet the needs of mankind.

Rangelands present a complex of vegetation and climate. Because of their variability, the proper use of rangelands is a combination of both science and art. Range management in the United States evolved following the settlement of our country. In its early phase it was concerned primarily with livestock production with little recognition of other values. As other demands for the land developed, interrelated aspects such as range-soil and range-water relationships emerged. The use and development of the western United States was strongly influenced by the philosophies and experiences of the East. Legislation for homesteads was patterned after more humid areas, fostering poor management and heartbreak for the homesteader. As a result, there were decades of adjustment and learning by bitter experience that management of western rangelands was not the same as taming the prairies of Illinois and Iowa.

Range management, whether on privately or publicly owned ranges, is a constantly evolving science. Rather than promoting a conspiracy to rape the land, the diverse interests—public and private—which are woven into the history of range management have grown more and more aware of the varied needs which are met by our rangelands. The Society for Range Management, an independent professional organization with wide diversity among its members, has compiled and indexed all the information published in its scientific journal for the past 35 years. The authors come from every conceivable background concerned with range management. Their interest in proper range management is their single common denominator. Their collective expertise is nothing less than impressive.

With increasing awareness, there has been burgeoning interests in proper management. Several years ago, Alan Savory, a biologist from Rhodesia, began expounding on a grazing system which espoused intensive grazing utilization. More recently, this has been expanded under the title of Holistic Resource Management. A number of trials of HRM are underway. Concurrently, there is widespread discussion on the many facets of proper management. In a recent panel

discussion in Prescott, Steve Gallizioli, a representative of the Arizona Wildlife Federation and one-time opponent of livestock grazing, enthusiastically endorsed HRM.

Since the turn of the century many people have turned their attention to the proper management of rangelands, both public and private. Watershed values, for example, were analyzed on alpine ranges in Utah decades ago by a pioneer ecologist, Lincoln Ellison. The earliest experimental range in the country, the Santa Rita Experimental Range south of Tucson, was established in 1902 by the Bureau of Plant Industry. Many benchmark principles were defined at Santa Rita, one being the role of fire in maintaining desert grassland free of scrubby plants, especially mesquite. It was at Santa Rita, too, that the degrading effects of long-time protection from grazing were demonstrated. Ungrazed grassy vegetation first increased, then failed under the impact of inevitable drought. Companion areas that were grazed moderately with periods of rest came through droughts without significant damage.

Current research is concerned with the interactions of the many uses of rangeland. Researchers are measuring the water yield, wildlife responses, impacts of recreation use, forage production for livestock and wildlife and vegetation changes as well as livestock response to various combinations of user impacts. Sophisticated mathematical models complement time-consuming field trials to expedite solutions. Many of these studies apply particularly to public lands, as all the uses must be accommodated to some degree. At present, there is also spirited discussion on how to share the cost of managing public lands among the several interests. Historic patterns are being examined to ascertain a more realistic and equitable distribution of costs. Proponents of eliminating livestock grazing (or timber cutting or mining) are faced with the fact that the remaining uses would then have a heavier financial responsibility for land management costs.

As time goes on, the evolution of rangeland management will continue. Populations will continue to increase (with the Southwest a notable example) and the demands on the land will continue to multiply, both in variety and volume. The demands on the manager, whether he or she be in the private or public sector, will continue to intensify. Livestock operators will need to broaden their skills and learn to better cope with other users' needs in order to survive. A rancher member of the Prescott panel discussing the future of ranching on public land stated succinctly that the livestock operators will need to cooperate with and accommodate to the needs, real or perceived, of the public as they claim a proprietary interest in public lands. He is optimistic that this will occur.

Having the knowledge and experience needed to adapt to change, the progressive range livestock operator will continue to operate on public land. Increasing world populations will in the long run require more, rather than less, use of rangeland for the production of food and fiber. As an energy-efficient means of converting native forage into products needed by man, livestock grazing on public land will continue to be a desirable use of these lands at the same time those lands fill ever-expanding needs of our growing population. This is the consensus of many ranchers, ecologists, wildlife biologists, range conservationists, administrators and other concerned interests today.

Prepared by John W. Bohning. Thirty-four years of experience as a Range Conservationist with the Forest Service. President of the Society for Range Management in 1982.

Water Quality and Rangelands—A Viewpoint

Robert F. Burford

During the midst of Congressional legislative debate on a particular land management issue in the summer of 1987, the Bureau of Land Management (BLM) was paid a "back-handed" compliment by a senior Sierra Club official that, as the agency's Director, I couldn't have stated better myself. It was said that "BLM has a basic bias. . . They feel good when people are using the lands."

THE BLM IS RESPONSIBLE FOR THE MANAGEMENT, protection, and improvement of some 173 million acres of public rangeland. The land belongs to the people of the United States. The most comprehensive expression of how the public would have the land managed is the Federal Land Policy and Management Act of 1976. The Act declares that is the policy of the United States that management of the public lands be on the basis of multiple use and sustained yield unless otherwise specified by law. The Act goes on to specify that the land will be managed to protect the quality of scientific, scenic, historical, ecological, environmental, air, water, and archaeological values; provide food and habitat for fish and wildlife and domestic animals; provide for outdoor recreation and human occupancy; and provide for domestic sources of minerals, food, timber, and fiber.

Throughout my, soon to be, 8-year tenure as Director of this relatively small organization with such a big job to do, I have had a strong personal commitment to fulfill my responsibilities both in the area of public service and in the area of professional natural resource management.

Conflict is inherent in both public service and multiple use management. Every land use cannot take place on every acre of public land and the desires of the public are often in conflict. The challenge for the BLM is to attempt to balance the needs and desires of the public with the capability of the land to produce the goods and services needed or desired. We have found the currently used BLM land use planning process, an exercise involving environmental impact analysis and often taking 2 years to complete, to be an effective way to determine a proper balance between conflicting public demands and resource potential.

NOT THE LEAST OF THE POTENTIAL SOURCES OF CONFLICT is the mandate to protect and improve water quality. The important contribution that we can make in improving water quality is to keep the soil and vegetation that make up the watershed in a stable or improving condition. This is particularly important in riparian areas. I have, since 1984, issued instructions, including a comprehensive policy statement, making riparian area management and improvement a high priority in all resource management programs. Substantial progress is being made in on-the-ground implementation of those directives and policy.

Potential sources of pollutants on public rangelands may be point sources for small intensively impacted sites or non-point sources from more extensive activities that may affect soil surface stability. Point sources are generally in the areas of mineral development and land actions. Mining companies that develop deposits of locatable minerals such as gold, iron, lead, copper, and uranium are required to operate under an approved "Mining Plan of Operations." The plan will include provisions to protect water quality during the period of active mining and provisions to rehabilitate the mined land to restabilize the soil and vegetation disturbed during the mining operation so that a healthy watershed is restored.

Leasable minerals such as coal and oil and gas are developed under standard conditions to protect water quality and restore watershed when the development is completed.

Land actions such as rights-of-way are similarly conditioned.

NONPOINT SOURCES PRESENT A TOTALLY DIFFERENT MANAGEMENT situation. However, the objectives of protection of water quality and restoration, protection, or improvement of the watershed remain constant.

Timber sales contracts are conditioned to preclude logging by certain methods in critical watersheds. Road building and log removal must be done in a way that minimizes erosion hazard and alteration of natural drainages. Vegetation is reestablished in logged areas as rapidly as possible.

Wildfire areas are reseeded, if necessary, as soon after the fire is controlled as possible to stabilize the soil and reestablish vegetation. Fire is interesting in that while the short-term effect may be reduced water quality, the long-term effect is generally an overall improvement. For example, when a shrub-dominated plant community is burned and replaced by a perennial grass-dominated plant community, the result is normally decreased water loss from runoff and evapotranspiration, increased infiltration of rainwater into the soil, and increased percolation of water through the soil.

Livestock grazing is the most common resource use on public rangelands. Because of the direct effect of grazing animals upon plants, animals can have a direct effect upon watershed and water quality, whether the animals are wild, feral, or domestic. The effect may be good or bad, depending upon the season and intensity of grazing. Livestock grazing can be and is managed to improve watershed and water quality on public rangelands.

Range plants have evolved with grazing animals and have continued over time to be grazed either by wild herbivores or later by a combination of wild, feral, and domestic herbivores. Livestock management techniques have been developed, based upon known plant growth characteristics. These techniques are implemented in grazing management systems that increase the vigor, cover, and density of a

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Cool, Clear Water?

Lonnie L. Williamson

The fact that many of us nonchalantly dump waste in water that neighbors drink says something about our character and priorities. It also belittles considerable though unsuccessful attempts to stop this madness. Yet we must continue trying, which is why this is written.

WHILE WE FRET OVER ECONOMIC AND POLITICAL implications of cleaning and protecting water, the most precious of all resources becomes more polluted. The National Wildlife Federation's 1987 Environmental Quality Index notes that attention has been given to cleaning the nation's surface waters, but evidence mounts that groundwater—source of half the country's drinking water—is more contaminated than ever.

The Iowa Department of Water, Air and Waste Management reported that measurable amounts of pesticides are present in half of the city water systems in that state. Based on those findings, a department official said that more than half of the state's 800 municipal water systems may have one or more contaminated supply wells.

"All concentrations of synthetic organic compounds observed in groundwater were below acute toxicity and pose no immediate threat to human health," the Department concludes. "However, little is known of the public health implications of long-term exposure to one or more of these compounds or their byproducts."

A surprising and worrisome discovery of the Iowa study is that a short-lived insecticide found its way into the aquifer. This shows for the first time, the Department said, that "any pesticide, regardless of decay rate, can leach to the ground water and affect water quality...."

MANY STATE ENVIRONMENTAL AGENCIES ARE NERVOUS over the Iowa situation. Some rural states reportedly are reluctant to test their water, afraid of what they will find. However, implications that agriculture is the only villain in this scenario may be false. A Cornell University chemist, Ann T. Lemley, recently told the Chemical Congress of North America that much chemical pollution of this nation's groundwater is caused by the average citizen.

"It's not just big, bad industry and it's not just the farmer who might incorrectly apply a chemical to his crops or soil who is contaminating the water supply," Lemley said, "It's each of us—every time we throw things out in the garbage or pour them down the drain, or dump used motor oil in a corner of our yard. It's what we put on our lawns and what the dry cleaner down the street does with his solvents."

"The problem of water-quality degradation will be solved only by the action of millions of people responding to local solutions to very site-specific concerns," she said.

Water quality problems on rangelands require a similar

approach. We know, for example, that such things as livestock grazing, mining, and off-road vehicle use can degrade water quality, and in some instances, water quantity. Research in this area is clear and irrefutable. We also know that different approaches may be needed to solve similar problems in various regions. Consequently, a single prescription from on high won't work. It is going to take knowledge, professional land managers, public support and money—many people responding with local solutions, as Dr. Lemley put it.

HOW TO DEAL WITH WATER QUALITY PROBLEMS on private rangeland is a monster, as runaway soil erosion that increasingly clouds the nation's waters will attest. A lot of things have been and will be tried, but the ultimate solution probably will be neighbor dragging neighbor to court, which has a tendency to make people think.

Public rangeland is a different matter. The agencies responsible for managing those lands have handles, such as Congress and public opinion, which one can grab and use to alter the bureaucratic course. It's a slow process, but it works. The unfortunate part of this is that the agencies are forced to do what's best for the resource. That is embarrassing to professionals involved who would like nothing better than to do what's right, but do not have the necessary funds or support from higher ups. When force is the most successful alternative, those interested in better land management must hunt for any advantage to press the issue.

For example, the Natural Resources Law Institute at Lewis and Clark Law School suggested a couple of years ago that state and federal water pollution laws be used to compel the Bureau of Land Management and U.S. Forest Service to control livestock grazing in riparian zones.

The Law Institute concludes:

Riparian ecosystems in the semi-arid rangelands are extremely important resources. The condition of riparian zones directly bears on the quality and quantity of fish habitat and water resources. Unfortunately, those resources were largely degraded or destroyed during the period of unregulated range use from about 1860 to 1934. Destruction of riparian vegetation brought major ecological changes to the range including massive stream channel erosion and lowered water tables. Fish habitat was lost to erosion, water loss, and vegetation removal. In addition to detrimental effects on fish habitat, riparian zones degradation rendered once perennial streamflows intermittent. Currently, research suggests that degraded riparian zones possess a remarkable ability to regenerate healthy streams and fisheries. However, riparian zone restoration requires either complete exclusion of livestock for a period of years or restricted access and only short duration grazing.

Although the statutes governing federal rangeland management express strong policy for range rehabilitation, those statutes do not expressly refer to riparian ecosystems or mandate any particular method for accomplishing range rehabilitation. This leaves the BLM with considerable discretion to prioritize and target range improvement programs. Although the agency recognizes the need for riparian zone restoration, there is resistance

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Romance of Rangeland Resource Management

C. Arden Pope III

I grew up as the son of a rancher and farmer in the public lands states of Wyoming and Idaho. As a youth, I was exposed to the "Better-the-Devil-own-it-than-Uncle-Sam," and "Damn-the-BLM-and-the-Forest-Service" philosophy. As a boy, I cared little about anything but horses, guns, knives, and growing up to be a man. To me as to many boys in the rural West, manhood was exemplified by an image of the cowboy or rancher. Many of us have never completely overcome romantic notions of horses, cows, cowboys, and ranchers. As I have been actively involved in research dealing primarily with agricultural production and natural resource economics, I have found it impossible to ignore the importance of romance and other emotions akin to it in economic decision-making. This is particularly true when dealing with cow-calf operations and public rangeland uses.

An example that illustrates this occurred in Iowa following a two-year research project dealing with the economics of soil and water conservation practices. Beef cow-calf operations were common in several study areas but no reasonable set of prices or economic conditions of the time could make a cow-calf enterprise an economically feasible alternative in our economic models. When forced in by constraint they would result in a reduction in profits for the whole farm operation (See Krog et al. 1983). Almost any type of hog operation was much more profitable even under restrictive soil erosion constraints. Our economic models were unable to incorporate the fact that when evaluating a hog enterprise, some individuals respond, "It smells like money to me"; others simply turn up their noses and mutter, "It stinks."

When evaluating the opportunity to purchase a ranch supporting a cow-calf operation, the calculating profit maximizer sees the low rate of return and looks for alternative investments. The romanticist sees himself as a cowboy. Profitability, as important as it is, is often a lesser factor in investment and management decisions that personal desires for management style.

Another example involved several related studies dealing with rural land markets in Texas. Although agriculture is an important use of rural land in Texas, land buyers and brokers are also acutely aware of motivations centered on purchasing rural land for recreational and reasons involving romantic notions of cowboys, cattle, ranches, and rangeland. A survey of Texas land brokers revealed that land buyers often seek an investment that they can "touch, feel, experience, and enjoy." Others want a rural homesite or retreat; a place to hunt, fish, or engage in other outdoor recreation; or a place where they can be associated, at least peripherally, with farming, ranching, and the great outdoors (Pope and Good-

win 1984).

Statistical analysis of available land value data suggested that rangeland in Texas was nearly always valued more for its recreational and aesthetic qualities than agricultural productivity (Pope 1985). Approximately 80% of the ranches in Texas are small part-time or hobby ranches with less than 50 head of cattle.

In the Intermountain West, the different motivations associated with using public rangelands are even more complex. Growing demands for wilderness area, roadless and scenic

Statistical analysis of available land value data suggested that rangeland in Texas was nearly always valued more for its recreational and aesthetic qualities than agricultural productivity (Pope 1985).

areas, public recreation and national parks allow for increased conflict and a magnification of emotion.

Following the tradition of agricultural economists, I have attempted to explain conflict between public and private managers of rangeland as if both sides are perfectly calculating and rational. For example, optimal livestock stocking rates on rangeland depend on the planning horizon and rate used to discount the value of future benefits from the range. If it can be concluded that public rangeland should be managed for the good of society as a whole, including future generations, and that society's planning horizon is longer than that of many individual cattlemen, and/or society's discount rate is lower than many individual cattlemen's, then conflicts and differences between public and private management of rangeland will exist. Society may view individual cattlemen as being greedy exploiters of the range, while individual cattlemen may view public range managers as being over-zealous conservationists.

Continued research dealing with public rangeland, has convinced me, however, that calculating, rational, economic agents do not always best describe the players in the game. I grew increasingly aware of this while conducting research for the National Forest Service in Utah. Under a cooperative agreement with the Forest Service, an economic evaluation of a relatively major range improvement project called the Oak Creek Range Management Project was conducted (Pope and Wagstaff 1987). Millions of dollars had been spent on various range improvement practices designed almost exclusively to improve forage for livestock production. In 1985, coordinators of the project were awarded the Secretary of Agriculture's Distinguished Service Award for the most notable conservation action in the nation. The problem was that for every dollar spent, only about 25¢ worth of benefits could be accounted for, and for every dollar spent, less than 7¢ would be returned through grazing fees. Many

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people continue to advocate this and similar range improvement projects based on benefits to local ranchers and ranching communities.

Although the Oak Creek project and most others like it are extremely inefficient and costly means of enhancing rancher's incomes, direct cash subsidies have not been politically palatable. Another implicit goal of the project may have been to maintain "Ranching families" or "Ranching lifestyles." Just as it may be a public goal to save the grizzly bear in Yellowstone National Park, it may be a goal to save the Oak City Area rancher. But to save the Oak City rancher through direct cash subsidies would be like saving the Yellowstone grizzly by caging and hand feeding him. The politically palatable means of supporting both the grizzly and the rancher is to preserve their habitat. Ranchers, however, unlike grizzly bears, cannot be shot or removed when they do not behave as required.

Ranching families cannot be expected to maintain or even obtain the mythical lifestyle of popular romanticism. For example, many of the ranchers in the Oak Creek project area

The politically palatable means of supporting both the grizzly and the rancher is to preserve their habitat. Ranchers, however, unlike grizzly bears, cannot be shot or removed when they do not behave as required.

farm, teach school, or have some other primary occupation. Most have only a relatively small number of cattle that they "run on the mountain." Often romance, recreation, the achievement of a desired social status, or simply the maintenance of a family tradition are primary motives. Also the public perception of the rancher on the public lands seems to be shifting from viewing him as a rugged independent, natural nobleman, to a greedy caretaker of "Sacred Cows at the Public Trough" that exploits the public range to the exclusion of other uses. Although public perceptions may be inaccurate, subsidizing the public land beef industry may do more harm to ranchers' image and the viability of their lifestyle than allowing them to deal directly with prevailing economic conditions.

It is noted that only about 27,000 livestock producers, or 7 percent of cattle producers in the 16 Western States, and 2 percent of cattle producers in the U.S., use any public rangeland. About 2 percent of feed consumed by cattle in the U.S. comes from public forage. The total annual value of this forage based on \$1.35 per AUM, the amount currently charged by the Forest Service and BLM, is less than 25 million dollars. This over-estimates the value of public forage for livestock production because it does not include the cost of administering livestock grazing on these lands. Federal costs alone equal approximately \$50 million, leaving the net value of livestock grazing to the public negative. Even this ignores other opportunity costs of livestock grazing on public lands. Livestock grazing on public lands as currently administered is not a source of public revenue but is a drain on public funds, although relatively a small one. It is becoming increasingly clear that domestic livestock is beginning to compete more heavily with other growing uses of rangeland, such as recreation, watershed, wilderness preservation, and wildlife habitats. If livestock producers were required to pay all the cost of public forage, the amount and relative signifi-

cance of forage on BLM and Forest Service land would decrease.

If this is true, why don't we just drastically reduce the support for livestock grazing on public rangelands? Why do we continue to spend many millions of dollars to study how to best manage the lands and on livestock-oriented range improvement projects? Why, in the time of great government borrowing, and trillion dollar Federal budgets, are so much time and effort going into reports entitled "Federal Grazing Programs: All Is Not Well On the Range"?

At least part of the answer lies in the fact that associated with public rangelands is a romance—a sentimental, emotional attraction, attachment, or aura associated with vast tracts of relatively undisturbed range and forest land. Laren Robison (1983) stated that "the romance associated with range is far better known than the truth." I would suggest that this romance is a part of the truth. To ignore it is to ignore one of the most important elements in the debate dealing with proper management of public lands in the West. Economists deal with management issues based largely on efficiency and economic rationality; yet, as Nelson (1982) pointed out, "It is the romance of the public lands which gives them their compelling interest, and leads even many economists to study them." The fact that this land exists, relatively undisturbed and publicly owned, may give a certain degree of pride and national unity and identity. Like the Statue of Liberty, public range and forest land in the West is a symbol of part of our national heritage. A public rangeland committee assembled by the National Academy of Sciences stated:

Public rangeland supplies only a small amount of the national demand for meat, but an extremely large amount of the national demand for myths of free-ranging rugged individualists. . . It is evident that public rangeland may be far better at producing the stuff of myth and national identity than economically prudent beef and mutton products. Yet, in the long run, the production and perpetuation of national myth may be one of the most valuable resources harvested from public rangeland. (As quoted by Nelson, 1982)

The problem with simply recognizing that romance influences the way we view and manage public rangelands is that

Economists deal with management issues based largely on efficiency and economic rationality; yet, as Nelson (1982) pointed out, "It is the romance of the public lands which gives them their compelling interest, and leads even more economists to study them."

romantic perceptions are not the same. In fact, there seems to be increasing polarization of the way different groups of people romanticize about public rangelands. These different perspectives, more so than just economics, seem to increasingly be the source of conflict on the public rangelands.

Adherence to these romantic notions often distort reality. For example, I recently conducted a funeral for a neighbor who was 82 years old when he died in an accident while riding a horse. He loved horses and was good with them. He was a fine man. The interesting thing was that over a period of days visiting with the family and listening to the talks at his funeral, you would have thought he had been a cowboy or rancher his entire life. Romantic stories about him working on roundups and riding horses were told with reverence. The

truth was that he never was a rancher. He worked for two summers back in the 30's as a rider for a livestock association. The rest of his working life was spent primarily as a construction worker and machinist at a local steel mill. He was an excellent, skilled crane operator and machinist, but that was never mentioned and seems to be nearly forgotten and replaced with the last few years when he helped on a roundup for a few weeks in the fall.

Why isn't a crane operator, a machinist, a school teacher, a nurse, a traffic cop, and other such occupations as noble? They are. But there has not been as much romanticism associated with them or their resources.

They view recreationists and conservationists as tree-hugging, posy-sniffing wimps that are trespassing not just on lands that they view as theirs by right of conquest, but on rancher's social status as well. The problem is that environmentalists, the Sierra Club, Audubon Society, and other such groups, are now part of main stream America.

We are all very much aware of the traditional romantic view of the western lands. Wilderness is a frontier to be conquered. The range is a source of feed for livestock that are the lifeblood of a noble industry. Wildlife such as deer and elk are competition for forage that could be used by livestock. Predators, such as coyotes, bears, and cougars are natural enemies to the industry to be shot on sight. Cowboys or buckaroos, as many now prefer to be called, and ranchers are independent, naturally wise, and brave—a special breed of man.

The traditional view of the West and its wild rangeland, however, is changing. Conservationists and environmentalists are no longer just a fringe interest group. Ranchers still use the word environmentalists as a swear word, or at least, in association with them. They view recreationists and conservationists as tree-hugging, posy-sniffing wimps that are trespassing not just on lands that they view as theirs by right of conquest, but on ranchers' social status as well. The problem is that environmentalists, the Sierra Club, Audubon Society, and other such groups, are now part of main stream America. Wildlife specials are more common on TV than Westerns. The Marlboro man on a horse is being replaced with Mark Harmon fishing or hiking in public wildlands. The West is not a land of rural people trying to conquer the frontier; it is a region of scattered cities of urban people that often want recreational and emotional access to the public rangelands and forests. Cowboys are increasingly being viewed as subsidized exploiters of the range. Elk, deer, and other wildlife including predators, are increasingly being viewed as the noble part of nature. Man is not part of this alternative romantic view of our public wild lands, but is only a visitor to it. And the cow is increasingly viewed as a domestic beast that should be confined to feed lots and to the Mid-west. In this new romantic version of the western rangeland, the cow is more menace even than intruder.

In order to gain a flavor of the emotions felt on this issue, Edward Abby told a group at the University of Montana in May 1985 that:

Our public lands are infested with domestic cattle. Almost anywhere and everywhere you go in the American West, you will find herds—herds—of these ugly, clumsy, shambling stupid, bawling, bellowing stinking, fly-covered, [manure]-smeared, disease-spreading brutes. They are a pest and a plague. . .

Romance and emotions akin to it seem to be more powerful in the struggle in the allocation of public rangelands than economic analysis. The two different romantic notions of the West share a love of the land and outdoors, but from different perspectives that leave little room for compromise. As American society in general, and the West in specific, moves more toward the second view—and as this is getting reflected in public land politics—public lands ranchers and their supporters that continue to accept the first view are becoming angry and paranoid.

Economists are sometimes employed to show the importance of livestock. Our results are increasingly bad news. Economic principles suggest that we allocate rangeland such that the value of the last unit of rangeland used for cattle equals the value of the last unit of rangeland used for say elk. As the real marginal value of elk to society is increasingly high and that of cattle low, economic analysis increasingly does not favor cattle on public rangeland.

Economists have been getting increasingly ridiculed in the livestock-oriented publications. Studies by economists relating to the value of forage have been ridiculed mercilessly by cattlemen's groups and supporters of them. I have studied these studies. I have even done one of my own. The studies are clear. The average market value of forage on public lands is often much larger than the \$1.35 per AUM currently being charged. To say this makes cattlemen and their supporters livid. The Utah Cattlemen's Association as part of their official resolution in December 1985, states that, "The current grazing fee formula has a proven and scientific history for being a fair and equitable. . ."

I'd like to meet the economist that can give scientific proof for what is fair and equitable. Economists can find market value of an AUM with reasonable accuracy. They cannot determine with any accuracy if that market value or any other is fair or equitable.

Management attempts, by Public Land Management Agencies, to reflect society's changing values are rarely met with economic efficiency arguments but with emotional reaction. For example, David Witts, an attorney supporting cattlemen's interests, stated:

Only recently, when Environmentalist met Bureaucrat, things changed. Small government agencies such as the BLM, Fish and Wildlife, and Park Service, have become bloated bureaucracies stuffed with fauna sniffers. Smokey, the Bear, traded his hat for a Sherman tank. Obstructionism is in the saddle.

We accept that romance and other emotions akin to it are an important force in the allocation of rangeland resources. The truth is, romance is used to help sell everything from jeans, soda pop, toothpaste, cigarettes, and beer, to wildlife preserves and wilderness areas. We should be aware of it and its implications. To the research economist dealing with the public rangeland, and even private rangeland to some extent, good research requires that we deal with it directly. For the Natural Resource or Agricultural Economist, the issues have become extremely complex and their work is done in an increasingly emotional environment. The various sides sometimes seem to be economist shopping. The good economist who, based on economic principles carefully weighs different values, rarely gets results that are fully to the liking of any group or special interest.

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Conflicts in California Range Management

Gordon K. Van Vleck

As California's Secretary for Resources, I am the chief administrator of the Resources Agency, which includes the Department of Fish and Game, Conservation, Parks and Recreation, Water Resources, Forestry, Boating and Waterways, and the California Conservation Corps. Range management is not a topic that fits neatly into any of the 7 departments or 20 boards and commissions that make up the Resources Agency. But I am comfortable talking about conflicts in range management because there are few aspects of resource management that are without conflict. And many of these resource management conflicts can be found near Arcata, in California's north coast region.

The ocean waters and coastal streams and rivers of the north coast support one of the nation's outstanding salmon fisheries. Major conflicts exist between sport anglers, commercial fishermen, and native Indians who enjoy special fishing rights under government treaties. To the north, just below the Oregon border, the Smith River—an outstanding salmon and steelhead stream and a part of both the federal and state Wild and Scenic River Systems—is the site of conflict between anglers and environmentalists and mining interests who want to develop a major cobalt deposit in the river's upper drainage.

The creation of the Redwood National Park brought timber interests, environmentalists, local residents, and economic interests into one of the most intense resource conflicts the state has seen in many years. Timber harvesting on private lands of the North Coast, as elsewhere in California, is conducted under the strictest set of environmental regulations of any state in the country. Although these regulations have been in effect for a number of years, they are viewed differently by timber interests—which contend they are too strict

and increase their costs unnecessarily—and others, including anglers and environmentalists, who contend they are not strict enough.

When Mark Twain visited California in the days of the Gold Rush, he said, "In the West, whiskey is for drinkin' and water is for fightin' about." I can assure you that things haven't changed much—Californians are still fighting about water. The chief problem is that nearly all of California's water is in the northern third of the state, and two-thirds of our population is in the southern third of the state. Water interests and politicians from Southern California view North Coast rivers as logical sources of water to meet future population growth and farming needs, while people from the San Francisco Bay area northward fear that exports of additional water will be harmful to northern California fisheries, wetlands, and water resources.

I am no stranger to conflicts when it comes to resource management, but before talking about range management I want to define my subject. The U.S. Forest Service has its own definitions for "range," "forest land," and "rangeland" (USDA-FS, 1979). The Bureau of Land Management has definitions for "native grazing land," "rangeland," "grazeable woodland," and "native pasture" as well as ordinary "range" (USDA-SCS, 1976). The State Forest and Rangeland Resources Assessment and Policy Act of 1977 defines rangeland as land on which the existing vegetation, whether growing naturally or through management, is suitable for grazing or browsing domestic livestock for at least a portion of the year. That is the definition I will use.

Rangelands in California

California rangeland varies both in the amount and timing of forage production. Lush meadows in the Sierra Nevada may produce well over one AUM on each acre during the

summer, while as many as 20 acres of sparsely vegetated San Bernardino County desert lands may be required to produce a single AUM of spring forage. The majority of forage consumed by livestock in California is produced on the closely associated hardwood and annual grassland ranges, and peak productivity is in late winter and spring. Of the approximately 14 million AUMs consumed by livestock on California range in 1985, almost 11 million were produced on hardwood and annual grassland ranges. About 95 percent of hardwood and annual grassland AUMs come from privately owned rangelands (CDF-FRRAP). The acreage of private rangelands reported grazed in California has steadily declined over the last 15 years, from 26 million acres in 1972 (USDA-FS), to 17.8 million acres in 1985 (California County Agricultural Commissioners, 1985).

Today the Forest Service administers grazing on 12.9 million acres, and the BLM on 9.3 million acres in California (USDI-BLM, 1985; USDA-FS 1987). The number of AUMs sold for cattle grazing on Forest Service and BLM lands has remained constant or increased over the last 10 years. The BLM sells nearly 400,000 and the Forest Service more than 500,000 AUMs annually for cattle, sheep, and goats—an average of 6 percent of the forage consumed by livestock on California Rangelands (USDI-BLM, 1985; USDA-FS, 1985). Other public agencies, including the Department of Defense, state parks, the City of Los Angeles Department of Water and Power, and the California Department of Fish and Game lease almost another 300,000 AUM's making the total public forage resource average about 9 percent of the rangeland forage consumed by livestock in the state (CDF-FRRAP; Bartlett et al. 1983).

California's rangelands help support a cattle industry, with a value of just over 1 billion dollars in 1985, ranked eighth in the nation and second among California agricultural commodities in 1985 (Calif. Dept. Finance, 1986). Based on the annual production of California range and farm cattle, the industry produced beef worth half a billion dollars wholesale in 1985—and more than 60 percent of the feed consumed was forage grazed from rangelands. California's sheep and wool production had a commodity value of 58 million dollars in 1985, 10 percent of the national total and ranking second in the nation (Calif. Dept. Finance, 1986). About half of the feed consumed by these animals came from rangeland, with most of the remainder coming from crop residues and improved pasture. Red meat and wool produced from rangeland forage alone was estimated to be worth 318 million dollars wholesale in 1985, ranking 13th among all California agricultural commodities.

Recreation is also an important use of the state's rangelands. Even water sports are important because most California reservoirs are located in rangeland areas. Wood, especially firewood, is a significant resource on some rangelands. About 160,000 cords per year—about 10 percent of the total consumption—are produced by hardwood harvest (Doak and Stewart, 1986).

What do people want from California rangelands?

Livestock producers see rangeland as their source of livelihood. Often, it is valued as the foundation of a way of life. Livestock producers value the pleasure of living in rural sur-

roundings, cherish their right to manage their land as they think best, and recognize that the bottom line is making a profit. Many inherited their land from their parents, and see ranching as a family tradition, one that they grew up with and hope to pass on to their children.

Wilderness advocates seek places where they can experience lands where nature is in control rather than people. In general, they want rangelands to be as close to pristine as possible, and see them as the territory of wildlife and native plants, rather than of people or livestock.

Many camping enthusiasts want more development and improvement of campgrounds, and increased public access to remote rangeland areas. For them, rangelands are a place to relax and get away from it all.

Anglers, for the most part, would like to see plentiful fish and the management of riparian areas for improved fish habitat. Timber managers want to manage forest rangelands for timber production. They often see other uses as secondary to the objective. They would like to be as unrestricted as possible. Forest lands are a source of employment for forest workers and provide the livelihood of many forest landowners.

Off-road vehicle users want more lands accessible for ORV use, while environmentalists see rangelands as a valuable source of open space, wildlife habitat, and recreation opportunities. To them, maintaining healthy rangeland ecosystems is an important part of maintaining a desirable quality of life.

Some developers view rangelands as worthy investments, their ultimate objective being development for residential or agricultural purposes.

These different uses and values often are the source of conflicts. Livestock use of riparian areas may degrade stream water quality, and changes in stream environments may reduce fish habitat quality. Campers, environmentalists, and wilderness enthusiasts may believe that livestock detract from their recreational experiences.

In some places, wildlife habitat may be altered or forage reduced by livestock. Mining also can have effects on streams and on rangeland ecosystems that are considered undesirable by other users, including livestock producers.

Recreationists may trespass on private rangelands, may damage roads and forget to close gates, or harass stock. Hunters have been known to shoot a cow or two. Different kinds of recreation uses can also generate conflicts. Some campers want highly developed camping facilities and good roads that maximize their access to remote areas. Backcountry campers and hikers may feel that developed facilities and roads detract from their experiences. Non-ORV users often find ORVs offensive. Livestock producers may believe that ORV's are used to harass stock. Noise from ORVs may detract from the experience of campers and hikers; environmentalists deplore damage to vegetation and soils.

Some anglers may want more stream stocking, and "put and take" fishing. Other may want to fish for native stock and will support catch and release angling. Ranchers and some hunters may want to see predators controlled, while other users of rangelands—including people who have never seen a wild predator—may feel that plentiful coyotes or mountain lions are important.

These kind of conflicts are more often publicized with

respect to public lands, where the multiple-use concept means that public land managers have the difficult task of considering all these uses and trying to resolve the myriad of conflicts over on public lands. Issues on private lands may be different. Uses are generally arbitrated by the landowner, and determined by the landowner's objectives. Yet conflicts still arise.

California's booming population has resulted in many changes in the state's demography. Conflicts on private rangeland are often the result of expanding residential and urban development. County planners, faced with a choice of directing development to agricultural lands, timberlands, or rangelands, often chose rangelands. Even if a rancher does not sell property for development, proximity to development often means costly increases in vandalism, rustling, and stock losses to roaming domestic dogs. Too often, the only way to break even financially is to sell out. In some cases, zoning and open space regulations may restrict the landowner's options for selling or subdividing property.

Conflicts about management practices of private landowners are important in California, as our expanding urban population looks increasingly to open lands for recreation and a chance to escape the shoulder-to-shoulder lifestyle of modern urban life.

What's ahead?

More conflicts, not fewer. California's population was 10.5 million in 1950, 23.6 million in 1980, 26.1 million in 1986, and it continues to grow (Calif. Dept. Finance, 1986). But just as important as the changing numbers are the changing characteristics of our population. In 1970, non-white ethnic groups made up 26 percent of California's population; in 1980 they made up 33 percent of the total. By 2010, it is projected that more than half of California's population will be non-white (Calif. Dept. Finance, 1986). These ethnic groups have different traditions and cultures than the majority of our people have had in past years. And they will have different views about committing public funds to natural resource management, and about the role of parks and other open space lands, public and private, for recreation.

Another factor affecting rangeland management and generating its own set of conflicts is conversion of rangeland to other uses. Between 1950 and 1980, 282,000 acres of grassland, and 136,000 acres of hardwood woodland were converted to urban use. Conversion for agricultural use included 2.7 million acres of grassland and 481,000 acres of hardwood (CDF-FRRAP).

How can private landowners and public managers cope with changing public attitudes and new economic climates? One way may be with specialized resources management programs such as California's Integrated Hardwood Management Program. California's hardwood rangelands are an important source of livestock forage in the state. They are also the habitat of a wide variety of wildlife species, as well as many species of oak, highly valued for their natural beauty

and as firewood. Some of these oak species do not appear to be regenerating at a rate adequate to assure their continued abundance on hardwood rangelands.

This program provides a framework for agencies, researchers, and private landowners to work together to resolve a complex issue involving conflicting interests in and use of hardwood rangelands.

Ultimately, however, decisions about the future of rangeland will be made in the political arena—not by university scientists or land managers or owners. It's important that we remember—and remind others—that our prosperity and quality of life depend on the productivity of our natural resources. And of all our resources, land is the most basic. Food comes from the land. Fiber comes from the land. Wood comes from the land. Even the rare metals that scientists and engineers will use to build the supercollider come from the land.

We need to be concerned that those future decisions will be made by taxpayers and voters—may of whom believe that milk comes from a waxed-paper carton, water from a faucet, and that beef somehow grows—neatly sliced—in vacuum packed plastic packages. We already know how to manage our resources. But if we are to have the freedom to use that knowledge, we need to create a new base of knowledge and understanding among our political leaders—and the people who elect them—of the true value of rangelands and other renewable natural resources. Taking into consideration the changing nature of our population, that will be no small challenge. Unless we are successful, though, conflicts will continue to be an important part of range management.

Thank you for this opportunity to share some of my ideas with you.

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Organizational Structure and Function of the Society for Range Management

John H. Brock

Editor's Note: This is a good insight into the structure and function of our organization.

The Society for Range Management (SRM) is an international association open to anyone engaged in or interested in any aspect of the study, management, or use of rangelands. The Society for Range Management is composed of Sections which consist of local members within defined geographical boundaries. Sections become functional upon formal organization and approval by the SRM's Board of Directors after consultation with the Advisory Council. A Chapter, composed of SRM members of a given Section, may be established by the governing body of that Section for an area

where a strong localized organization can be effected. Thus, SRM's organization consists of individual members, or Chapters, forming a Section, with Sections forming the Society for Range Management.

The stated mission of SRM is "To provide recognition and understanding of range environments throughout the world; to foster public understanding and appreciation of the economic and social benefits derived from proper use and management of the range resources; and to provide for service and activities that will enhance knowledge and expertise of range managers." The Society for Range Management strives to meet this mission through its organizational structure and its actions. This paper is to provide the readers of *Rangelands* and SRM members a view of the society's organ-

This paper is based on a videotape presentation developed for the Advisory Council of the Society for Range Management (SRM) at the 1986 annual meeting held in Florida. Author is an Associate Professor, School of Agribusiness and Environmental Resources, Arizona State University, Tempe, AZ 85287.

SOCIETY FOR RANGE MANAGEMENT- MANAGERIAL ORGANIZATION

ELECTED OFFICERS

PRESIDENT
FIRST VICE-PRESIDENT
SECOND VICE- PRESIDENT
BOARD MEMBERS

APPOINTED OFFICER

EXECUTIVE VICE-PRESIDENT

BOARD OF DIRECTORS

PRESIDENT
FIRST VICE PRESIDENT
SECOND VICE PRESIDENT
6-ELECTED MEMBERS
EXECUTIVE VICE-PRESIDENT
(NON-VOTING)

ADVISORY COUNCIL

CHAIRMAN/VICE-CHAIRMAN
SECTION OFFICERS



Fig. 1. Chart of the organization of the Society for Range Management indicating the management units.

ization and how the activities of SRM are accomplished.

Organizational Structure

The administration of SRM activities fall into three general categories, elected officials, committee appointments and the staff headquartered in Denver, Colorado. The staff of the Denver office and Washington D.C. liaison staff operate under the direction of the Executive Vice-President. The Executive Vice-President is initially appointed by the SRM President with advice and consent of the Board of Directors.

The elected officials include the President, First Vice-President, Second Vice-President and six members as Directors (Fig. 1). The President, and First and Second Vice-Presidents, serve one-year terms in each office and move forward in succession. This provides a transition of duties through the role of understudy. The Board of Directors, which governs the affairs and business of SRM, consists of three officers, the Executive Vice-President and six elected board members. Two board members are elected each year and serve a three-year term.

Another elected group that assists in the management of SRM activities is the Advisory Council (Fig. 1). The Advisory Council is composed of three elected officers from each Section. These officers are the Section President and Vice-Presidents or the Past President, depending on the Section's organization. The Advisory Council acts as a sounding board for SRM by providing a forum for discussion and evaluation of SRM affairs from the wide spectrum of SRM membership. The Advisory Council, representing the 20 Sections of SRM, also serves as a communication link between the general membership and the Board of Directors.

The most direct route to the decision making process in SRM is by activity of members in their Sections. The information flow is from the membership through their Section to the Board of Directors where, if appropriate, action will be taken. Any member may request some action involving the Board of Directors, but it is preferred that the members work through their Section officers and committees.

The bulk of the business of the parent organization is performed in committee work. Currently there are 20 standing committees in SRM. In broad categories, the committee activities fall into (A) Internal Affairs or Administrative, (B) Membership and Service, and (C) External Affairs (Table 1). Standing committees are formed by action of the Board of Directors. The standard committee structure has members that are appointed for a three-year term, by the First Vice-President prior to his term as President. Members can request to be appointed to the committee of their choice. In most cases, members serve on a rotational basis resulting in planned turnover. The committee chairman is appointed by the incoming President. The typical approach is for a committee member, with 2-3 year's experience, to be appointed chairman; however, the President can directly appoint a noncommittee member as chairman. Each committee also has a representative from the Board of Directors to provide a positive link between committees and the Board.

Some committees have a modified structure or additional members, specifically those exceptions include:

- * *Information and Education* — Also includes all Section I&E Committee Chairmen and Newsletter Editors.
- * *Membership* — Includes all Section Membership Chairmen.
- * *Public Affairs* — Includes one student member and a representative to the Natural Resources Council of America.
- * *Student Affairs* — In addition to the standard alignment, this committee includes two members representing the Plant Identification Contest, one representing the University Range Management Exam, one representative of the Graduate Student Paper contest, one representative of High School Youth Forum and one representative of the University Student Forum.

Special activities can be performed by *ad hoc* committees appointed by the President. The *ad hoc* committees are usually task oriented and serve only during the term of the appointing President. Recent examples include the "Cowboy Cookbook" and "Technology Transfer" committees.

In addition to committees, some of the Society's business is conducted by councils, boards, panels and an affiliations group. There are two councils, the Advisory Council whose general function has been previously addressed, and the Council of Past Presidents. The Council of Past-Presidents has an executive committee consisting of the three immediate Past-Presidents with the newest Past-President serving as the chairman. This council assists with the preservation of SRM history, serves as an advisory committee for the Endowment Fund and provides advice, as needed, to the Board of Directors. Also, there are two Boards, each of which is editorial in nature, serving the *Journal of Range Management (JRM)* and *Rangelands*. The *JRM* editorial board is headed by an editor and has twelve appointed associate editors who review, edit, and select scientific papers for publication, as refereed articles, in the *Journal of Range Management*. The *Rangelands* editorial board has as membership, an editor and twelve appointed members, who review and edit articles for the nontechnical periodical *Rangelands*. There are two panels whose membership is appointed by the SRM President for indefinite terms. The Range Management Consultants Certification Panel reviews and approves applications for consultant certification in range management. The other panel is the Range Curricula Accreditation Panel which evaluates applications from educational institutions for range program accreditation involving written support documents, visits to review facilities, and interviews with faculty. Additionally, there is a group termed "Affiliations" in which an SRM member serves as liaison with other professional societies. The membership of Affiliations is composed of one SRM member per associated organization.

If an SRM member is interested in serving on a committee, there are several ways to be appointed: (1) become active in your Section, (2) volunteer for committee service at the Section level, (3) or volunteer when the elected leader of SRM requests help in filling committee rosters. Committee service is rewarding, especially when recommendations are placed into action by the Board of Directors.

Policy, Resolutions and Position Statements

A major function of SRM is to disseminate knowledge and to serve as a source of expertise when addressing issues

Table 1. Separation of the Society for Range Management's standing committees into functional groups and a brief description of each committee's function within the Society.

<i>INTERNAL AFFAIRS/ ADMINISTRATIVE</i>	<i>SERVICE</i>	<i>EXTERNAL AFFAIRS</i>
Annual meeting Presidential appointment; for specific meeting	Membership Recruitment and retention of members; promotes inter-section exchange of recruitment techniques	International Affairs Guidance to SRM concerning international legislation; promotes liaison with range managers world wide
Budget Prepare balanced budget for SRM	Professional Affairs Review academic/practical training requirements; improve professional standards and public awareness of range management	Excellence in Range Management Advisory on actions by SRM; liaison to range users and agribusinesses
Finance Financial policy, funding sources, review economic status and budget formulation	Information & Education Implementation of programs through sections; promote recognition of SRM to resource managers; promotes improvement of communication skills	Public Affairs Statements to solidify/amplify SRM consensus on range related matters; evaluates section concerns for possible society endorsement
Planning Establish SRM goals and objectives and procedures to achieve goals; appoint's archives/history group	Employment Affairs Integrate employment activities of SRM; employment interview service; announce currently available positions; maintain resume and employer files	Research Affairs Improve funding; stimulate/organize range research projects; promote SRM and professional research interests
Nominating Recommends candidates for 2nd Vice-President, Board of Directors	Publishation Advise on SRM publications; assess publishing methods for range information; increase quality of SRM publications	Student Affairs Coordinate: range youth forum; university student conclave; plant ID contest; range management comprehensive exam; graduate student contest
Elections Count election ballots	History-Archives Collect documents for archiving in a single depository, develop history of SRM, encourage section history development	Technology Transfer Prioritizes technology transfer needs, support transfer activities in compliance with SRM mission
Awards Document, nominate persons for awards-citations from SRM	Journal of Range Management Review and select articles for publication as scientific papers	Commercial Affairs Establish bridges between SRM and agribusinesses providing goods and services to the range industry
	Rangelands Provide high quality articles of nontechnical nature for publication	

concerning management of rangeland resources. In this case SRM may utilize: (1) a Policy Statement which is "a carefully derived statement of principle to guide decisions and actions of the Society for Range Management", (2) a Position Statement which is "an unequivocal statement of posture or attitude in regard to a specific issue within parameters of a Policy Statement of the Society", and/or (3) a Resolution which is a "formal expression of opinion based upon conclusion, which requests and encourages action to resolve a situation within the parameters of a Policy Statement of the Society". Membership involvement is vital to the function of SRM and this is best exemplified by noting that a Section, Chapter, or *any active member* of SRM can propose a new policy or submit resolutions or position statements to the Society.

Policy Statement

A policy statement is a principle upon which SRM functions and its importance is exemplified by the fact that it requires a vote of the general membership. The formulation of policy statements generally follows the diagram in Fig. 2. A Section, Chapter, or an SRM member through his Section,

can initiate a policy statement. The statement is referred to the appropriate SRM committee that would deal with the subject of the statement and also to the Public Affairs Committee and Advisory Council for review and recommendations. The policy statement is then forwarded to the Board of Directors. The policy statement is reviewed by the Board of Directors and can be approved by a simple majority vote. The policy statement is then prepared for a referendum to determine if the membership wishes to adopt, amend or rescind the statement. Passage is by a simple majority of those voting. The Board of Directors also has the authority to formulate policy statements. Only policy statements established by Board action may later be changed by the Board. Those policy statements established by referendum of the membership shall stand unless removed by another referendum. When a policy statement has been approved by the Board and by vote for the membership, it will be published in a SRM periodical. Specific guidelines exist for formulation of policy statements and are contained in Article XI, Section 6 of the SRM Bylaws.

SRM POLICY STATEMENT FORMULATION

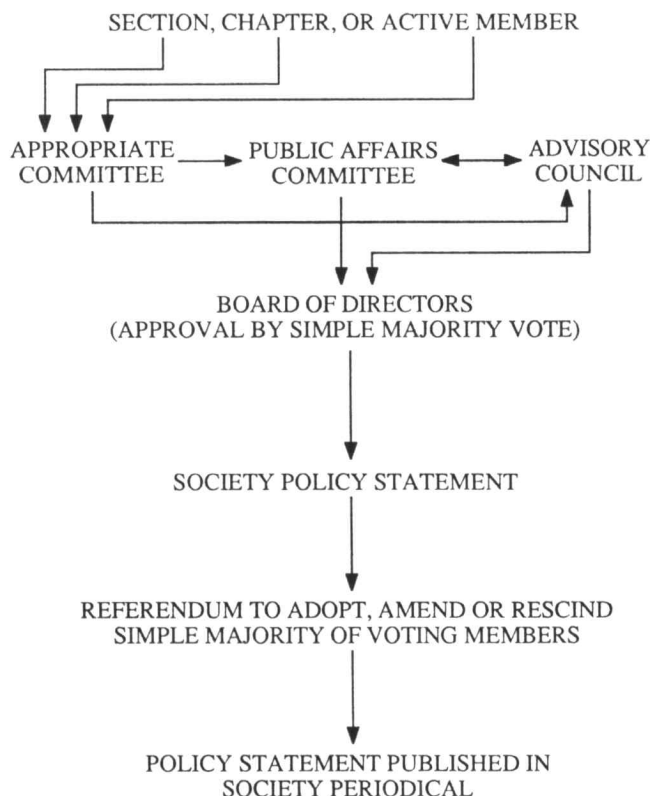


Fig. 2. Diagram of the process utilized by the Society for Range Management to develop policy statements that serve to guide the Society and clearly state its position.

SRM RESOLUTION AND POSITION STATEMENT FORMULATION

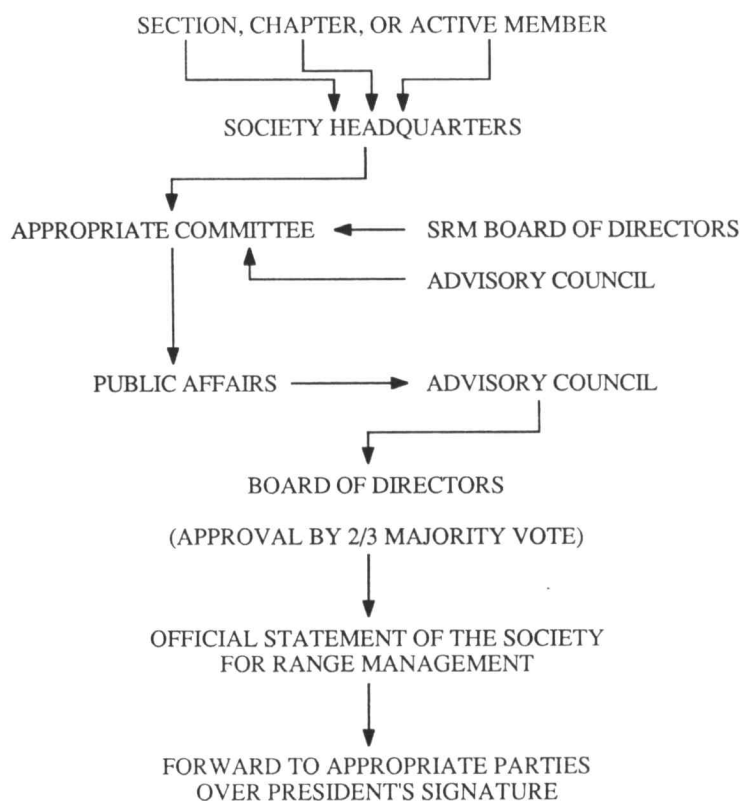


Fig. 3. Diagram of the process utilized by the Society for Range Management to develop resolutions and position statements on items considered necessary to affirm the Society's beliefs.

Resolution and Position Statements

The initiator of the resolution or position statements may submit the item(s) to SRM headquarters for assignment to the appropriate SRM committee (Fig. 3). The Society *must* consider *all* proposed resolutions or position statements coming from Sections, Chapters or active members. The Board of Directors and Advisory Council may also prepare resolutions and/or position statements to be forwarded to the appropriate SRM committee for consideration. The review committee forwards the draft document and its recommendation to the Public Affairs Committee, which prepares a final draft that is consistent with SRM policy before forwarding it to the Advisory Council and the Board. The original review committee may have a representative present during deliberation on the resolution or position statements who is prepared to support the item.

The resolution or position statement becomes an official statement of SRM with a two-thirds majority vote of the Board. The resolution or position statement is then transmitted to the target parties with the SRM President's signature. If a resolution or position statement does not receive the two-

thirds favorable vote of the Board, active members of SRM present and voting at any annual membership meeting may, by two-thirds vote or a petition of 50 signatures, reintroduce the item in the annual membership meeting. The resolution or position statement may be adopted by a two-thirds vote of the active members present. Each Section and Chapter can formulate position statements and resolutions, which are consistent with SRM policy, within its area of jurisdiction. Chapters must file their position statements and resolutions with the Section, and Sections must file both Chapter and Section position statements and resolutions with SRM's Executive Vice-President. The SRM Board, by two-thirds vote, may rescind any Society, Section or Chapter position statement or resolution. Sections or Chapter may also rescind their own actions.

The intent of this paper is to promote a better understanding of SRM and to illustrate that SRM is an open organization. Any member in good standing can initiate important policy changes and statements or resolutions that emerge from the Society at all levels, local to international.

Range Development in Northern Libya

Henricus C. Jansen

The Socialist People's Republic of Libya is a large desert nation of 685,500 square miles along the southern shores of the Mediterranean Sea. Over 95 percent of its surface area consists of mostly uninhabited sand and stone wastelands of the Sahara Desert. With the exception of the coastal uplifts of Jebel Nefusah in the west and Jebel al Akhdar in the east, and the Tibesti mountains along the southern border, the country is flat and dominated by low plains and tablelands below 2,500 feet elevation.

Because of its geographic location between 19° and 33° north latitude, subtropical high pressure systems dominate the weather throughout most of the year. These systems are characterized by subsiding warm and dry air masses, resulting in aridity throughout most of the country. Only the Mediterranean shores are sufficiently northward to receive some winter rainfall from frontal storms that travel further south than usual. This narrow coastal strip is a maximum of 90 miles wide and receives between 4 and 14 inches average annual rainfall. As is typical for arid and semi-arid regions, rainfall is highly variable and unpredictable. Nevertheless, historical records and cultural artifacts leave no doubt as to the importance and widespread practice of small scale irrigated farming, dryland farming, and livestock production during the past 3,000 years.

More than 95 percent of the population lives in the coastal strip. The principal cities are Tripoli in the west and Benghazi in the east (Fig. 1). These and many other coastal cities were colonized by Phoenician and Greek traders between 2,500 and 2,700 years ago. During Roman times, coastal Libya had nearly two dozen large and small towns, hundreds of farms (many fortified) and an extensive road network. Detailed written documents indicate that coastal Libya was an important producer of olive oil, grain, and livestock. Wildlife, including elephant, lion, cheetah, giraffe, ostrich, and many species of gazelle and other ungulates, was common and hunted for meat and sport.

In 1982 Libya's population was estimated at 3.25 million people, including nearly 0.5 million foreign guest workers. Until 1965 the population was predominantly rural and engaged in agricultural production. Rapid urbanization during the past two decades, a high population growth rate (2.8 percent), and until recently, a large disposable income, have combined to make the country increasingly dependent on imported foodstuffs, particularly food and feed grains. In the early sixties the country recognized the need to use its extensive oil revenues to develop its human and natural resources. The development of the agricultural sector, including range and livestock, was recognized as a need of the highest priority. Achieving self-sufficiency in basic food production,

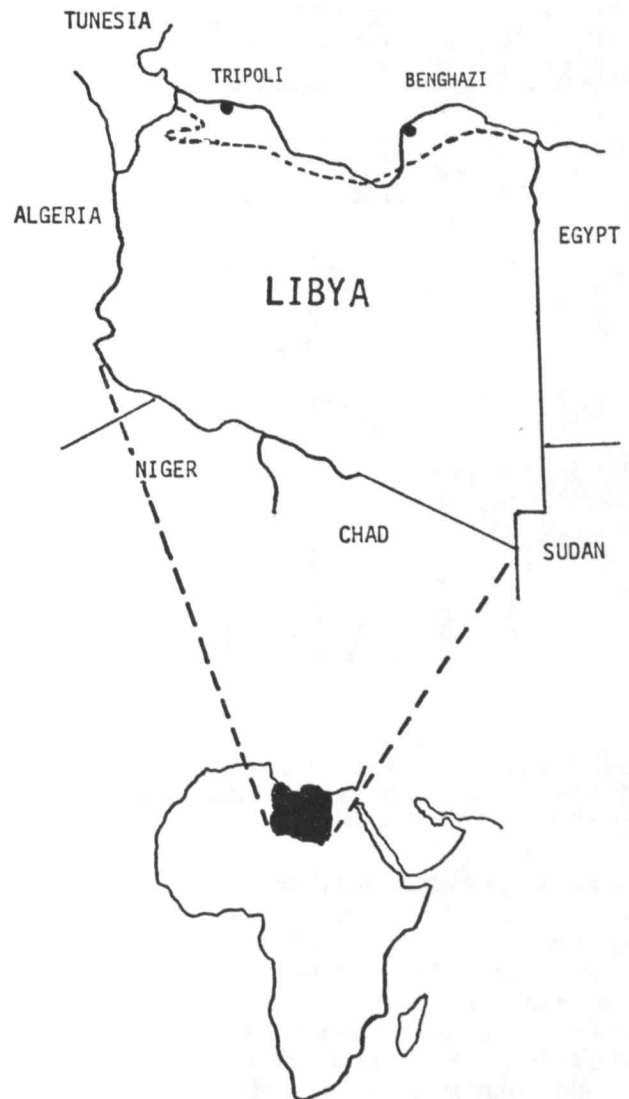


Fig. 1. Location of Libya and principal cities. Approximate location of the 4 inch isohyet (---) is also indicated.

especially grain and red meat, was accepted as a national goal to be accomplished in the shortest possible time.

Col. Muammar Qaddafi's ascent to power in September 1969 and his subsequent success in the formation of OPEC helped produce a tenfold increase in oil revenues during the seventies, which reached 22 billion dollars in 1980. Expenditures for social and economic development were increased at a similar rate and amounted to 4.3 billion dollars in 1977. Dozens of agricultural projects for grain production and range and livestock development, involving hundreds of



Fig. 2. Remnants of a pine plantation in the 8-10 inch rainfall zone. Completely unprotected from browsing by sheep and goats during the last two years, the survivors have been browsed to maximum animal reach.

thousands of acres, were initiated during this period. With the collapse of oil prices in 1983, oil revenues declined sharply and were down to 5 billion dollars in 1986. This caused massive reductions in appropriations for agricultural development activities, which with a few exceptions, were terminated.

Libya's form of government is unique and strongly decentralized. All authority is vested in the people, who are self-governing and express themselves through Basic Popular Congresses (local district councils) at the General People's Congress. Decisions made by the General Congress are law. The Secretariat of Agricultural Development and Land Reclamation controls the use, management, and development of the rangeland resources. Its authority, however, is minimal and its function mainly advisory.

The unprecedented rate of agricultural development of the 70's, followed by an equally dramatic decline in the mid 80's, resulted in serious economic dislocations. These problems were further aggravated by Libya's unique form of government; by a crippling shortage in skilled domestic labor and expertise, by a high and increasing degree of alienation with neighboring nations and the West, on whom Libya depended for labor, expertise, and technology; and by the general unpopularity of Qaddafi's political and economic practices and theories. For example, after the expulsion of Egyptian, Moroccan, and Tunisian nationals employed in all sectors of the economy, many government-operated agricultural projects obtained unskilled and illiterate labor from Niger and

Mali. Under the official doctrine of "Partners not Wage Workers" Libyan families are discouraged from employing other Libyans, for to do so would be "exploitation." Libyans must make any Libyan employee a partner in the family enterprise. Few Libyan families are willing to do this, and as a result farm and livestock owners produce only what the family can manage itself. For these and other reasons, progress in modernizing the agricultural sector and in increasing its productivity did not meet planned targets and expectations.

The Range and Livestock Sector

Land receiving between 2 and 8 inches of annual rainfall is officially designated as rangeland with livestock production as the most appropriate use. Land receiving more than 8 inches of annual rainfall is designated as potentially suitable for farming (mostly wheat or barley production), tree crops (mostly olive, almond, or apple), or forest plantations (mostly pines, acacias, or eucalypts) (Fig. 2). Land not potentially suitable for any of these uses is also designated as rangeland.

Dryland farming is widespread within the 4 to 10 inch rainfall zone and occurs whenever and wherever a suitable situation presents itself. It is a main cause of the destruction of perennial range vegetation and serious soil erosion. Despite low yields, frequent crop failures, and a national policy against such use of rangeland, the practice persists and continues to expand. The reasons for this are many and include: (1) a long tradition of cultivating marginal sites; (2) the wide availability of tractors and disk plows which were distributed to increase grain production; (3) the financial and

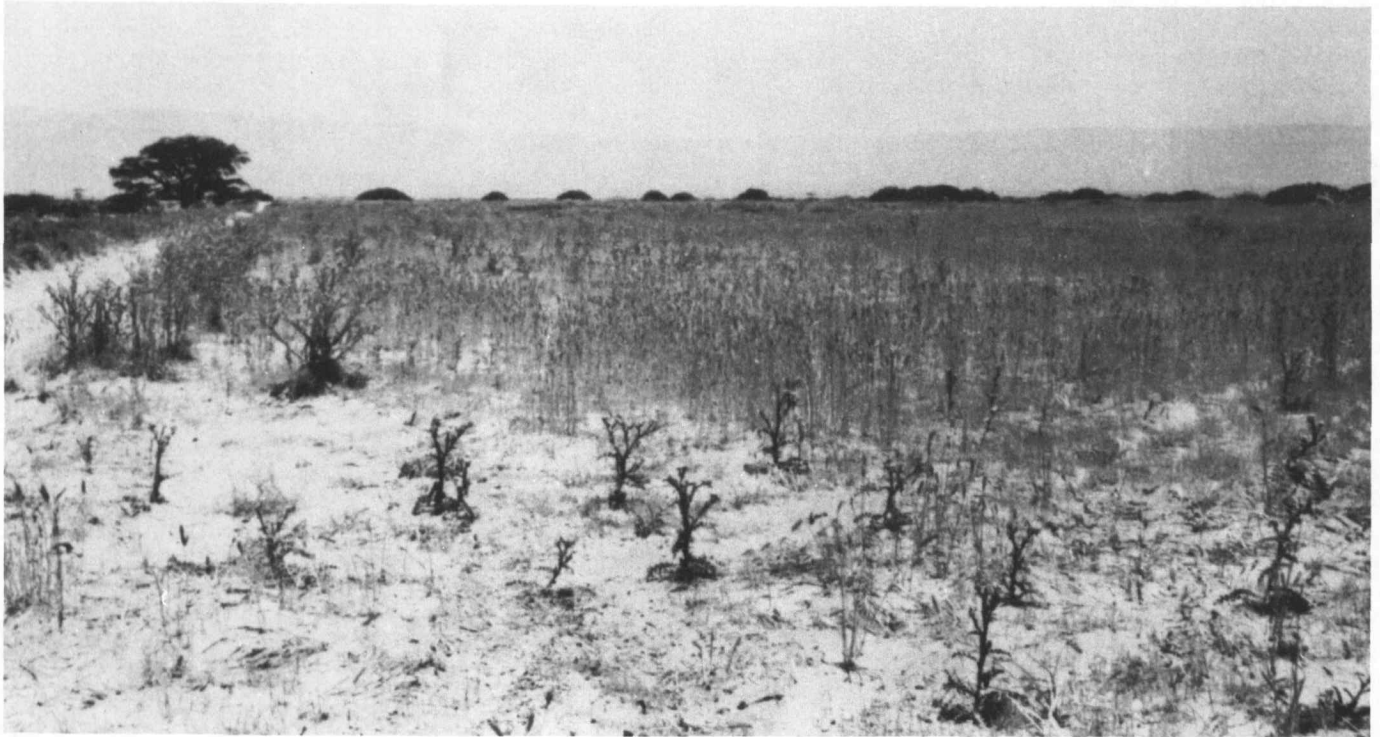


Fig. 3. Efforts at dryland farming within the 6-8 inch rainfall zone often fail. This barley field in a range and livestock development project occupies a former acacia woodland of which only some 60 trees remain.

other incentives provided to encourage grain production; and (4) the serious overstocking of rangelands, which has increased the need for supplemental feeding of both concentrates and fiber. Government efforts to eliminate dryland farming from rangelands have been half-hearted and ineffective. It occurs not only on the unclaimed, unallocated rangelands, but also on the government-run range and livestock

development projects, where dryland farming by private citizens is not only tolerated but is practiced by project staff as well (Fig. 3).

Australian and North American trained range managers believe that Libyan rangelands are overgrazed and extremely degraded. Productivity is very low and by some estimates is only 10 to 33 percent of potential (Le Houerou and Aly 1982;



Fig. 4. Unregulated and abusive grazing by camels and sheep encouraged severe wind erosion and desertification. These low, fine sandy dunes moved through the 4-6 inch rainfall zone of a range development project, and left complete desolation in their wake.

Roberts 1984). The production of usable forage on perennial rangelands in western Libya is estimated to range from 15 lbs/ac to 300 lbs/ac. These rangelands are dominated by esparto and other species of needlegrass (genus *Stipa*), white and field sagebrush (genus *Artemisia*), and various species in the chenopod family (notably in the genera *Hamada* and *Salsoia*). Annual rainfall ranges between 4 and 8 inches for these vegetation types. Much of the perennial rangeland, particularly in the 2 to 4 inch rainfall zone, is too degraded in terms of both soil fertility and vegetation for natural recovery or even man-assisted improvement within the foreseeable future.

Libya's livestock industry is dominated by sheep and goat production. Le Houerou (1980) provides an estimate of 3.0 million sheep, 1.25 million goats, and 60 thousand camels for 1976. Since then, the number of sheep and goats has sharply increased, while that of camels has declined slightly. In 1982, Le Houerou and Aly estimated that the equivalent of 6.7 million mature sheep used the rangelands. They also estimated that these lands could support no more than the equivalent of 2.8 million mature sheep.

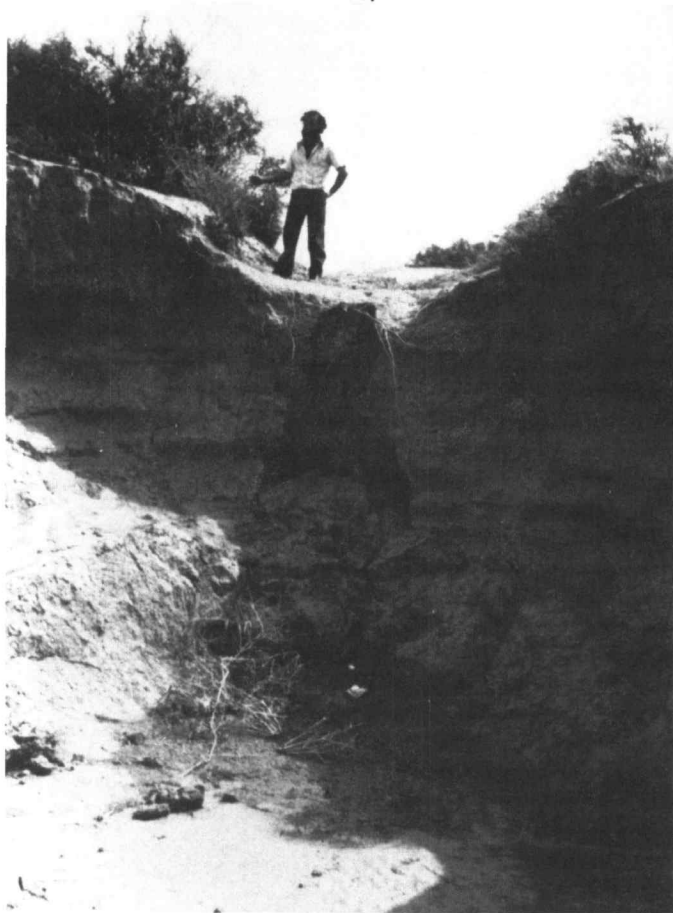


Fig. 5. Dryland farming and abusive grazing were responsible for severe water erosion in many range development projects. This active headcut developed on land with 0.5 percent slope and fine silt loam soil.

Most rural families own small flocks of sheep and a few goats (less than 25 head), which are grazed under family supervision within a 3-4 mile radius of the village or settlement. These animals are mostly for private consumption and

financial security, and receive large amounts of grain supplement. Larger flocks of sheep, goats, or mixtures ranging in size from 100 to 500 head, rely more extensively on range vegetation. These flocks are generally semi-nomadic and may travel hundreds of miles. The dwindling nomadic population, a group of well-off village or town people, or a single affluent family, may own one or more of these large flocks. Foreign labor is frequently used for the supervision of large flocks.

In all but a few protected areas, stocking is greatly in excess of the land's capacity to support it, and grazing is uncontrolled. During the affluent 70's and early 80's large amounts of money were invested in the agricultural sector, causing a rapid expansion of livestock numbers. At the same time, the subsidization of locally produced feed grains and the distribution of imported feed grains at prices below cost, allowed for increasingly higher levels of supplemental feeding as range forage became scarcer. The government's active and successful program of settling pastoralists resulted in the disappearance of tribal grazing rights from large tracts of rangeland. Grazing rights to these and most other rangelands belong to the state. Grazing use of these rangelands is free, with no control of either stocking rate or period and season of use.

Range and Livestock Development Efforts

Throughout the seventies, major surveys of the land resources were conducted by expatriate firms. These surveys were followed up with proposals and plans for the development of the range and livestock industry. Dozens of projects were quickly started but development was terminated by the mid 80's. The original plans called for improvements in infrastructure, such as roads, fences, and water, and for improvements in vegetation. The improved lands were then to be divided into farms and ranches and distributed among the rural population. This latter phase of the plans was not carried out, possibly because of a lack of development funds, and the state assumed the active management and use of the range development projects.

On most projects, development consisted of the construction of gravel roads and improved trails; many miles of 6-strand barbed wire perimeter and interior fence; and wells, boreholes, or cisterns. In some cases, shearing sheds were also constructed. Vegetation improvements consisted mostly of planting container-grown shrub and tree seedlings and closing project areas to grazing for a variable period of time. Plantations were to serve primarily as feed reserves during periods of drought. The most widely planted tree is blue-leaved acacia (*Acacia cyanophylla*), a native of Australia and well adapted to coastal Libya. It makes a good windbreak, but is not much liked by livestock. The second most planted species is also a native of Australia (*Atriplex nummularia*), which is very palatable and grows vigorously, but does not appear to regenerate under Libyan range conditions. Other widely used species include a native saltbush (*A. halimus*), which is used mostly by camels; fourwing saltbush (*A. canescens*); and spineless cactus (*Opuntia ficus indica*). The cactus has little tolerance of direct grazing, which frequently kills it. The recommended method of use is manual removal of entire pads and off-site feeding. This method of use is successfully employed in neighboring Tunisia and other

countries, but was not adopted in Libya. As a result, entire cactus plantations have been lost.

Le Houerou et al. (1983) report that between 1978 and 1983 over 100,000 acres of rangeland were planted with various tree and shrub fodder species. The sharp decline in oil revenues, which occurred in 1983, greatly reduced funding for all types of range improvement work. Expatriate firms began to wind down their activities and the local district councils assumed the responsibility of managing the project areas. With assistance from the Secretariat of Agricultural Development and Land Reclamation, project staffs were appointed and management plans were drawn up. Unfortunately, the country was ill-prepared for this rapid transition. It lacked a well-trained cadre of resource administrators and range professionals, had no national or regional policy covering type and intensity of permitted land use on public rangelands, and had no effective means of controlling and reducing unregulated and abusive rangeland use. The effects of these shortcomings became quickly apparent and were extremely serious (Fig. 4 and 5). The greatly improved road network, transportation facilities, and water resources opened up vast stretches of rangeland for unregulated grazing and unauthorized dryland farming. This accelerated the abuse of native range and caused the near complete destruction of many tree and shrub plantations. Wherever fences hindered the free movement of man or livestock, they were cut or pulled out. Where dryland farming occurred, disc plows were used for ground preparation, which greatly contributed to soil erosion. In one case, small irrigated farms encroached upon a developed range project. The resulting drop in the ground water table caused some 30 livestock wells to run dry.

Libya's efforts to develop its rangeland resources and achieve self sufficiency in red meat production in the shortest possible time received a major setback from the drop in world oil prices. Insufficient progress in the development of its institutions and natural resource policies has prevented the realization of sustained use objectives on these lands. Lack of control over livestock grazing and land cultivation has prevented the achievement of these objectives and has caused the loss of much time, labor, and capital spent on developing range resources.

Renewed efforts towards achieving lasting range resource development are hampered by the continued rapid increase in population and livestock, declining rainfall in North Africa and the Middle East (Bradley et al. 1987), and low oil prices.

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How to Best Handle an IRS Audit

John Alan Cohan, Esq.

Editor's Note: I hope that ranch managers make enough income to pay income tax. I also know that they make innocent mistakes. This article is very informative on what to do if something does go wrong.—Peter V. Jackson, Executive Vice President, SRM

By now we have all seen the significant impact that the 1986 Tax Reform Act has had on the cattle and other livestock industries. The reverberations have affected the industry with such new issues as the Material Participation Test, the elimination of preferential treatment for capital gains, the limitation on losses in limited partnerships and other "passive" investments, and restrictions on the use of the cash method of accounting.

The new tax law underscores the introduction of a "free market" philosophy: Instead of encouraging socially bene-

ficial activities by tax incentives and write-offs, the Act tends to guide people and corporations by the marketplace. "No longer will people invest for tax purposes. They will invest in things that have real value in the marketplace," according to Sen. Bill Bradley (D.-N.J.).

One of the more mystifying aspects of tax reform is how returns are selected for audit by the IRS. Today, each regional office of the IRS conducts a computerized screening of all returns on the basis of programmed selection criteria, called Discriminant Function System (DIF). This method measures the probability of tax error in each return. Substantial claims for deductions, often the case in the cattle industry, will often result in selection for an audit. However, the number of returns selected for audit always exceeds the audit capability of the IRS, and each district appoints expe-

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rienced revenue agents to pour over the computerized selections in order to reduce the number of audit cases.

If you are selected for audit, usually the letter requesting your appearance will ask for substantiation of specific items, and **only those documents that will explain the disputed items should be taken into the office audit.** The revenue agent has the right to audit your entire return beyond those issues raised in the letter, but if no information concerning other items has been taken to the office audit, the agent will seldom pursue the other items, since his case load is too large for protracted negotiations.

A major tactical consideration is whether you, the taxpayer, or your lawyer should attend the office audit. Almost always it is wise to have your representative go alone, on the premise that he can conduct the interview in a more objective and less emotional setting, and better control the flow of information by providing straightforward answers, backed up by documentation, without arousing the curiosity of the agent as to other potential audit issues.

Sometimes it is advisable to request a field audit, which means that the agent will come out to your farm or home and see the nature of your cattle operations. This can be advantageous because the auditor will have the opportunity to see the businesslike manner in which you are conducting the cattle activities. Keep in mind that most revenue agents are not familiar with the livestock industry, and by visiting the farm they can be in a better position to understand the unique factors of this industry.

Revenue agents have a primary function of *raising revenue*, and while the IRS strongly disavows the existence of a "quota" system for evaluating agents, it is also known that agents are promoted on the basis of their overall effectiveness and the volume of cases they close. Although it is the policy of the IRS to encourage agents to seek partial agreements, primarily in order to reduce the workload of appeals, quite often agents will make an "all-or-nothing" determination, leaving little room for negotiation.

In the case of nonagreement with the agent you may

request a conference with the agent's supervisor. If no settlement is reached, the IRS will send you a "30-day letter," which explains the appellate procedures available to you and to urge you to reply within 30 days.

In almost all cases it is best to appeal the agent's decision, for several reasons. The IRS Appeals Division is a different department with different procedures. The appeals officer is usually a highly skilled tax professional. Your lawyer can present testimony of witnesses in an informal setting, and submit new facts and documentation. The major function of the Appeals Division is to keep tax cases out of Tax Court, and the officers have broader authority to settle cases than at the audit stage. For example, you can "trade" issues—they will concede an issue to you if you will concede another issue. Appellate officers recognize that in many cases there is no absolute right or wrong answer.

If you are unable to reach a compromise or settlement in the Appeals Division, you must decide whether to pay the tax and end the controversy, or to litigate the issue. The next step at this point is usually to file a petition in Tax Court if your lawyer feels you have a good case. The biggest advantage of going to Tax Court is that you will have an administrative law judge who is impartial and who is very familiar with the judicial decisions and precedent that apply to your case. Moreover, once the petition is filed the case is assigned to a government attorney, and from this writer's experience, there is always a good opportunity of reaching a reasoned settlement at this stage, even if the situation looked bleak in the Appellate Division. In many situations, technical issues can be explained and discussed with the government attorney more effectively than in the Appellate Division, and more credence is given to the legitimate legal arguments presented on your behalf.

This article has outlined some of the primary features of being audited by the IRS, but it should be kept in mind that overall planning of your livestock tax and business affairs with an expert is always of fundamental importance in laying a foundation for the future in the event you are audited.

Water Quality. . . (continued from pg. 166)

number of plant species that make up a healthy watershed. For example, moderate to heavy grazing for a short period of time when the seed is ripe on desirable plant species will shatter the seed heads, scatter the seed, and by hoof action, bury and cover seeds. The effect is to plant the seeds. Rest from livestock grazing for seedling establishment the following spring season then allows overall plant density to increase. A system of repeated treatments in regular cycles has been successfully used to improve watershed quality and increase forage production for grazing by wildlife and livestock.

Light to moderate grazing stimulates some grass plants to produce new shoots at the base of the plant, increasing overall ground cover. Shrubs respond to light to moderate grazing by increasing the number of leaders produced.

TOTAL PROTECTION OF THE LAND FROM ALL USES BY MAN is not the universal answer to improving water quality from public rangelands. In many arid rangeland areas, the potential natural or climax plant community may well be sagebrush or juniper with very little understory vegetation. Such plant communities generally lack the soil bind-

ing and water retention characteristics of plant communities with a grass and forb understory or plant communities that are predominately grasses.

In summary, to maintain and improve the quality of the water yield from public rangelands require a long-term commitment to multiple use management of the land. Those land uses that cause surface disturbance must be done in a way that will keep soil and vegetation disturbances and water runoff as low as possible. As the action is completed, the soil surface must be stabilized and vegetation reestablished to restore a healthy watershed. Livestock grazing is a powerful force that can be used to manage the vegetation for a number of purposes, including watershed improvement. We have made substantial progress in improving the condition of the public rangelands in the last 50 years. Range scientists have observed that the public rangelands are in better condition today than at any time in the past century. We are committed to continue to practice the management methods we know will work and to take advantage of new technologies that are developed. We expect the improving trend in the condition of public rangelands to continue into the future. The result will be stable and improving watersheds and improving water quality.

Economic Evaluation of Tobosagrass Prescribed Burning with a Microcomputer Model

R. Terry Ervin, Don E. Ethridge, and Billy G. Freeman

Tobosagrass builds up large quantities of litter under normal range conditions. As litter accumulates, tobosagrass becomes less palatable to cattle and decreases both plant and animal production. Grass palatability and yield can be increased for several years by prescribed burning. Burning of tobosagrass constitutes a capital investment because the major expense occurs at one time and effects extend into the future. Because the effects are expected to last several years, there are two risks in prescribed burning: (1) biological variation, of which the impact of weather is an example, and (2) economic uncertainty, arising mostly from variations in product (livestock) prices.

An economic model for evaluation of prescribed burning of tobosagrass has been reported by Ethridge, Sudderth, and Wright (1985) for the Texas Rolling Plains region. They developed a herbage yield response function relating the increased grass production resulting from a prescribed burn to time since the burn occurred, rainfall during the growing season, rainfall during the period preceding the growing season, slope of the terrain, and site where the burn was conducted. Their model indicates that the useful life of a prescribed burn is five years. Because some of the economic and technical parameters may vary over time and among producers, there is a need for tools to assist with economic evaluations of production practices and investments which can adjust as conditions change.

Microcomputer programs can be useful aids in reinforcing abstract principles and concepts being taught in classrooms and extension settings. Computer packages are generally effective for teaching, having been used to teach risk management, enterprise mix optimization, financial analysis, and other applications. It is estimated that by 1990, 75 percent of all managers of mid-sized agricultural firms will use computers in making management decisions (Kramer 1982). There is still much software yet to be developed. The purpose of this article is to describe a microcomputer software package which can be used by cow-calf operators as a production decision tool to evaluate the economic feasibility of prescribed burning on rangeland.

Program Overview

The program assumes a cow-calf operation and marketing of calves in the fall. All data prompts are described, and results presented in producer terminology. The user is led throughout the presentation with easily understood prompts until finished. The program uses a grass yield response func-

tion (Ethridge, Sudderth, and Wright 1985) which measures changes in forage production due to varying levels of precipitation after burning has occurred. The user is allowed to input precipitation representing areas other than the Texas Rolling Plains region. Additional grass production associated with prescribed burning is represented as a function of treatment variables, environmental variables, and time. Time allows the investment aspects of the response relationship to be economically evaluated.

Considering the useful burn life, the program calculates the resulting annual increase in grass production, the annual discounted returns, and the total discounted returns over the burn life. These results are calculated at the producer's expected calf price and at estimated high and low calf prices established by the producer. Thus, the producer is able to consider risk because the estimated range of returns provided over the burn life are tied to cattle prices. The program also allows the user to supply alternative values for treatment and environmental variables which may better represent individual circumstances.

Table 1. Result screen from the microcomputer model employing the expected calf price for evaluating the economic feasibility of prescribed burning.

Economic evaluation of controlled burning of tobosagrass in the Texas Rolling Plains		
Calf prices are \$.65 per cwt		
Year	Added grass production (lb/acre)	Discounted value per acre (\$)
1	821.5041	1.212356
2	477.4647	.5446402
3	276.2144	.2465802
4	133.4253	9.415826E-02
5	22.66914	1.275171E-02

If the total discounted value of additional returns per acre is greater than the cost of burning per acre, then the burning activity is economically feasible.

The total discounted value per acre under the following conditions is \$2.11

1. Interest rate (as a decimal)	.15
2. Calving rate (as a decimal)	.8
3. Selling weight of calves (lbs.)	400
4. Cow death loss (as a decimal)	.02
5. Calf death loss (as a decimal)	.05
6. Price of calves (\$/lb)	.65
7. Variable cost per cow-calf unit (\$/yr.)	178
8. Rainfall during March-June (inches)	6.85

The authors are assistant professor, professor, and associate professor in the Department of Agricultural Economics, Texas Tech University, respectively. Funding for this project was provided by the Noxious Brush and Weed Control Program and the Dean's Office of the College of Agricultural Sciences at Texas Tech University. Publication No. T-1-254 of Texas Tech University College of Agricultural Sciences.

Retrieval of documentation for the program requires printing capabilities. The user is given the choice of printing the documentation early in the program. Those without a printer are not restricted in the program's analysis.

Data Requirements

The program requires the following estimates: (a) interest rate expected to be charged for the capital used to finance the burn; (b) expected calving rate; (c) expected sale weight for calves; (d) expected cow and calf death losses; (e) expected price of calves to be marketed; (f) calf price variability to be considered; (g) expected variable costs associated with adding an additional cow-calf unit; and (h) expected average rainfall from March through June in inches.

Prescribed Burn Example

Following is an example program session illustrating a user's response to each prompt. Upon loading the program, the user is given the option of reading a narrative description of how to use the program. An affirmative answer produces a printed description, while a negative response brings a prompt to enter items of data. The user is asked to enter: (a) interest rate charged for capital used to finance the burn (15%); (b) expected calving rate (80%); (c) weight at which the calves will be sold (400 lbs.); (d) expected cow death loss (2%); (e) expected calf death loss (5%); (f) expected market price for calves when they are marketed (0.65/lb.); (g) calf price variability to be considered (15%); (h) expected variable cost associated with adding an additional cow-calf unit (\$178); and (i) expected average rainfall in inches during the months of March through June (producers may enter any

value, but assuming that the user wants average rainfall during this period for the Texas Rolling Plains region; the user responds by pressing the enter key. The program then uses the region's average rainfall for the time period, 6.85 inches. Thus, the user may employ the Texas Rolling Plains average in lieu of individual ranch data).

The program lists the data established in the current session and queries whether changes are needed. A negative response prompts the program to begin the analysis. Once the analysis is complete tables are produced for three different product (calf) prices (i.e., expected calf price, and estimated high and low prices). Each table presents the annual increase in grass production and the annual discounted value per acre. The three resulting screens for the example session are presented in Tables 1 through 3¹. Table 1 provides the total discounted value per acre representing the results when market calf prices are as expected. Table 2 provides the total discounted value per acre representing the results of the circumstances described at the upper limit of the expected market price for calves established in the example, and Table 3 provides the same information for the circumstances described at the lower limit of the expected market price for calves. Negative values represented in Table 3 indicate that the discounted value of added grass production with calf prices at this level is less than the variable cost per cow-calf unit. Thus, the cost of prescribing burning would not be recovered. The tables are followed by a state-

¹Each table contains discounted value(s) with E-02 or E-03 attached to the right end of the value. This term indicates that the value is represented in scientific notation and is multiplied by ten raised to the power indicated to the right of the "E". Therefore, the discounted value 9.415826E-02 of Table 1 is .09415826 when converted to standard format.

Table 2. Result screen from the microcomputer model employing the highest expected calf price for evaluating the economic feasibility of prescribed burning.

Economic evaluation of controlled burning of tobosagrass in the Texas Rolling Plains		
Calf prices are \$.7475 per cwt		
Year	Added grass production (lb/acre)	Discounted value per acre (\$)
1	821.5041	2.660101
2	477.4647	1.195027
3	276.2144	.5410363
4	133.4253	.2065982
5	22.66914	2.797928E-02
If the total discounted value of additional returns per acre is greater than the cost of burning per acre, then the burning activity is economically feasible.		
The total discounted value per acre under the following conditions is \$4.63		
1. Interest rate (as a decimal)	.15	
2. Calving rate (as a decimal)	.8	
3. Selling weight of calves (lbs.)	400	
4. Cow death loss (as a decimal)	.02	
5. Calf death loss (as a decimal)	.05	
6. Price of calves (\$/lb.)	.7475	
7. Variable cost per cow-calf unit (\$/yr)	178	
8. Rainfall during March-June (inches)	6.85	

Table 3. Result screen from the microcomputer model employing the lowest expected calf price for evaluating the economic feasibility of prescribed burning.

Economic evaluation of controlled burning of tobosagrass in the Texas Rolling Plains		
Calf prices are \$.5525 per cwt		
Year	Added grass production (lb/acre)	Discounted value per acre (\$)
1	821.5041	-.2353902
2	477.4647	-.105747
3	276.2144	-4.787586E-02
4	133.4253	-1.828171E-02
5	22.66914	-2.475863E-03
If the total discounted value of additional returns per acre is greater than the cost of burning per acre, then the burning activity is economically feasible.		
The total discounted value per acre under the follow conditions is -\$0.41		
1. Interest rate (as a decimal)	.15	
2. Calving rate (as a decimal)	.8	
3. Selling weight of calves (lbs.)	400	
4. Cow death loss (as a decimal)	.02	
5. Calf death loss (as a decimal)	.05	
6. Price of calves (\$/lb.)	.5525	
7. Variable cost per cow-calf unit (\$/yr.)	178	
8. Rainfall during March-June (inches)	6.85	

ment asking the user to compare the range of total discounted values of additional returns to the cost of the burn. The user is advised that if the total discounted value of additional returns (considering its range) per acre is greater than the cost of the burn per acre, the burn is economically feasible. At this point changes may be made in any of the user inputted data for an additional session.

Availability

The software package "Economic Evaluation of Controlled Burning of Tobosagrass in the Texas Rolling Plains," comes on a 5 1/4 inch diskette and contains its own documentation, which can be printed by the user. The program is written in BASIC for an IBM personal computer (PC, XT, or AT) or compatible with at least 64K of memory.

The Department of Agricultural Economics of Texas Tech

University is in charge of distribution of the program, and will provide it free of charge to interested parties who send to the authors a 5 1/4 inch diskette along with a stamped self-addressed container suitable for returning the formatted diskette. Agencies in other states may choose to distribute and support the program locally or direct their clientele to this office for acquisition.

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Intensive Grazing—Precautions

Wayne H. Burleson and Wayne C. Leininger

Many ranchers facing financial difficulties are closely following developments in new grazing management techniques designed to increase livestock production and improve overall ranch management efficiency. There are many new intensive grazing methods commonly referred to by various names such as Short Duration Grazing, The Savory Grazing Method, Cell Grazing Method, Time Controlled Grazing, and even Mob Stocking. Most of these intensive grazing methods employ some form of time control of livestock rotation among pastures.

Current literature contains a lot of controversial and misleading information on these grazing methods. This contributes to the difficulties in understanding what application these grazing methods have in solving the problems facing today's livestock producers. The following is a summary of precautions that should be considered before implementing any intensive grazing method.

Increased Planning and Management Are Required

One of the most important steps before implementing a new grazing method is to review **all available** options to improve the ranch. An operator should know the financial health of the existing operation and go through a step-by-step, in-depth planning process before deciding if a new grazing method will improve the ranch operation. Appropriate goals must first be developed to guide the actions. **Warning: Today's ranchers have no business building new water developments or fences until they push a pencil or do a computer analysis to determine if these new improvements will pay for themselves.** Wasting dollars and time are not in the cards for most livestock operators today.

Ranchers should apply a cash flow analysis to their operation and determine the weakest link. Possible weak links are poor animal nutrition, a poor breeding program, or an

inadequate livestock-marketing system. For example, genetics, affecting milking ability, calving difficulties, fertility, or resistance to disease may need more attention than the operator's current grazing method. Another common weak link is human resource management. If a rancher decides that a more intensive grazing plan is going to improve ranch profitability, he must be prepared to spend much more time operating, monitoring, controlling, and replanning than before.

Without this preliminary planning, unwanted problems may result, such as depressed animal gains, inadequate feed in the rotation, overgrazing, inadequate nutrition or spending too many dollars on construction projects to be cost effective.

Ranchers must have a thorough understanding of what time-controlled grazing means and its relationship to overgrazing. It needs to be emphasized that time control is determined by plants and not calendar dates. With intensive grazing (more livestock in smaller pastures), you can now graze the corners of the pasture. Mismanagement cannot be afforded here either. Also, if any early spring pasture should only be grazed for 2 to 3 days, the manager cannot go off and leave the animals on this pasture for 4 to 8 days. This could lead to depressed animal performance and overgrazing. An operator will need to closely monitor each pasture for overgrazed plants, the optimum deferment, litter on the soil, and then move livestock accordingly. Time control is very important to insure that all plants receive adequate deferment before they are regrazed to insure their health and vigor. Drought may change the entire pattern of grazing followed the year before, including number of animals grazed.

Motivation and attitude are very important. Ranchers should have the will, desire, and time to properly plan their change in management. **Caution: Do not overlook the proper training and background information necessary to successfully run an intensive grazing plan.**

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Stocking Rate

Stocking is one of the most controversial areas related to intensive grazing. A desirable goal would be to increase stocking rate while maintaining or improving range condition. Other goals may be to graze the same number of stock with expected improved animal performance, or to maintain the same number of animals but graze less land. The latter goal would allow a rancher to expand another area of the ranch operation; e.g., leasing out, sale to reduce debt, or even fee fishing or hunting.

The key question relative to stocking rate is, "Can your rangeland sustain a higher stocking rate under a new intensive rotational grazing plan?" Increased livestock distribution and improved efficiency of forage harvest may allow higher stocking or improved range condition under a rotational grazing plan than continuous grazing. An operator should increase livestock numbers slowly when implementing a new system, and carefully monitor individual range plants and livestock performance. **Remember: Increasing livestock numbers prior to increasing the feed supply is a Real Danger.**

Yearly forage production on rangeland can vary from 50 to as much as 300% or more between wet and dry years in some areas. **Remember: Stocking rates need to consider the inevitable drought.**

Overgrazing and Over-Resting

Common questions which ranchers should address when considering a new grazing system include: Are there accessible areas of my range where livestock don't normally graze? Is there unused forage on portions of my ranch such as an over-rested crested wheatgrass field? Would increasing stocking density be the best approach to improving utilization of the whole pasture?

It is important to understand how controlling time while grazing can improve rangelands. Research has shown that grazing systems which reduce the length of time animals spend grazing growing perennial grasses is more important to the health and vigor of the plant system than the amount of forage removed (Burlison and Hewitt 1982). Intense, shorter periods of grazing yields vigorous grass plants as compared to continuous, heavy grazing; thus, control the time rather than the number of livestock. Also, when stocking density is increased, livestock generally increase their use of less desirable range plants. Use of these less desirable plants, which are competing for nutrients and space with the more desirable species, has been shown (Mueggler 1972) to benefit the desirable species.

A point which needs to be clarified is the difference between heavy grazing and overgrazing. For example, a small pasture within the rotation schedule may only be grazed by the whole herd for 3 days out of the entire year. These pastures could be heavily grazed, but because of the long period of non-use, may not be overgrazed. For example, how much damage is done when rangelands are mowed for wild hay one day out of the entire year? This is an example of time-control defoliation. Operators must also start thinking about what happens to the underground one-half of the plants (crowns, roots, rhizomes) during the period of grazing. Healthy roots mean more forage next year. Also, levels

of wildlife and insect grazing on plant species should be considered when selecting a grazing plan and determining stocking rates.

Herd Effect

Herd effect is the impact of animal herds on the vegetation and soil through concentrated hoof action. Herd effect, in this case, isn't grazing and shouldn't be confused with stocking density. **Precaution: Ranchers must realize that each soil type at different times of the year will respond differently to herd effect.** Herd effect should also be time controlled so that soil compaction or soil surface movement does not lead to watershed damage. High intensity rain storms and heavy winds can easily move loosened, disturbed soils. Other soils may seal over and cap, and hoof action can sometimes be used to churn up these capped soils to allow better rainfall infiltration and improve conditions for seed germination.

Dense clubmoss (*Selaginella densa*) accounts for more than 80% of the ground cover in some areas of the Northern Mixed Prairie (Dolan and Taylor 1972). This low-growing plant reduces available soil moisture for desirable forage species and also inhibits the establishment of grass seedlings. Concentrating livestock on range dominated with dense clubmoss helps break up the clubmoss mats and increases available soil moisture and seedling growth. **Remember: Plan carefully where you want the herd effect, and control the time that hoof action is needed to solve a specific problem. Carefully monitor this effort and be prepared to change before too much herd effect defeats the original purpose.**

Know Your Vegetation

Operators should understand that not all plants react the same way to grazing. Some grass species may increase growth because of grazing (i.e., tillering), while others may stop or severely delay growth after their growing points (apical meristems) have been removed. Cattle will also select certain grass plants while ignoring others.

When planning new pastures, try not to cross fence seeded pastures with native range, or poor condition portions of a pasture with good condition range, or areas where plants furnish high nutrition during different seasons such as summer or winter. If the poorer condition areas can be economically fenced, separate them from the better range condition areas; the overgrazed poor condition areas can then be given more rest to promote plant improvement.

Animal Performance

In order to maintain maximum animal performance, livestock should not be stressed during movement, and forage intake should not be depressed. It is especially important to monitor individual pastures and move livestock before they run short of feed. **Operators must be flexible with their rotation schedules.** Lack of flexibility in rotating animals will likely result in the failure of any grazing plan. Flexibility and good understanding of predicting forage production will greatly reduce the chances of depressed animal gains. Livestock should be allowed to drift into the next pasture during rotation. Training livestock to move with the reward of new fresh feed is one way of reducing movement stress.

Animal Behavior

Increased livestock handling can cause interesting behavior responses. For example, cattle may lose their group habits and generally become much easier to handle. However, behavior problems can also occur. For example, an older cow may become confused with a new array of fences crossing her favorite old trail to some water hole. One operator in Mexico noticed a confused cow that just "hung around" the grazing cell center and chewed on the trees, while the other cows grazed in the far ends of the pasture. There may be such a thing as intensive grazing "smart" cows and intensive grazing "dumb" cows. Culling would be a solution in this case.

Water and Mineral Requirements

Ranchers should be prepared to provide more water for livestock and improve water developments to withstand an increase in physical pressure from concentrated numbers of livestock watering at each tank. Several operators in Montana have reported increased daily consumption of water (over 30 gallons per animal per day) and mineral supplement by their cattle when they initiated an intensive grazing program.

Monitoring Vegetation

As stated before, because intensive grazing may result in increased livestock numbers, a vegetation monitoring program should be implemented. Individual tagged plants can be measured and even photographed to determine utilization levels and regrowth patterns. These plants can be used as indicators to prevent overgrazing. During the rapid growth phase, plants should have enough deferment to regrow and look similar to ungrazed plants. A good series of tagged plants can document key plant responses to grazing. A quick look at a pasture may not provide the real information needed to adjust numbers or length of stay in certain pastures. **Remember: Be flexible, monitor the vegetation and animals, control the grazing, and replan when needed.**

Rancher Training

Before an operator initiates an intensive grazing plan, he should consider obtaining appropriate training. This training should consist of a formal introduction to better ranch management and intensive rotational grazing techniques. Schools and workshops are offered to help people get started in the right direction. Assistance is available through various agencies such as the Soil Conservation Service, local extension service, and also private firms. Neighbors might spend time training together and use a team approach to help solve problems and develop new ideas to better their ranch management.

Summary

A ranch that is considering a change in management should first review all available options, identify its weak link(s), set goals, and receive the necessary training. Ranchers also need to realize that it takes much more effort and time than just opening and closing a lot of gates to increase livestock production and cash flow; it takes increased efficiency, flexibility, and becoming more involved to make an intensive rotational grazing method work. This must be coupled with common sense and business-like ranch management. Remember to go through a thorough cost effective planning process first. **A DULL PENCIL IS BETTER THAN A SHARP MIND.**

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Cool, Clear. . . (continued from pg. 167)

THIS SEEMS TO BE A NEGATIVE APPROACH TO problem solving, assuming that it would even work. Can't we do better? Can't we as private citizens, professional land managers, and agency heads tackle water quality and related problems in a straightforward manner? Why must we always have to scheme and poke one another to get off dead center?

There are planning processes and resource management plans in both BLM and the Forest Service that are logical tools to improve public rangeland management. Why are we not developing better plans? Why are we not implementing the plans that are on line? Is there a faint lack of backbone in today's professional resource managers? Are we so con-

cerned with science and technique that we have allowed all-important implementation abilities to atrophy?

Good range conservationists and agency administrators are dime a dozen. Range cons and administrators with verve to accomplish are invaluable commodities. They not only know what's good for resources, they learn **how** to do it.

Water quality is not an entity to be plucked and mused separately. It is a direct reflection of land management quality. As Grandpa once said, what happens on the ridge is retold in the creek. He also said that the most important trait for people who talk a lot is to know when to duck. So I'll bow out now.

Promoting Range Management in South America through Students

Donald L. Huss and Abel E. Bernardón

Around 81% of Latin America's 318 million cattle, 93% of its 110 million sheep, and 61% of its 33 million goats are raised in South America. It is safe to assume that most of these animals obtain at least 80 to 90% of their sustenance from rangelands. Yet, the importance of this natural resource is not fully recognized and it is receiving very little scientific and development attention. Consequently, the resource is being badly abused, many areas are being turned into man-made deserts, and animal productivity is declining. Worse yet, range management is practically unknown.

Being cognizant of this situation, the FAO Regional Office for Latin America and the Caribbean has taken action aimed at remedying the problem. A Round Table for the Promotion of Range Management in South America was convened in December 1985, in collaboration with the "Universidad Católica de Chile" in Santiago. Apart from the specific results of the Round Table as reported by Ragsdale (1986), one thing was clear, there is a need for a promotional cam-

paign to upgrade the image of rangelands and range management. Little progress can be expected until this campaign has had its effects.

The question is, "How do you go about mounting an effective campaign promoting rangelands and range management with limited funds?". There are probably many answers to this question, but one is to create a cadre of informed animal production technicians who can influence livestock producers, national planners and policy makers, and financial institutions. And one of the best and fastest ways of creating such a cadre is in the classrooms. However, since range management is not taught in the universities, the FAO Regional Office once again took action and initiated arrangements for a group training course for university professors. The idea was to provide training and training materials on the principles of range management and range improvement technologies, with the hopes that the professors would be motivated to include courses in their animal husbandry curricula.

A course entitled "Principles of Range Management"; was convened 11-22 May 1987 at Colonia, Uruguay, in collabora-

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Fig. 1. Discussion following a field practical. Most of the theoretical subjects covered in the classroom were demonstrated in the field.



Fig. 2. *Learning how to measure vegetation.*

tion with the "Ministerio de Agricultura y Pesca de Uruguay" and the "Centro de Investigaciones Agropecuarias 'Alberto Baerger' (Estación Experimental 'La Estanzuela')". The International Co-Director was Dr. Donald L. Huss and the National Co-Director was Ing. Agr. Milton Carámbula. FAO Consultants and Instructors were Ing. Agr. Abel E. Bernardón (Argentina) and Dr. Juan Gastó (Chile). Twelve other scientists from Argentina and Uruguay gave lectures and field exercises in specific subjects.

The course was attended by nine professors from selected universities in Bolivia, Brazil, Colombia, Chile, Ecuador, Paraguay, Perú, Uruguay, and Venezuela. There were also an additional nine extension and research specialists from Argentina and Uruguay.

A manual entitled "Principios de Manejo de Praderas Naturales"; which was jointly prepared and published by the FAO Regional Office and the "Instituto Nacional de Tecnología Agropecuaria" of Argentina, served as the textbook for the course. The Manual, which is likely the first of its kind to be written on range management in Spanish, will also have value as a text in undergraduate university courses.

The course was intensive and it centered on the principles and practices associated with the following definition of range management; "The science and art of planning and directing rangeland use in order to obtain maximum sustained economic livestock production compatible with the conservation and/or improvement of the related natural resources: vegetation, soil, water and wildlife." While this definition might be considered old-fashion compared with one in the SRM 1974 "A Glossary of Terms Used in Range Management", it is the definition of a kind of management that is needed in South America and it is one which can be sold to producers, planners, and policy makers.

One of the major causes of poor livestock performance in this area is that animal husbandry and forage management are neither properly planned nor directed. It was stressed

during the course that in range management, both are properly planned and directed. Otherwise, it would not be possible to obtain maximum livestock production. It was further stressed that plant and animal management can never be separated in range management. This was designed to partially offset a poor image among many individuals and institutions that range management deals with plants and plant ecology only.

It was also emphasized that range management seeks sustained maximum animal production to meet the needs of the present without compromising the ability to meet those of the future. The managerial practices and livestock manipulations based on ecological and physiological principles which would lead to this goal were discussed in the classroom and illustrated in the field.

It is thought by many in Latin America that plowing and seeding is the only way that rangelands can be improved and if this is not technically feasible, the situation is hopeless. Most of the participants came to the course with this belief. Consequently, a considerable amount of time was spent on succession, range condition and range condition trend and the ways and means in which natural improvement can be inexpensively obtained. These subjects were new to them and it is felt that they are now aware that there are less costly and permanent alternatives to improvement other than plowing and seeding.

While the true success of the course can only be measured by the informed animal husbandman that it might eventually produce, a beginning has been made. The professors are being encouraged to followup with classes or courses in their respective universities. Only time will tell if they were sufficiently motivated to do so.

Literature Cited

- Ragsdale, B.J. 1986. Round Table for the promotion of range management in South America. *Rangelands* Vol. 8(3):117-118.

Current Literature

This section has the objective of alerting SRM members and other readers of *Rangelands* to the availability of new, useful literature being published on applied range management. Readers are requested to suggest literature items—and preferably also contribute single copies for review—for including in this section in subsequent issues. Personal copies should be requested from the respective publisher or senior author (address shown in parentheses for each citation).

Beef Cattle Nutrition and Performance on Seeded Clearcuts in Southern Interior British Columbia; by D.A. Quinton; 1987; Can. J. Anim. Sci. 67(4):919-928. (Agric. Canada, Research Sta., Kamloops, B.C. V2B 8A9) The average daily gains of lactating cows during summer under continuous and rotational grazing were similar, but suckling calves gained slightly more under continuous grazing.

California Oaks: A Bibliography; by James R. Griffin, Philip M. McDonald, and Pamela C. Mulck; 1987; USDA, For. Serv. Gen. Tech. Rep. PSW-96. 38 p. (Pacific Southwest For. & Range Expt. Sta., P.O. Box 245, Berkeley, Calif. 94701) Emphasis is given to ecology of oak species and communities in California; 768 references are organized by author and date; topical and species indexes are included.

Comparison of Capacitance Meters for Estimating Herbage Yield; by Jerry D. Volesky, Pat O. Currie, and Hugh Livingston; 1988; Mon. AgRes. 5(1):7-10. (Bulletin Room, Agric. Expt. Sta., Bozeman, Mon. 59717) Compares different capacitance meters for estimating herbage yield in a native grass stand and provides use guidelines and recommendations for each.

Development and Longevity of Ephemeral and Perennial Leaves on *Artemisia tridentata* Nutt. ssp. *wyomingensis*; by Richard F. Miller and Leila M. Shultz; 1987; Great Basin Nat. 47(2):227-230. (Eastern Ore. Agric. Res. Center, Squaw Butte Sta., Burns, Ore. 97720) Relates the development, persistence, and proportions of its dimorphic leaves to adaptive and competitive abilities.

Ecological, Physical, and Socioeconomic Relationships within Southern National Forests; by Henry A. Pearson, Fred E. Smeins, and Ronald E. Thill (Eds.); 1987; USDA, For. Serv. Gen. Tech. Rep. 50-68; 293 p. (USDA, For. Serv., Southern For. Expt. Sta., New Orleans, La. 70113) Consists of the proceedings of a symposium in which are presented the results of 43 research projects, which evaluate the flora, fauna, watershed, socioeconomic, and forest pests located in the southern National Forests.

Effect of Herbicides on Miserotoxin Concentration in Wasatch Milk-vetch (*Astragalus miser* var. *oblongifolius*); by M. Coburn Williams and Michael H. Ralphs; 1987; Weed Sci. 35(6):746-748. (USDA, ARS, Poisonous Plant Res. Lab., Logan, Utah 84321) Determined safe and effective herbicides and rates that will reduce the toxicity of as well as control Wasatch milkvetch.

Effects of Japanese Brome on Growth of Bluebunch Wheatgrass, Junegrass, and Squirreltail Seedlings; by J.T. Romo and L. E. Eddleman; 1987; Reclam. & Revege. Res. 6(3):207-218. (Dept. Crop Sci. & Plant Ecol., Univ. Sask., Saskatoon, Sask. S7N 0W0) The results of the study highlighted the importance of rapid germination, emergence, and seedling development for establishment of perennial grasses in monocultures of Japanese brome.

Effects of Short Duration Grazing on Northern Bobwhites: A Pilot Study; by Paul A. Schultz and Fred S. Guthery; 1988; Wildl. Soc. Bul. 16(1):18-24. (Caesar Kleberg Wildl. Res. Inst., Texas A&I Univ., Kingsville, Texas 78363) Found bobwhite density was greater on the short duration than the continuous grazing treatments, this resulting from a reduction of standing plant biomass and increased soil disturbance associated with the higher livestock density under short duration grazing.

Estimating Efficiency of Different Biological Types of Beef Cattle; by D.E. Doornbos, K.M. Havstad, E. Frederickson, M. Wagner, and D.D. Kress; 1987; Amer. Soc. Anim. Sci., West. Sect. Proc. 38:75-78. (Mon. Agric. Expt. Sta., Havre, Mon. 59501) Concluded that biological types with moderate production capabilities were better matched to a range environment with constraints on forage intake and digestibility than were large biological types of beef cattle.

Fescue Endophyte: History and Impact on Animal Agriculture; by John A. Stuedemann and Carl S. Hoveland; 1988; J. Prod. Agric. 1(1):39-44. (USDA, ARS, Southern Piedmont. Cons. Res. Center, Watkinsville, Ga. 30677) Reviews the deleterious effects of a fungal endophyte associated with tall fescue on animal performance and the progress made and still needed in alleviating these adverse effects.

Field-Scale Tebuthiuron Application on Brush Infested Rangeland; by Robert P. Gibbens, Carlton H. Herbel, and James M. Lenz; 1987; Weed Tech. 1(4):323-327. (USDA, ARS, Jornada Expt. Range, Las Cruces, New Mex. 88003) Pelleted tebuthiuron proved highly effective in shrub control and enhancing grass production in southern Arizona.

Foothill Range Management and Fertilization Improve Beef Cattle Gains; by Charles A. Raguse, John L. Hull, Melvin R. George, James G. Morris, and Kenneth L. Taggard; 1988; Calif. Agric. 42(3):4-8. (ANR Publications, Univ., Calif. 6701 San Pablo, Oakland, Calif. 94608) A combination of seeding annual legumes and fertilization of foothill ranges in California proved profitable when accompanied by efficient stocking rates adjusted to annual variation in weather patterns.

Forage Research in Texas, 1987; by Texas Agric. Expt. Sta.; 1987; Texas Agric. Expt. Sta. Cons. Prog. Rep. 4537; 75 p. (Bulletin Room, Agric. Expt. Sta., College Station, Texas 77843) Provides summaries of research directed to management decisions related to the soil-plant-animal interactions in forage production and utilization; published annually.

Guide to Understory Burning in Ponderosa Pine-Larch-Fir Forests in the Intermountain West; by Bruce M. Kilgore and George A. Curtis; 1987; USDA, For. Serv. Gen. Tech. Rep. INT-233; 39 p. (USDA, For. Serv., Intermountain Res. Sta., 324 25th St., Ogden, Utah 84401) Summarizes the objectiveness, prescriptions, and techniques used in prescribed burning beneath the canopy of ponderosa pine and mixed ponderosa pine-conifer stands.

Herbicidal Control of Velvet Lupine (*Lupinus leucophyllus*); by Michael H. Ralphs, M. Coburn Williams, and David L. Turner; 1987; Weed Tech. 1(3):212-216. (USDA, ARS, Poisonous Plant Res. Lab., Logan, Utah 84321) A study of the efficacy of herbicides registered or soon-to-be registered for rangeland use for the control of velvet lupine.

Losses from Grasshoppers on New Mexico Rangelands, 1954-1986, and the Economic Potential for Control Programs; by L. Allen Torell, Ellis W. Huddleston, James H. Davis, and John M. Fowler; 1987; N. Mex. Agric. Expt. Sta. Bul. 728; 27 p. (Bulletin Room, Agric. Expt. Sta., Las Cruces, N. Mex. 88003) Documents past grasshopper outbreaks, estimates forage and economic losses from grasshoppers, and provides economic guidelines for assessing the costs and benefits of future rangeland grasshopper control programs.

Managing Livestock Grazing on Meadows of California's Sierra Nevada, A Manager-User Guide; by Raymond D. Ratliff, Melvin R. George, and Neil K. McDougald; 1986; Univ. Calif., Div. Agric. & Natural Resources Leaflet 21421; 9 p. (ANR Publications, Univ. Calif., 6701 San Pablo, Oakland, Calif. 94608; \$3) Considers meadow types and location, herbage production, degree of use, time of use, and grazing systems.

Noxious Brush and Weed Control; Range and Wildlife Management; Research Highlights—1987; by Loren M. Smith and Carlton M. Britton (Eds.); 1987; Texas Tech Univ., Lubbock, Texas (Vol. 18); 45 p. (Dept. Range & Wildl. Mgt., Texas Tech Univ., Lubbock, Texas 79409) An annual summary of the results of research directed to controlling noxious plants in Texas and to management practices subsequent to control treatments.

Performance of Warm-Season Perennial Grasses in New Mexico; by D.G. Lugg, F. Smith, Jr., and J.F. Gomez; 1987; N. Mex. Agric. Expt. Sta. Bul. 729; 30 p. (Bulletin Room, Agric. Expt. Sta., Las Cruces, N. Mex. 88003) Investigated the productivity of the more promising warm-season grass species and genetic lines under irrigation at Las Cruces and at Tucumcari.

Residue Mapping and Pasture Use Records for Monitoring California Annual Rangelands; by William E. Frost, Neil K. McDougald, and W. James Clawson; 1988; Univ. Calif. Range Sci. Rep. 17; 9 p. (Univ. Calif., Dept. Agron & Range Sci., Davis, Calif. 95616) Describes the use of residual dry matter mapping for (1) making short-term management decisions, and when combined with actual use records, (2) provide long-term estimates of grazing capacity.

Retained Ownership Is an Option for Cow-Calf Operations; by David L. Watt, Randall D. Little, and Timothy A. Petry; 1987; J. Amer. Soc. Farm Mgr. and Rural Appr. 51(2):80-87. (Dept. Agric. Econ., N. Dak. State Univ., Fargo, N. Dak. 58105) Concluded that retained ownership is a viable option to reduce the price risk of large price swings for weaned calves caused by small changes in fat cattle prices, but requires careful consideration of cash flow and higher level of management expertise.

Seeded Range Plants for California; by Melvin R. George, Theodore E. Adams, Jr., and W. James Clawson; 1983; Univ. Calif., Div. Agric. & Natural Resources Leaflet 21344; 23 p. (ANR Publications, Univ. Calif., 6701 San Pablo, Oakland, Calif. 94608; \$2.50) Describes the grasses and legumes currently used for range reseeding and disturbed land reclamation along with their respective environmental requirements and management needs.

SPUR: Simulation of Production and Utilization of Rangelands: Documentation and User Guide; by J. Ross Wight; 1987; USDA ARS-63; 367 p. (Source of publication and diskettes or tapes containing the SPUR code: the author, USDA-ARS, Northwest Watershed Res. Center, 270 S. Orchard, Boise, Idaho 83705) SPUR is a complex process-oriented rangeland ecosystem model developed as a tool for both research and management. It is designed to simulate the hydrologic processes, daily growth of up to seven plant species or species groups growing in competition with each other, and forage removal by cattle and other herbivores. An economic analysis based on weight gains of stocker cattle is included.

Vegetative Rehabilitation & Equipment Workshop, 41st Annual Report, Boise, Idaho, February 8 & 9, 1987; by Harold A. Henke (Workshop Chm.); 1987; USDA, For. Serv., Missoula, Mon.; 38 p. (USDA, Equipment Dev. Center, Missoula, Mon. 59801) Proceedings of the annual workshop, with continuing emphasis on improving rangelands and furthering range equipment technology.

Verified Checklist of the Grasses of New Mexico; by Kelly W. Allred, Stephan L. Hatch, and Robert Soreng; 1986; N. Mex. Agric. Expt. Sta. Res. Rep. 579; 47 p. (Bulletin Room, Agric. Expt. Sta., N. Mex. State Univ., Las Cruces, N. Mex. 88003) Arranged by scientific name and provides common name, origin, and regional distribution for each; appendices of doubtful listings and index to selected synonyms are added.

Co-Research on China?

Dr. Zhu Tingcheng has expressed an interest in conducting co-research on Chinese rangelands. Anyone that is interested can contact Dr. Tingcheng at: Institute of Grassland Science, Northeast Normal University, Changchun, Jilin, People's Republic of China. His article appeared on page 124 of the June *Rangelands*.

Thank Someone for the Scholars

Pat Goebel

Science is beautiful
Science is pure!
For cancer we labor
Seeking a cure.
Rush to apply it!
Rush to discover
The answer to AIDS!
All men need a lover.

Pour in the money!
Pour in the time!
Hurry for God's sake!
And, maybe, for mine.
Chuckie, be clever!
Ignore multiple use.
The land achieves silence
the more the abuse.

The author is wife and student of Carl Jerome Goebel, professor of range management, Washington State University.



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Savvy Sayin's

Planning for a major conference on the state of renewable natural resources is well under way, with the American Forestry Association and the Cooperative Extension Service in the lead. SRM is among the sponsoring organizations. Scheduled for November 14-17, 1988, the conference will be held in Washington, D.C. Meetings of AFA members and of Extension Service Natural Resources Specialists will be tied in. A number of top-notch speakers have already agreed to participate. Thad Box will present a major paper on rangeland resources, with input from Gerald Thomas, Fee Busby, and Tom Shiflet.

Leafy spurge is the target of a biological control campaign announced by Animal and Plant Health Inspection Service administrator Jim Glosser. According to USDA, the weed is causing \$35 to \$45 million dollars in damage annually, but chemical control efforts have cost as much as 10 times the value of program benefits. Five European insect species have been identified as leafy spurge enemies, and all have been cleared for release in the U.S. APHIS has also contracted with a British institution to collect additional natural enemies in Europe.

Fran Hunt, AFA Director of Resource Policy and editor of AFA's Resource Hotline newsletter, has joined the staff of the Senate Agriculture Committee. She will work on forestry and range issues, including the Conservation provisions of the Food Security Act.

USDA has published an updated policy statement on range resources, revising a 1983 Regulation with a broadened definition and strengthened emphasis. The directive is Departmental Regulation 9500-5, dated April 21, 1988.

The American Farmland Trust Agricultural Conservation Awards recognize the outstanding efforts of both individuals and organizations to protect our nation's best farmland from the many environmental and economic pressures facing it today. AFT will name award recipients in four categories: Public Policy and Program Development, Public Education, Model Land Protection Projects, and Corporate Achievement. Written nominations should include the name and address of the nominee, description of the nominee's accomplishments, and the name and address of the nominator. Supporting evidence may be included. All materials must be received by August 15, 1988. Awards will be presented at a ceremony this fall in Washington, D.C.. Address nominations to Stacey Berg, AFT Director of Public Education, American Farmland Trust, 1920 N Street, N.W., Suite 400, Washington, D.C. 20036.

A change in Forest Service appeals procedure is about to take effect after a public comment period. The new regulation eliminates one level in the review process, and agency officials expect to cut down on the volume of paperwork and length of time involved in setting appeals. How successful that will be depends on the extent to which the process can be kept informal and free of attorney involvement, according

to experienced appeal handlers. But they say the idea is appealing.

The Agency for International Development held a 3-day seminar on animal agriculture in Washington in June. Because the symposium is intended to contribute to A.I.D.'s agenda-setting for the 1990's it was heartening to see rangelands given emphasis, with prominent roles accorded Thad Box and Don Dwyer. A.I.D.-watchers have often felt that the Agency's programs were weighted to the animal side, with too little emphasis on range management.

The General Accounting Office distributed its long-awaited report, *Rangeland Management—More Emphasis Needed on Declining and Overstocked Grazing Allotments*. Dealing with both BLM and Forest Service range, the report says staffing constraints limit rangeland management. It urges that management attention and range improvement funds should be better focused on problem areas. GAO found that range condition is not reliably known, and that grazing levels are not based on recent assessments. The auditors were skeptical of any demonstrated results from the Experimental Stewardship Program. A Forest Service response indicated shared concern, but the Assistant Secretary of the Interior criticized the report and the GAO's "negative tone". Capitol Hill veterans say the report probably helped agencies get the budget increases recommended by appropriations subcommittees. A companion report on riparian areas grazing was expected any day.

A hearing on the Tallgrass Prairie Preserve was scheduled for July 1 in Pawhuska, OK, by the Subcommittee on Public Lands, National Parks & Forests of the Senate Committee on Energy and Natural Resources. A hearing on the bill to create a new unit in the National Park System (S. 1967) was held in Washington a month earlier. Insiders report that one Representative from Oklahoma may have lost his enthusiasm for the proposed preserve because Native American groups in the affected area continue to raise objections. If nothing else comes of the proposal, at least the National Park Service is on record as saying that "properly managed grazing helps keep the mix of prairie grasses stable and healthy."

Blueprint for the Environment is the name of a project of a number of environmental organizations aimed at influencing the next Administration's natural resources and environmental policies. One task force is devoting its efforts to the Bureau of Land Management and grazing; another is targeting the Forest Service, another Environmental Education, another Agricultural Conservation and so on. Recommendations are being assembled covering budgets, reorganization needs, policy changes, needed changes in legislation and other factors. A separate task force is working on personnel change recommendations ("talent search"). The project has raised most of its \$180,000 budget, but is running behind schedule, according to Executive Director Clay Peters. Influencing transition teams (or trying to) is an old Washington game, but this is the first coordinated effort on the part of environmentalists. Natural Resources professional societies are not part of the Blueprint project.

Appropriations committees were kind to range programs in reporting out bills for the Bureau of Land Management and the Forest Service. Both Senate and House committees increased the BLM FY 89 range budget \$1 million over the President's budget, and gave the FS \$4 million more than the Administration proposed. Cooperative State Research Service range funds were cut slightly below last year's \$475,000 level.

President's Notes



The two months between writing these columns seems to come around rather quickly. I am getting ready to go to Kenya for 2 weeks at the same time I am writing this, so it may not be too profound. I will go to the summer meeting in Minneapolis as a stop on my return trip from Kenya on July 15.

My theme for this issue will be the image of the range profession and of SRM. Tom Bedell has addressed some of the "image" concerns in the June issue of *Rangelands*. I plan to use some of the material I used in my address at Corpus Christi. There seem to be two very distinct and different images of SRM. Many of the environmental groups look at SRM as the "Society for Livestock Grazing." Some of the livestock-oriented groups and ranchers look at SRM as strictly the "Society of Range Science," which they perceive as emphasizing science with little emphasis on anything practical. Most of us in the profession see ourselves as somewhere in the middle.

One point to illustrate the latter idea. Last year, we characterized the SRM as a "Conservation" organization in some correspondence. One livestock-related organization took exception to that as if "conservation" was a dirty word.

On the other side there have been a number of blasts by environmentalists at the range profession in general, and SRM specifically in the last few years. There have been articles like "Raping the Rangelands" in *Outdoor Life*. Edward Abbey published an article in *Harpers* entitled "Even the Bad Guys Wear White Hats." The following are a few quotes from that article:

I'm in favor of putting the public land livestock grazers out of business. We'd save money in the taxes we now pay for various subsidies to these public lands cattlemen. Subsidies for things like "range improvement"—tree chaining, sagebrush clearing, mesquite poisoning, disease control, predator trapping, fencing, wells, stock ponds, roads. Then there are the salaries of those who work for government agencies like the BLM and the Forest Service. You could probably also count in a big part of the salaries of the overpaid professors engaged in range management research at the Western land-grant colleges—I'd begin by reducing the number of cattle on public lands. not that range managers would go along with it, of

course. In their eyes, and in the eyes of livestock associations they work for, cutting down on the number of cattle is the worst possible solution—an impossible solution so they propose all kinds of gimmicks. More cross-fencing. More wells and ponds so that more land can be exploited. These proposals are basically a maneuver by Forest Service and the BLM to appease their critics without offending their real bosses in the beef industry.

A privately printed newspaper out of Arizona called "Free our Public Lands" took much the same approach. The following are some quotes from this outstanding example of literature:

Another range management tool is called "range management systems". ...A system of grazing called "rest-rotation", also called "systematic overgrazing" is one in which certain parts of the range are given a "rest" from grazing during certain parts of years or growing seasons. This system is in vogue with the government and many ranchers at present and actually intended to *increase* the number of livestock on public lands.

This "modern, scientific grazing system" plan calls for the construction of many thousands of miles of new barbed-wire fences to fence our public lands into more intensive grazing management. It also necessitates the construction of thousands of new stock watering tanks, roads, cattle guards and all the rest. The government range related employees love all this as it increases the spread of their bureaucratic power and justifies their existence.

(Mother Nature) has created over 4 billion different species since life began...and it is akin to heresy to allow these single-minded, profit seeking businessmen and their government assistants to go around "playing God" with millions of acres of her work, especially when they give us so little in return.

There are many ways in which government subsidizes the western grazing industry...There are livestock grazing related university programs, state experimental stations and testing programs, county and state agricultural extension programs...etc.

American Farm Bureau, Association of National Grasslands, National Woolgrowers Assoc., Public Lands Council, SOCIETY FOR RANGE MANAGEMENT, livestock advisory boards,...all these and more are financed by the well-organized and powerful livestock industry through sales, dues, fees, donations, and (?). The grazing industry is fully capable of coming up with large sums of money at a moment's notice to meet almost any urgent public relations need or form of threat to its power or profit.

The last paragraph implies that we (the SRM) are financed by the livestock industry. Wouldn't that be nice if it were true. All Pete Jackson would have to do to get money for an SRM program is to call NCA, the National Woolgrowers, etc. Unfortunately, (or fortunately) SRM is financed by its members' dues and what revenue its journals can produce.

Whose fault is it that many environmentalists and others have such an extreme view of us? It is our fault, of course. The question is, can we change that view and how do we change it? Livestock grazing on rangelands is and will continue to be a major use among many other multiple uses on rangelands—public and private. However, we (the range profession and SRM) have to start getting across the message that we present proper management of rangelands for *all* uses. How do we do that? Your ideas are welcome.—Bill Laycock, President, SRM

Executive Vice-president's Report



Happy Day! We have finally filled our last rental space in our new Denver headquarters.

It looked almost hopeless as we went month after month watching one person after another come, look, and go away. But it has been worth the wait. Our new tenants are a small professional writing group called Right Words, who were looking for space in a quiet location with a lot of class and character, exactly what we had to offer. I feel they will fit right in and we will hardly know they are around.

A second piece of good news. The phone-a-thon, definitely a new venture in our membership activities, has produced 110 renewals to date, which certainly makes it a success. I would like to take this opportunity to heartily thank, in behalf of SRM, everyone who worked so hard in calling all those members who had not paid their dues as yet.

The phone-a-thon also produced some interesting facts: first and foremost was the reaction of the people who were called, you really do care about me. I wish that I could personally contact and know every member of our SRM family, but this is just a physical impossibility and the closest that I can come is to simply wish I could know and consult with every member new and old.

Other interesting points from the phone-a-thon were that the SRM members are always moving, changing phone numbers, and I swear have a diabolical intent to never tell the Denver office. But the bottom line is that the effect was a success and we are nearly even in membership with last year at this time.

Now let's help those membership committee people and sign up that person you really know should and would become a member if they were only asked. How about it, please give it a try.

I am proud to announce that the Denver office has done the near impossible. They are caught up on the on-going work. This has allowed them to do some of that long overdue house cleaning of our supply of journals and all the other accumulated material that seems to build up over the years. You wouldn't believe what they found and didn't find. For example, we are terribly short of some issues of the *JRM*. If you have an extra copy and don't need yours, please do us a favor and mail collect any of the following: 35:2, 35:5, 36:1, 36:2, 37:4 (November not July), 38:2, and 38:4. Frankly, we are at a loss as to why we are short on these specific issues but we are and need to find a few to make our supply more complete.

We are also short of several other older issues of both the *JRM* and *Rangelands* but they are not in such demand as the ones I have listed. If you are interested, we would be happy to mail to anyone a list of all the issues that are in short supply. With our luck those are the ones somebody will be needing and we hate to turn people down when requests are made to us.

If anything is going to be the death of me, it will be attending Section summer tours. Who would believe that I would get too much of a good time, but sometimes I wonder. One thing is a fact: SRM'ers love summer tours and the fun that goes with them.

I have just returned from a nearly nonstop series of three, and frankly I'm, glad to get back to the office and catch my breath.

For example, at the Northern Great Plains Section we examined C.R.P. plantings, biological weed control, and water developments on the grazing districts. Next came Montana Range Days at Dillon, Mont. Can you believe it, nearly 400 were present including a very large number of ranchers. No wonder Montana State University's range department has grown so much recently. I predict if this keeps up they could easily have the largest group of students in the U.S.

Following right on the heels of that high speed three days of great youth involvement came the Hart Mountain range tour in south-central Oregon, where the California, Nevada, and Pacific Northwest Section joined together for a tour of over 200 members and guests that truly was the essence of success. We toured riparian areas, five management areas, and watched demonstrations of some of the very latest equipment being developed for modern range management.

This meeting was especially productive for I was able to meet with three sections, three annual and summer meeting planning committees, and two of our executive committee members. Going there was certainly money well spent.

But I must close this report with the words of an old cowboy buddy of mine. One day he explained to me when I asked him if he could use another little drink that the only time he ever said no was when someone asked if he'd had enough. Well, that's the way I feel about the sections' activities. In spite of the exhausting schedule, the only time I will ever say no is when I'm asked if I have had enough. The real question is, how could any SRM member ever pass up a summer tour? There is so much to learn and see as well as a great time with very wonderful people. It is truly a privilege and a pleasure that goes with this position.—Peter V. Jackson, Executive Vice-president, SRM

1988 Undergraduate Range Management Examination

The 1988 URME competition was held in Corpus Christi, Texas. There were 12 universities represented by 54 individuals. The examination is designed to test the students' breadth of knowledge in areas of Range Ecology, Grazing Management, Range Improvement, Range Regions, Range Inventory and Analysis, and Multiple Use.

This year's top teams were: First Place: **Texas A&M University**; Second Place: **Montana State University**; Third Place: **Colorado State University**; Fourth Place: **Texas Tech University**; and Fifth Place: **Utah State University**.

The top individuals were: First Place: **Rusty Terland**, Montana State University; Second Place: **Katy Beth Garren**, Texas A&M University; and Third Place: **Mark Havener**, Texas A&M University.

Congratulations to all of you!—**Dr. John A. Tanaka**

Requiescat in Pace

Waldo E. Wood, a descendent of the pioneer Wood family that settled the Sycamore Valley, California, died at 84, of emphysema and congestive heart failure.

He was born on the Wood Ranch off Tassajara Road in Danville, which was settled by his grandfather, Joseph, in the 1850s.

As a boy, Wood ran cattle at the foot of Mount Diablo with his father, Charles. Charles Wood's sister was Charlotte Wood, who had a Danville elementary school named after her.

Wood graduated from the University of California, Berkeley, with recognition as an outstanding student of forestry.

He spent 37 years with the U.S. Forest Service, working during his later years in the regional office in San Francisco. He and his wife, Merle, lived in Piedmont. Four years after he retired in 1964, the couple moved to Alamo so he could return to the area of his birth.

"We had to have a home with a view of Mount Diablo because he had been raised at the foot of Mount Diablo and ran cattle there as a boy," she said.

During his retirement, he enjoyed photography. He was a semiprofessional photographer, whose pictures appeared in Forest Service documents. He also loved to travel—going to faraway places such as the Orient and Egypt, his wife said.

She described him as quiet, reliable, physically active and full of love of life.

Join Faculty at Texas A&M

The Texas A&M College of Agriculture announces the appointment of **Dr. Guy R. McPherson** as a Visiting Assistant Professor and **Dr. Steven G. Whisenant** as an Associate Professor to the faculty of the Range Science Department.

Dr. McPherson received a B.S. in forest resources management from the University of Idaho, and an M.S. and Ph.D. in Range Science from Texas Tech University. Since completing his graduate work in 1987, Dr. McPherson has held a postdoctoral position at the Institute of Ecology in Athens, Georgia, studying fire-grazing interactions on barrier islands.

Dr. Whisenant received a B.S. in wildlife and range management from Texas Tech University, a M.S. in biology from Angelo State University, and a Ph.D. in range science from Texas A&M University.

After completing his graduate work in 1982, Dr. Whisenant accepted a position as an Assistant Professor in the Department of Botany and Range Science at Brigham Young University. He was promoted to Associate Professor in 1987. While at BYU, he taught undergraduate and graduate range science, ecology and botany courses; was a faculty advisor to the Range Club; and coached the Range Plant Identification Team. He has just finished a five-year research project in Badlands National Park, S. Dak., studying the influence of fire on competitive relationships and population dynamics of western wheatgrass and Japanese brome. His current research includes a series of studies designed to characterize the fire disturbance regime of the Idaho Snake River Plains.

Senior Post at Roseworthy

Dr. Martin Andrew, has accepted appointment as Associate Director in Roseworthy Agricultural College. Dr. Andrew currently is a Senior Research Scientist in the CSIRO Division of Tropical Crops and Pastures in Darwin.

Dr. Andrew completed his Honours Degree in the Botany Department of the University of Adelaide in 1973 prior to undertaking his Ph.D. there on **The initial impact of depasturing sheep on arid chenopod shrublands**. During his undergraduate and post-graduate studies Dr. Andrew was awarded several prizes and scholarships. His recent research work has concentrated on ecology and management of tropical savannas aimed at developing grazing systems for the tropical rangelands of north-west Australia, which will enable the native grasses to persist in the face of more intensive land management.

Tchoupopnou Honored

The United States Achievement Academy has named Emmanuel Tchoupopnou a Collegiate Scholastic All-American.

The USAA has established the Scholastic All-American Collegiate Award Program in order to offer deserved recognition to superior students who excel in the academic disciplines. The Scholastic All-American Collegiate Scholars must earn a 3.30 or better grade point average. Only scholars selected by a school official or other qualified sponsor are accepted. These scholars are also eligible for other awards given by the USAA. These are awards few students can ever hope to attain.

Tchoupopnou, who attends Utah State Univ., was nominated for this National Award by Professor John C. Malechek.

"Recognizing and supporting our youth is more important than ever before in American history. Certainly, winners of the Scholastic All-American Collegiate Awards should be congratulated and appreciated for their dedication to excellence and achievement," said Dr. George Stevens, Executive Director of the United States Achievement Academy.

Emmanuel is the son of Simo Abel and Noubi Monique of Bafang, Cameroon.

Call for Scholarship Applicants

Applications are currently being solicited for the K.S. "Boots" Adams Scholarship for 1988. This scholarship is administered by the Society for Range Management and consists of a cash award of \$1,000 and a paid summer internship on a working cattle ranch in the tallgrass prairie of Osage County, Oklahoma. The purpose of the scholarship is to provide first hand experience in practical range and ranch management and to award outstanding university students in range management.

Applications will be accepted from students of junior standing at the time of application who are enrolled in a range management program at any university in the 17 western states of the U.S. The scholarship will be received during the student's senior year and the internship served during

the summer between junior and senior years. Applications must consist of a detailed resume, college transcripts, three letters of reference, and an essay entitled "The Role of Ranching in Range Management." All application materials must be received by November 7, 1988. Results of the scholarship competition will be announced at the SRM international meeting in February. Applications or further inquiries should be addressed to:

K.S. Adams Scholarship Committee
c/o Dr. Stephen C. Bunting
Department of Range Resources
University of Idaho
Moscow, ID 83843
(208) 885-7103

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The individuals listed below made contributions to the SRM Endowment Fund in 1987 and, to date, in 1988. The generosity of these donations is greatly appreciated by the SRM Board of Directors, members and staff.

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In addition, we would like to thank those individuals who have so generously made donations through their employment, using the "Combined Federal Campaign" (United Way). We are sorry not to be able to list these individuals, specifically, but thank them as well.

If you would like to make a contribution to the SRM Endowment Fund, please send your check, with a note indicating your contribution, to: Society for Range Management, 1839 York Street, Denver, CO 80206.

ANNOUNCING Rancher - Rangeland Monitoring Symposium

February 20, 1989

This symposium will be held Tuesday, February 20, 8:00 a.m. to 12:00 p.m. in conjunction with the 1989 annual meeting in Billings, Montana. Primary consideration will be given to presentations that have demonstrated techniques used by ranchers in monitoring progress and change on their rangeland operations.

The symposium will be chaired by Frank Sparks, Rancher from Plevna, Montana and Ray Bannister, Rancher from Wibaux, Montana. Paper and abstract reviews will be conducted by Dennis Phillippi, Symposium Coordinator and Moderator.

The length of presentations are 20 minutes maximum so space is limited. **If you have some monitoring techniques and successes on your ranch** to share with us, please call Dennis Phillippi at (406) 587-6839 so we can assure you a place in the symposium. Extended deadline for submission of abstracts is **November 1, 1988**.

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Nonpoint Source Conference

Making Nonpoint Pollution Control Programs Work

The Water Quality Act of 1987

National Association of Conservation Districts

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Clarion Hotel

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The Society for Range Management is an official co-sponsor. Papers on rangeland management and its effect on water quality are encouraged for presentation at the conference and publication in the proceedings.

PROGRAM: The conference will provide a forum to review and examine existing local nonpoint source pollution control efforts and effective local NPS control programs. Workshops will focus on documenting NPS problems, developing priorities, and implementing plans in both rural and urban settings. Participants will be invited to share specific case studies of successful programs and sources of funding.

SUGGESTED SESSION TOPICS: NPS control technology; impact and treatment of agricultural runoff; animal waste management problems and solutions; urban NPS problems and solutions; NPS information and education efforts; NPS funding efforts; costs and benefits of NPS control; the roles and responsibilities of industry and the private sector in NPS control.

ABSTRACTS for papers and presentation must be original work, not previously published and relevant to NPS pollution control. Abstracts should not exceed 150 words. They should be typed, double-spaced and submitted by September 1, 1988. Those accepted for presentation will be notified by October 1, 1988 and will be expected to prepare a paper for final submission and presentation at the conference.

NACD will consider all papers for inclusion in the NPS Program User's Manual which will be published after the conference.

EXHIBITORS: Exhibit space adjoins the meeting areas. All morning and afternoon coffee breaks, continental breakfasts, evening receptions, and one buffet luncheon will be served in the exhibit area. Exhibitors will include state and local government agencies, con-

sulting firms, manufacturers, conservation and environmental organizations and others working in NPS management. For more information contact: Robert Baum, NACD Pacific Region Office, 831 Lancaster Dr., NE, Suite 207, Salem, Oregon 97301 (503/363-0912).

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