Good Medicine for a West Texas Ranch

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When viewing the vast wastelands and time-worn mountains of Pecos County, in western Texas, it is hard to visualize what Dr. D. J. Sibley saw as a boy 60 years ago at the family ranch 40 miles southwest of Fort Stockton. The view left a lasting impression and now Sibley, the doctor, seeks to recreate and insure the continual existence of a semidesert mountain grassland, the patient, with the use of range improvement techniques such as brush control, reseeding, water distribution, road construction and concepts of natural resource management.

In 1919 the Sibley family moved to Fort Stockton, where the elder Sibley, the only dentist between San Antonio and El Paso, purchased a 20-section ranch in the Glass Mountains. The first successful water well was drilled in 1934, and the ranch annually supported as many as 600 sheep, 200 goats, 10 horses, and 3 milk cows.

After World War II, D.J. Sibley returned to the ranch and found a wasteland. He began a medical practice in Fort Stockton and leased the ranch to a neighbor, George Mills. Sibley stated: "Animal units were reduced to 10 per section, but range condition failed to improve, due to a prolonged drought which began in 1946 and lasted until 1957." In the next 5 years Sibley constantly observed range conditions and trend and determined that natural range restoration was not possible with year-round grazing of sheeps and goats. In 1963 grazing with sheep and goats was discontinued, and substituted with a limited cow-calf operation.

Sibley became a postgraduate student of medicine in 1961 and conducted basic research on cancer at the Texas Medical Center in Houston. At this period in his life, already well developed awareness of ecological and hydrologic problems such as brush invasion and gully erosion intensified. In 1970 he retired from research and the medical profession, moving back to the Glass Mountains, where his time and energy are devoted to range improvement and management.

In 1975 Sibley began a rangeland restoration program to reduce shrub competition and reestablish perennial grasses in once productive mountain valleys. Mesquite were grubbed and rootplowed in strips and the area seeded with Johnsongrass *(Sorghum halepense),* green sprangletop *(Leptochloa dubia),* plains bristlegrass, *(Leptochloa dubia),* plains bristlegrass *(Setaria macrostachya),* lehmann lovegrass *(Eragrostis lehmanniana),* blue grama *(Bouteloua gracilis),* and side-oats grama *(B. curtipendula).*

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A mesquite grassland Savannah which provides abundant cover and forage for wildlife and livestock.

There are currently three wells which provide water to eight pastures by gravity flow. Wells are drilled at high elevations, and when needed, booster windmills, pumps, and storage tanks are used to supply water to pastures above well elevations. Rock density in the mountainous area prohibits installation of underground water lines. Pipes are placed on a soft bed of sotol *(Dasylirion leiophyllum).* Rock is placed over the pipe to a width of 2 ft. (Photo 2). Water lines run along ridge tops with water troughs and mineral blocks selectively placed on rocky points overlooking alluvial valleys. The development of a permanent water supply has increased livestock distribution and utilization on steep slopes while reducing trampling and overgrazing on lower, more productive sites.

Before Sibley's return in 1970, roads on the ranch followed the path of least resistance, occupying valuable pastureland in the valleys. Roads have been reconstructed on the contour along the tops and sides of hills. Roads are graded on a 5% downhill slope and water is channeled across roads, reduc-

An above-ground gravity flow water system covered with sotol and rock.

ing rut formation and excessive erosion. Abandoned roads are cross-dammed and seeded with Johnsongrass and almum sorghum *(Sorghum almum)* to provide forage, cover, and erosion control.

A true multiple-use approach based on forage production and animal use and density has been developed for the Glass Mountain Ranch. After observing the response of seeded areas, after 4 successive wet years, Sibley suggested the use of yearling steers between the months of November and May. The current stocking rate is 25 animal units per section. Sibley refers to the system as litter management and winter grazing. He says: "The system promotes plant growth by maintaining a balance between plant and animal needs and has enhanced range condition by livestock exclusion during the growing season." Sibley's concept of management also includes wildlife. Before 1974, only antlered deer were harvested. However, personnel of the Texas Parks and Wildlife Department have persuaded him to reduce the buck harvest and increase doe permits to attain a 1:3 sex ratio. Harvest is based on results of spotlight and mobile census lines originally established by state wildlife biologists. Sibley now conducts the census and determines the harvest.

Tremendous amounts of time and money have been allocated for range improvement and management, but Sibley stresses the need for more. Current plans include a canal system that will divert surface flows from active erosion sites, water spreading on future root-plowing sites to increase infiltration and fencing to exclude livestock from active erosion sites. Sibley believes that nothing should be wasted or abused, and has research plans to determine the usefulness of "undesirable" range plants. He plans to evaluate the fiber content of sotol, lecheguilla *(Agave lecheguilla)*, and yucca (*Yucca* spp.) and determine their value as thermal insulation fiber. Other projects include the determination of elevational limits of jojoba *(Simmondsia chinensis)*, guayule *(Parthenium argentatum)* and the feasibility of grafting native pecans onto abundant Mexican walnut *(Juglans microcarpa)*.

The Sibley ranch is currently a "paying operation" and a fine example of multiple use and conservation of renewable natural resources. Four principles govern the management of the ranch: (1) livestock and wildlife densities are continuously monitored and stocking rates and wildlife harvests are based on plant production after the growing season, (2) energy is efficiently used in land renovation and water distribution, (3) indigenous animals and plants are cultivated, and (4) there is a constant search for exotic plant species that will improve forage and cover for domestic and native livestock.

Sibley, a retired medical doctor, has now become a doctor of range. He states: "Depleted rangeland is much like a sick patient; both must receive adequate attention and it is the duty of the landowner to provide it. For it is man's basic responsibility to care for the land and live with, not against, nature". ●

Pipelines for Grass Management

Oryl Fischer

"Ranchers looking for better distribution of livestock should consider pipelines to get cattle to use more of the grasses in a pasture," said Hugh Clarke, Jr., of Berwyn, in central Nebraska. Clarke knows the benefits for he has installed nearly 19,000 feet of underground pipelines on his 1,700 acre ranch located in the Nebraska Sandhills. They were installed under a Great Plains Conservation Program contract administered by the Soil Conservation Service.

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"I needed more water places because on the rough terrain the cattle weren't grazing too far from water," he said. He chose pipeline because, "They cost less than wells and there's also less maintenance than with wells and windmills."

"We did have to put in one new well to reach the outlying areas on some of the pastures", says Clarke. "The new well is 300 feet deep and will yield 13 gallons per minute. A 1 ½ horsepower motor on the pump supplies water to the tanks in eight pastures and small lots from this well."

Hugh dug a 6-inch wide trench to place the polyvinyl chloride (PVC) plastic pipe 5½ feet deep. Roughly 15,670