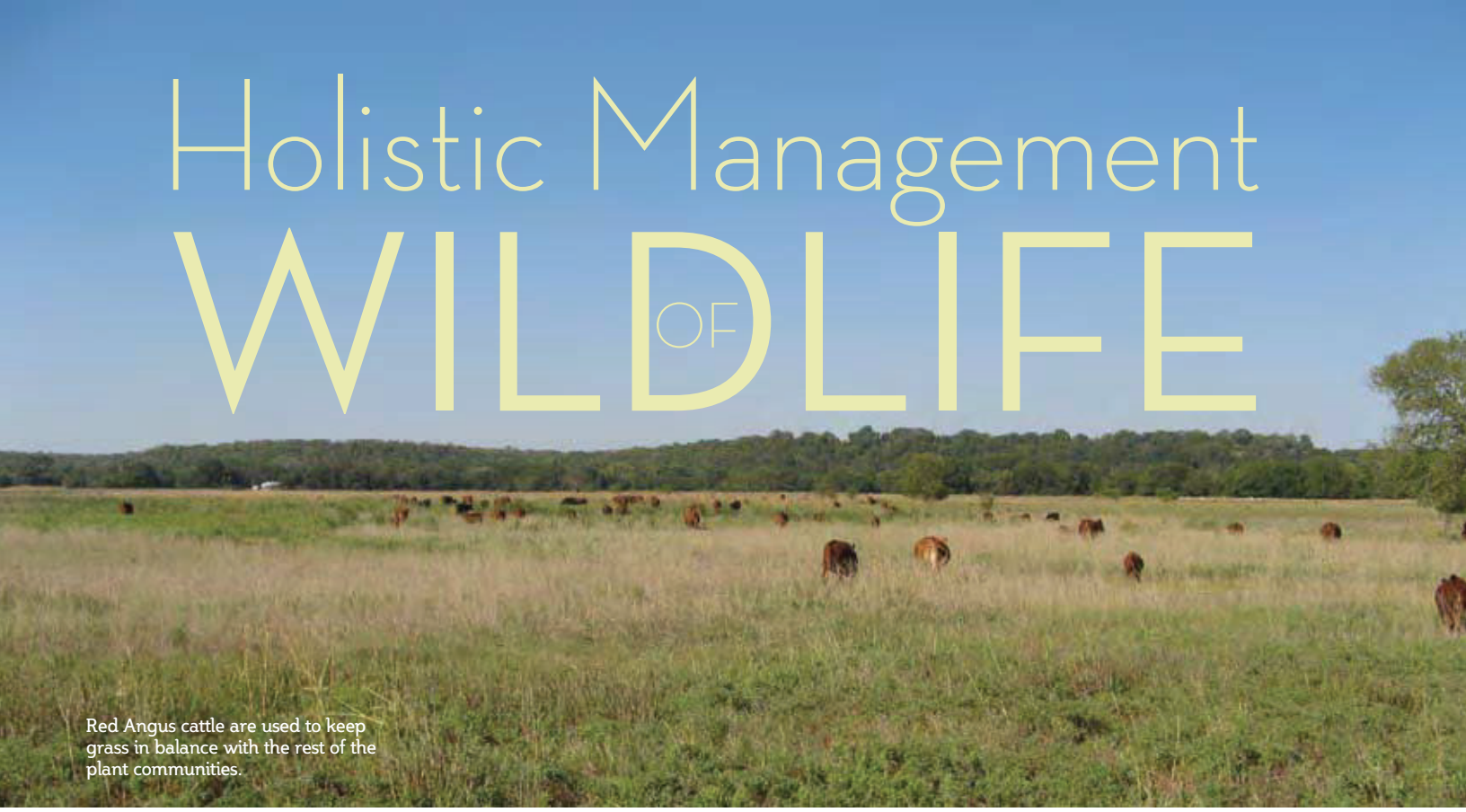
Holistic Management of WILDLIFE



Red Angus cattle are used to keep grass in balance with the rest of the plant communities.

Article by **ROBERT AND JANELLE FEARS** | Photos by **ROBERT FEARS**

The Holistic Management Institute (HMI) describes holistic management as: "a ranch planning system that utilizes resources to reap sustainable environmental, economic and social benefits. Through holistic management, land can be returned to a healthy condition so that productivity is greatly increased *without* large infusions of cash, equipment or technology. Relationships between land, grazing animals and water are managed in ways that mimic nature."

Holistic management is management of an ecosystem, which is made up of a community of animals, plants, and bacteria and their interrelated physical and chemical environment. A holistic manager allows an ecosystem to function as a unit with its various parts in sync with each other. A proper balance must be maintained among the components for the ecosystem to be productive.

Wildlife particularly benefits when land is holistically managed, because these animals were originally part of a natural ecosystem. "Manage the land properly and the wildlife will come," says Clinton Josey, Chairman of The Dixon Water Foundation Board of Directors."

Eastern gramma grass quickly disappears under heavy grazing. Its presence signifies good grazing management.

The Dixon Water Foundation, a member of the Texas Wildlife Association, owns and demonstrates holistic management on four different ranches totaling over 15,000 acres. Two of the ranches are located near Gainesville, one is south of Dallas, and the fourth is near Marfa. The foundation was founded in 1994 by the late Roger Dixon. The Primary purpose of the foundation is to promote healthy watersheds through sustainable land management. In addition to demonstrating sustainable land management practices, The Dixon Water Foundation funds an annual grant program that promotes its mission throughout key Texas ecosystems, provides landowner education and fosters public awareness about healthy living through healthy watersheds.

"Each ranch is expected to sustain itself financially through livestock sales and hunting leases," explains TWA member Robert Potts, President and CEO of the Dixon Water Foundation. "Hunters not only provide an income stream, but they also help keep deer populations in balance with their habitat."

"We create wildlife habitat through holistic grazing management," states Josey. "We divided our pastures into 85 different paddocks collectively on the two Gainesville ranches, using both permanent and temporary electric fencing. Cattle and sheep are grazed together at heavy stocking rates and are moved into fresh paddocks daily."

The holistic management grazing concept imitates grazing habits of the vast buffalo herds that once roamed the western United States. These animals grazed an area, moved to new grass and did not return to previously grazed ground until the grass fully recovered. In holistic management grazing, grass recovery time requirements are planned to

Hair sheep are used to control herbs.

determine grazing periods. Recovery periods dictate the average amount of time each paddock is grazed, and if the system is executed properly, overgrazing is minimized. Recovery and grazing periods are interlinked, and one cannot be changed without changing the other.

"In holistic management, livestock density is managed to match available forage, in order to maximize animal impact," states Peggy Sechrist, Holistic Management Certified Educator with HMI. "Hooves of animals pastured at a high-stock density pulverize soil, allowing more water penetration and nutrient cycling. Plants are grazed more evenly, and there is better distribution of forage utilization, urine and manure. High-stocking density also causes a more even distribution of litter as a soil cover. The layer of litter cools the soil, aids in water absorption and degrades into organic matter. Moving livestock to fresh manure-free ground results in improved animal nutrition, health and performance."

"Holistic management grazing promotes forbs that provide food for deer, turkey and quail," says Potts. "On all our ranches, except at Marfa, we maintain forb populations to provide enough forage for the deer and sheep. If forbs become too numerous, we add more sheep. If forbs are grazed too heavy, sheep are removed. We do not need sheep at Marfa, because pronghorn antelope help control forb density."

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Foliage and seeds from the grasses and forbs are important components in the diets of turkeys, quail and other birds. Another contribution of forbs is that they attract insects that also serve as food for birds, particularly the young. Native pecan, oak and other hardwoods provide mast for wildlife food. The Leo Ranch near Gainesville contains many Bois d'Arc trees. Deer browse its leaves, and squirrels feed on the little hard seed buried in the pulpy fruit. Enough woody areas exist on all the Dixon Water Foundation ranches to provide ample wildlife cover.

"The continuous vegetative cover, resulting from holistic grazing management, builds organic matter, holds water and prevents erosion," states Josey. "Rainwater soaks into our soils and does not run off the property. We want to keep all the water that falls on our properties, and we don't want the neighbor's rainwater. The reason is that runoff causes erosion, and we don't want to lose our soil. We also don't want our neighbors losing theirs."

"We don't see an immediate change in the water levels of our ponds after a heavy rain, due to soil absorption," Josey continues. "A few days following a rain, the ponds will begin recharging from the water table."

SOIL HEALTH

"If we understand the different components that contribute to soil health, we can increase infiltration rate and add organic matter, all of which can improve ranch profits," says Ray Archuleta, Conservation Agronomist, United States Department of Agriculture National Resources Conservation Services (USDA-NRCS). "When we improve soil health, we address the majority of our natural resource concerns. The problem is that we have become detached from our land and no longer understand it. We need to be able to diagnose soil health and design management strategies for improvement."

Archuleta continues, "Vegetation is needed on the soil 24 hours a day, 7 days a week to build organic matter, hold water and stop erosion. Continuous live or dead cover helps maintain soil health and protects it from heat and raindrop impact. Soil needs armor."

The need for continuous soil cover is the reason pastures should not be grazed to bare ground. Holistic management grazing ensures that there is always enough vegetation to generate new growth and to avoid bare spots.

Good habitat management can produce quality big game animals, such as white-tailed deer.

"Nature takes care of a lot of problems, if you let her."

"A healthy soil is full of organic matter, earthworms and micro-organisms that include bacteria, fungi and protozoa," says Archuleta. "Eighty percent of our plants are mycorrhizal, meaning they have a mutualistic relationship with fungi. Carbohydrates are translocated by plants to their fungal partners and, in return, the plant gains benefits from the fungi's higher absorptive capacity for water and minerals. Through the absorption process, the fungi coats soil particles with a glomalin protein.

"Fungi are made of a mass or network of thread-like tubes called mycelium. The individual thread-like mycelium parts are hyphae. Mycorrhizal fungi produce glomalin protein to coat hyphae to aid in absorption of water and nutrients."

"Hyphae act as a frame upon which soil particles may collect, while glomalin glues them together and protects them," says Kris Nichols, United States Agricultural Research Service (USDA-ARS). "This is similar to walls in a house, where 2x4s are used to frame the wall, insulation fills in spaces between walls, wall board help keep everything in place, and, finally, it is all coated with a protective layer of paint. In a soil profile, hyphae are the 2x4s; soil particles are the insulation; microbial glues like glomalin and fungal and bacterial polysaccharides are the wall board; and glomalin is the paint."

"Glomalin is an important molecule in soil aggregate stabilization," continues Nichols. "When aggregates are not stabilized, they break apart with rainfall. Organic matter and nutrients within disrupted aggregates may be lost to rain and wind erosion. High glomalin concentrations are related to the formation and stabilization of aggregates."

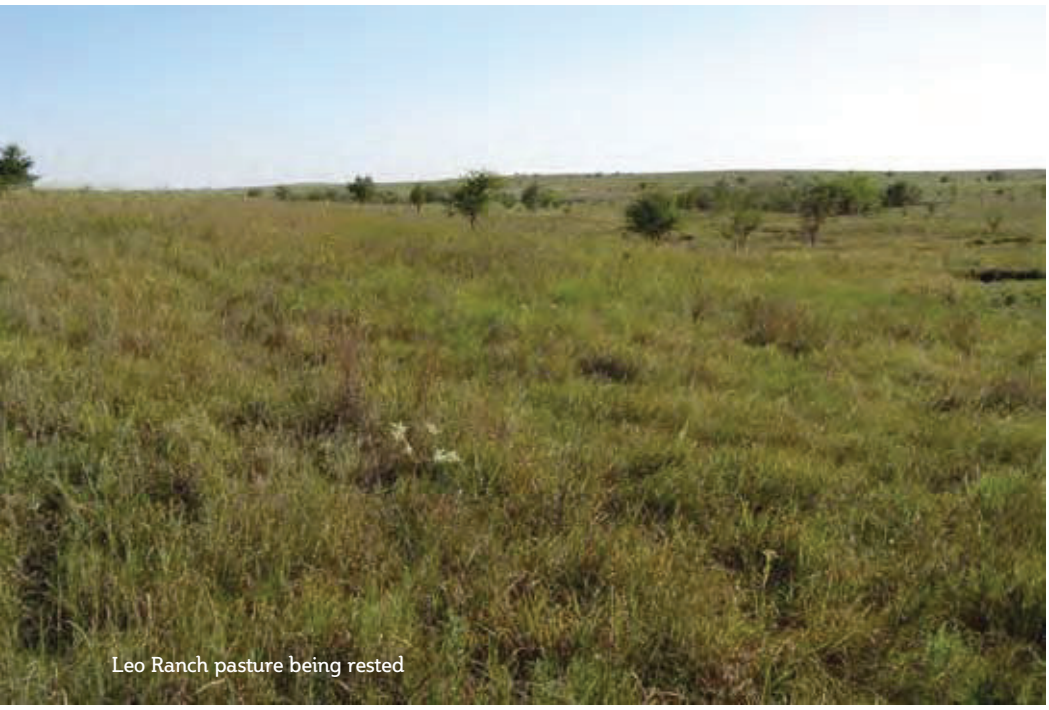
When soil contains organic matter, it is normally inhabited with earthworms. They are major decomposers of dead and decomposing organic matter and derive their nutrition from bacteria and fungi that grow on it.

HOLISTIC MANAGEMENT SOLVES PROBLEMS

"Nature takes care of a lot of problems, if you let her," says Josey. "Broomweed immediately emerges in bare spots left by grass that died due to drought. After drought is over, the grasses recover and crowd out the broomweed. Nothing eats broomweed; so its sole purpose must be to shade and protect the soil, until grass recovery."

"Some things we can't explain," Josey continues. "After we began holistically managing our lands, fire ants disappeared. We don't know why, but they are gone. Feral hogs are not a problem, either. We think that the sheep guard dogs probably took care of them."

Perhaps Potts has the best explanation of holistic management. He says, "We just work with what nature provides us."



Leo Ranch pasture being rested