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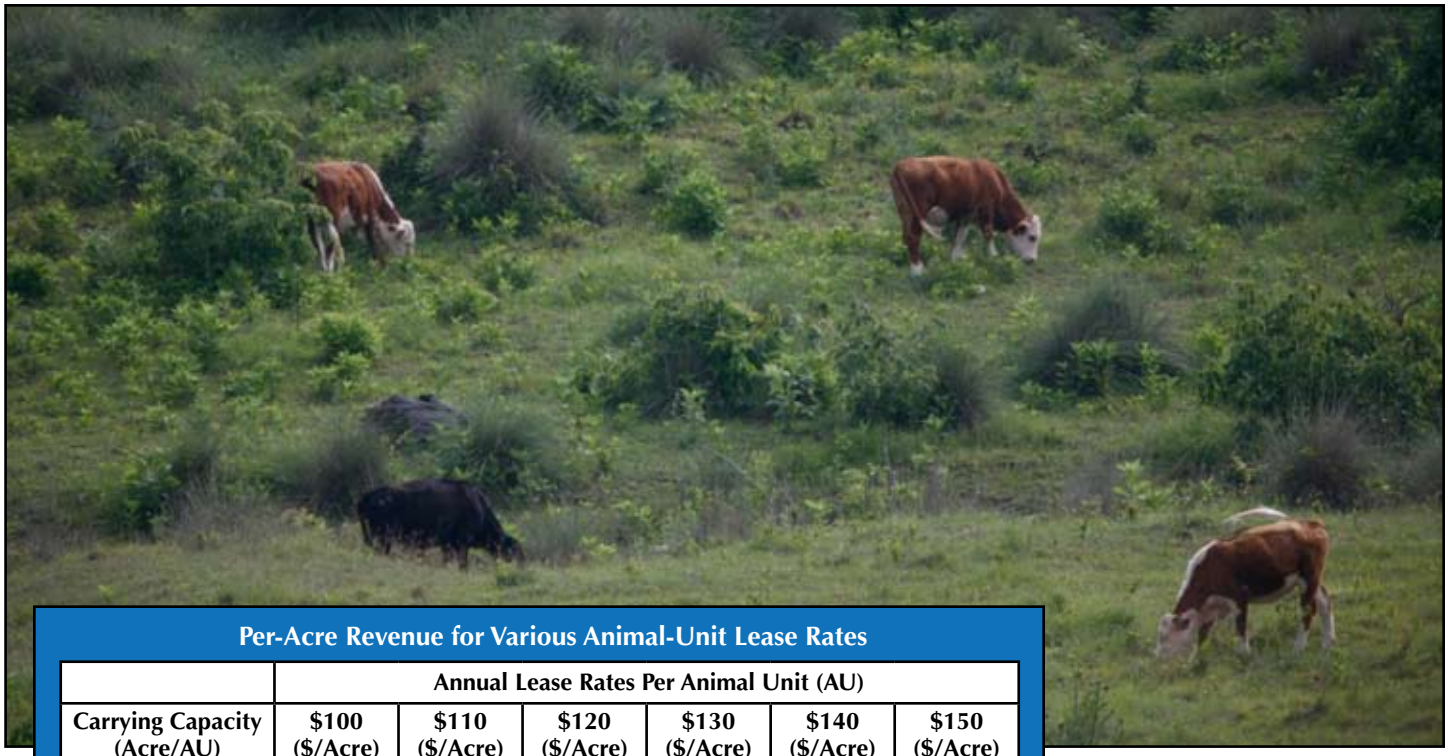
RANCHING FOR ROOKIES

By Charles E. Gilliland

In the past several years, the number of Texas land sales has increased while the typical tract size has declined. This trend reflects the growing number of non-rural buyers who want a place in the country for rest and recreation.

Unfortunately, many of these new landowners are unprepared for the challenge of managing land in a way that sustains a healthy ecosystem. Rangeland specialists indicate that small acreage tracts are some of the most abused lands in Texas.

Examples of poor land stewardship abound. In the Hill Country, land inside a high fence has a surface devoid of vegetation, indicating serious overgrazing, the most prevalent kind of abuse on small acreages. The owner had decided to protect a deer herd by banning hunting and eliminating predators. The deer population grew and natural forage vanished with overgrazing. Other pastures with thick stands of prickly pear from fence row to fence row offer evidence of long-term overgrazing.



Per-Acre Revenue for Various Animal-Unit Lease Rates

	Annual Lease Rates Per Animal Unit (AU)					
Carrying Capacity (Acre/AU)	$100 ($/Acre)	$110 ($/Acre)	$120 ($/Acre)	$130 ($/Acre)	$140 ($/Acre)	$150 ($/Acre)
50	2.00	2.20	2.40	2.60	2.80	3.00
40	2.50	2.75	3.00	3.25	3.50	3.75
36	2.78	3.06	3.33	3.61	3.89	4.17
30	3.33	3.67	4.00	4.33	4.67	5.00
20	5.00	5.50	6.00	6.50	7.00	7.50
10	10.00	11.00	12.00	13.00	14.00	15.00

Source: Real Estate Center at Texas A&M University

These kinds of land management mistakes can have drastic, sometimes irreversible consequences. A sustained downpour on an overgrazed hillside pasture can wash away centuries-old accumulations of topsoil, leaving the surface littered with exposed stones.

Successful management plans require an understanding of how wildlife, livestock and vegetation interact with the soil and water on a sustained basis. Landowners should learn their land's capabilities and limitations, then implement activities to conform to those factors.

Matching Fauna to Flora

The soil's ability to produce grazing defines the productive capabilities of a ranch. Rainfall patterns, existing plant communities and soil properties combine to determine the number of animals that can effectively graze a property. Too few animals and forage is wasted; too many results in overgrazing, sacrificing the future for the present.

Rangeland management experts developed the "animal unit" as the basis for measuring the physical and financial productivity of ranch properties. Although definitions vary, the conventional animal unit is defined in relation to the number of pounds of forage required to support a 1,000-pound, mature cow with a nursing calf up to six months old. That cow is assumed to consume 9,490 pounds of air-dried forage in a year or 26 pounds each day.

This standard animal unit is then used to categorize other kinds of animals based on nutritional requirements. For example, a 1,200-pound cow would consume more forage, and thus would be 1.20 animal unit equivalents. Owners can compare other livestock or wildlife to the standard animal unit carrying capacity. It might take six white-tail does to equal one animal unit while a single horse may be 1.25 animal units.

Calculating the number of animals a property can support requires a manager to estimate the expected forage production in pounds divided by 9,490 pounds per animal unit, or they can use the soil survey information provided by the Natural Resources Conservation Service (NRCS; see "Converting Forage Production to Animal Units"). An owner also can estimate the number of acres needed to support one animal unit.

For example, using the NRCS formula and taking range conditions into account, soil capable of producing 3,000 pounds of air-dried forage for consumption each year might be able to support a cow on 25 acres. That site would be labeled 25-acre-per-animal-unit land. Such a site would be inferior to one capable of producing 6,000 pounds of forage that could accommodate a cow on eight acres. A prudent manager would plan to have far fewer cattle on the first site than the second.

Managing to Protect the Land

The NRCS conducts studies of soils in each Texas county. Currently, soil surveys for most counties in Texas are available online. These surveys include NRCS estimates of soils' carrying capacities along with maps showing the distribution of soil types. Using these resources, an owner or owner's consultant can estimate the productivity of the soils on his or her land.

Carrying capacity lets the owner know the number of animals that can graze the property on a sustainable basis under specified conditions. With this information, the owner could monitor the deer population and learn the steps needed to

avoid damaging the rangeland and the animals' health. Similarly, an owner could monitor the number of cattle a tenant was grazing to ensure the long-term health of the pasture.

Rangeland management experts recommend drafting grazing leases based on animal units rather than flat per-acre rents. For example, the lease might specify $140 per animal unit rather than $8 per acre for grazing. If the carrying capacity was 20 acres per animal unit, the per-acre lease rate would equate to $7 per acre, but a carrying capacity of 30 acres per animal unit would cause the per-acre revenue drop to $4.67. The table shows the equivalent revenue per acre for various lease rates per animal unit at various carrying capacities.

Basing the rent on animal units fixes the grazing cost per animal, eliminating the tendency to pack unhealthy numbers on the land.

Animal-unit-based leases are environmentally more sound because they change the tenant's incentives. Paying a flat rent per acre encourages landowners to graze as many animals as possible to minimize grazing cost per animal. Without a long-term stake in the property, the tenant would likely overgraze the land. Basing the rent on animal units fixes the grazing cost per animal, eliminating the tendency to pack unhealthy numbers on the land. Owners and ranchers can instead negotiate terms based on the numbers of animals the property can support on a sustained basis.

Negotiating Leases

Grazing negotiations can involve a complex set of tradeoffs as owners strive to balance livestock and wildlife with the land's ability to support them. Variations in rainfall and other conditions have an impact on carrying capacity. As a result, crafting a lease requires careful analysis of the land in relation to the goals of landowners, livestock producers and recreational users.

The Texas Agricultural Experiment Station and Texas AgriLife Extension Service (Extension) provide rangeland management information on a variety of subjects for landowners. In addition, Extension maintains a network of experts throughout the state to assist landowners.

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THE TAKEAWAY

Landowners, especially those buying land for weekend getaways, may not understand the rangeland management strategies necessary to keep vegetation and wildlife in healthy balance.

CONVERTING FORAGE PRODUCTION TO ANIMAL UNITS

For details, see *The Appraisal of Rural Property*, published by the Appraisal Institute and the American Society of Farm Managers and Rural Appraisers. This explanation relies on the formula used by the Natural Resource Conservation Service of the U.S. Department of Agriculture in its development of soil surveys. This animal-unit formula provides an estimate of how much land it takes to sustain a cow each year.

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