Appendix D

Livestock Management Recommendations

CATTLE MANAGEMENT OPERATIONS ARE THE SINGLE-MOST IMPORTANT FACTOR THAT EFFECT DEER AND MOST OTHER WILDLIFE POPULATIONS IN THE SOUTH TEXAS PLAINS ECOLOGICAL REGION. Stock cattle at the NRCS (formerly SCS) recommended rate and where possible, rotate cattle in one herd through 3 - 10 pastures, letting pastures rest for at least as long as they are grazed to provide tall grasses and weeds for fawn nursery areas and quail/turkey nesting areas.

These fences can be constructed of only 4-strand barbwire to discourage access by cattle. The bottom wire (this can be a smooth wire) should be at least 18 inches above the ground to permit deer easy travel under the fence instead of having to jump over. Top wires should be at least 12 inches apart.

A single electric wire fence 30 inches above the ground is also usually enough to discourage cattle access, but permit deer easy access. Cost of electric fencing, using a solar charger- powered battery, is about one-third cost of barbed wire fencing. Moderate to light stocking rates for this area are generally: one animal unit (cow with calf) per 50 acres on native grass.

Grazing Management Plan should include:

Kind of Livestock: Cattle Sheep, Goats, Horses, etc.
Type of Livestock: Cow/calf, Steers, etc.
Stocking rate: One animal unit per _____acres.
Type of Grazing System: Two Pasture, Eight Pasture, Planned Deferment 1-2 years, etc.
High Frequency-Short Duration, etc.

Because "weeds" (broadleafed herbaceous plants) compete with grasses for growing space, nutrients, and moisture, their presence in rangeland plant communities is usually considered to be undesirable by most range managers, but they are important for wildlife. A well-planned livestock grazing system allows for a greater plant diversity, including a good component of forbs.

A range that has not been grazed for a long period of time, and is otherwise not periodically disturbed, can "stagnate" by becoming dominated by relatively few species of plants and exhibit limited variety and diversity. Therefore, total long-term deferment from livestock grazing is not normally recommended for optimum range and wildlife habitat management. Several growing seasons of deferment may be needed to allow an abused range to recover, but grazing should again be implemented after sufficient recovery is made.

Livestock should be considered as "tools" that can be used to maintain good wildlife

habitat. A well-planned livestock grazing system is one which allows adequate rest periods for plants to recover after grazing. Most domestic livestock are selective grazers and consume the most nutritious and palatable plants first. Whenever a plant is eaten, there is not only a reduction in top growth but also a reduction in root growth. This reduces the plant's ability to rapidly regrow following defoliation. During the growing season, herbaceous plants need at least 30 to 60 days of rest to recover from grazing. Woody plants need as long as 4 to 6 months of rest to allow for regrowth. The recovery periods depend upon the severity of defoliation, moisture conditions, and temperature.

During continuous year-long grazing when livestock are left in a pasture for 365 days of the year, the most palatable plants are repeatedly defoliated. Frequent, repeated use will not allow seed production or plant recovery. Continuous grazing, even at light to moderate stocking rates, will remove the most desirable and palatable plants while the least preferred/least palatable plants that receive less grazing pressure become more dominant because of a reduction in competition. The result is a change in the species composition and an overall reduction in plant species diversity. Continuous grazing should not be used as a grazing method if the land manager's desire is to improve habitat for wildlife.

Several livestock grazing methods and systems have been developed which provide adequate periods of rest and allow vegetative recovery. There are many variations of these systems and the land manager needs to select the one that fits his particular situation. Some commonly used deferred-rotation grazing systems are: two pasture/one herd rotation, three pasture/one herd rotation, four pasture/one herd rotation, high intensity/low frequency (HILF), and short duration. Regardless of the type of deferred-rotation grazing system used, the length of time that an individual pasture should be grazed, and the length of time that it would need to be rested before being grazed again, would be dependent on the size of the pasture, its grazing capacity, the time of year (growing season versus non-growing season), the amount of rainfall received since being grazed, and the class of livestock. Grazing schedules and livestock stocking rates for pastures within a grazing system need to be flexible and continually reevaluated based on rainfall patterns, seasons of the year, and local range conditions. Knowing how long to graze and how long to rest is more an art than a science, dependent more on environmental factors and the on-site conditions than on the calendar.

Below are brief descriptions of different deferred-rotation grazing systems. There are many variations of each system and the land manager can modify the grazing schedules to fit the local situation.

Two pasture/one herd rotation - All livestock are confined to one pasture, which is grazed for 3 months. The herd is then moved to the second pasture, which is grazed for 6 months. The herd is then moved back to the first pasture for 6 months, then back to the second for 3 months, and so on, continuing with the 3 month/6 month cycle.

Three pasture/one herd rotation - The one herd of livestock is rotated through the pastures every 3 months. This allows each pasture to receive 6 months of rest before

being grazed again. Over time, the pastures are grazed during different seasons of the year, with a 3 year interval before an individual pasture is grazed during the same time period again. For example, a pasture grazed from April through June during the first cycle, would be grazed from January through March during the second cycle, October through December during the third cycle, and July through September during the fourth cycle, before being grazed again during the April through June period during the fifth cycle.

Four pasture/one herd rotation - The one herd of livestock is rotated through the pastures every 2 months. Each pasture also receives 6 months of rest before being grazed again, but the interval before an individual pasture is grazed again during the same time period is reduced to 2 years. For example, a pasture grazed April and May during the first cycle, is grazed December and January during the second cycle, and August and September during the third cycle, before being grazed again April and May during the fourth cycle.

High intensity/low frequency (HILF) - The number of pastures in this system is variable, but typically requires a minimum of 6 to 8 pastures. The livestock are kept in one herd, and each pasture is grazed intensely by the entire herd for approximately 1 to 1 1/2 months (high intensity), followed by a long period of rest (low frequency). The following are the calculations for determining how long each pasture should be grazed under a HILF system, using a system with 7 pastures as an example:

1.) add 1 to the number of pastures in the system (1+7=8)
2.) divide the number of days in a year by the answer from step 1 to determine how many days each pasture should be grazed (365 days divided by 8 = 46 days of grazing per pasture).

It would take 322 days (7 pastures X 46 days each = 322 days) to complete the grazing cycle, and each pasture would receive 276 days of rest between grazing periods.

Short duration system - This system requires that a ranch be divided into numerous pastures, typically a minimum of 12 to 20. The livestock are kept in one herd and the herd is rotated rapidly through the pastures. Each pasture is grazed intensely for a short period of time (a few days), followed by several months of rest. The length of the grazing cycle needs to be based on the season of the year and the amount of rainfall received during the cycle. For example, a 90 day cycle could be used during the growing season when plants recover more rapidly after being grazed. Each pasture in a short duration system that has 15 pastures, for example, would be grazed for approximately 6 days each (90 days divided by 15 pastures = 6 days per pasture) during the spring and summer growing season. The grazing cycle would be completed in 90 days. Each pasture would receive 84 days of rest between grazing periods, which would hopefully be enough for sufficient plant recovery if adequate rain was received during the cycle. The cycle could be lengthened during the non-growing system when dormant warm-season plants can withstand heavier grazing pressure without damage. Each pasture in the 15 pasture system would be grazed for 10 days at a time under a 150 day cycle used during the winter, with 140 days of rest between grazing periods.

A ranch must be divided into at least two pastures before even the least complex two pasture/one herd deferred-rotation grazing system can be implemented. If not cross-fenced, the land manager would need to have access to other areas where livestock could be moved to during the prescribed rest periods. Electric fencing is a lower cost/less labor intensive alternative to barbed wire for dividing a ranch into multiple pastures. For a deferred-rotation grazing system to be most effective, all the pastures in the system should be more or less equal in size and/or have similar grazing capacities (e.g., pastures on the most productive, deep soils of a ranch would have higher livestock grazing capacities and should therefore be smaller than pastures on shallower, less productive soils).

Individually fenced improved grass pastures on a ranch should be incorporated into a deferred-rotation grazing system. Rotating livestock through the tame grass pastures would help provide longer/more frequent periods of deferment for the native pastures since most species of non-native forages can generally withstand more intensive grazing pressure than native plants can. Note: most species of "improved" livestock forages (such as coastal bermuda, Klein grass, Old World bluestem, etc.) do not have much value to wildlife, except possibly as cover for some species, especially if grown in dense monocultures with very little diversity of native plants.

Since livestock are confined to individual pastures in a deferred-rotation grazing system, each pasture needs to have at least one source of water available when livestock are in that pasture. Creeks may provide adequate water during most of the year, but water from seasonal streams may become limited or inaccessible during extended dry periods. Also, concentrated livestock activity around creek waterholes can cause excessive damage to the plants and soils in the area. Earthen stock tanks and/or water piped to troughs from a well may provide better, more reliable, sources of water. One water source can serve several pastures if properly located. For example, one water trough could serve two pastures if straddled by a cross-fence, or a trough in a separately fenced "waterlot" constructed at the juncture of several cross-fences could serve numerous pastures.

A deferred-rotation grazing system will fail to produce the desired results of maintaining a healthy and diverse plant community if the range is overstocked with animals, both domestic and wild. The appropriate livestock stocking rate for a specific ranch is dependent on that ranch's herbaceous plant productivity and past grazing history. The stocking rate can vary from year to year, and seasonally within a year, depending on environmental factors. Stocking rates should be calculated on grazeable land, excluding dense woods or brush, or water. The impact of grazing animals should be closely monitored and the number of livestock on a ranch may need to be frequently adjusted to account for the variations in a ranch's grazing capacity.

A rule-of-thumb livestock stocking rate for native grasslands in the South Texas Plains is 1 animal unit (a.u.) per 35 acres; 20 acres on tame pasture. The combined total of all animals on the range, including all classes of livestock as well as deer, must be

considered when determining stocking rates. The following equivalent values of animal unit standards can be used for planning the management of rangelands:

The combined total of all animals on the range, including all classes of livestock as well as deer and exotics, must be considered when determining stocking rates. The following equivalent values of animal unit standards can be used for planning the management of rangelands:

Cattle	
weaned calves to yearlings	0.6 animal unit
steers and heifers (1 to 2 years)	1.0 animal unit
mature cows, with or without unweaned calves at side	1.0 animal unit
bulls (2 years and over)	1.3 animal unit
Sheep	
5 weaned lambs to yearlings	0.6 animal unit
5 mutton or ewes (1 to 2 years)	1.0 animal unit
5 mature ewes, with or without unweaned lambs at side	1.0 animal unit
5 rams	1.3 animal unit
Goats	
6 weaned kids to yearlings	0.6 animal unit
6 muttons or does (1 to 2 years)	1.0 animal unit
6 does, with or without unweaned kids at side	1.0 animal unit
6 bucks or muttons over 2 years	1.3 animal unit
Horses	1.0 – 1.5 animal unit
Deer	
6 deer	1.0 animal unit
Exotics	
3.5 nilgai	1.0 animal unit

A well-planned cattle grazing system is compatible with wildlife habitat management. Since cattle primarily consume grass, they do not normally compete with most wildlife for the same food sources, unless forced to due to excessive stocking rates and/or continuous grazing pressure. However, goats and sheep more directly compete with wildlife. Goats prefer browse (the foliage of woody plants); sheep prefer forbs. The foliage and seeds of forbs and woody plants are important food sources for many species of wildlife. Excessive goat browsing also reduces the amount of low-growing woody brush needed for cover for many wildlife species and can limit the reproduction of woody plants. It is recommended that sheep or goats not be stocked on a ranch if maintaining and improving the habitat for wildlife is an objective, unless 4-6 months rest

can be periodically provided in pastures to allow for the adequate recovery of woody plants.

It is recommended that when leasing grazing rights, there be a written livestock grazing lease agreement that as a minimum specifies a maximum stocking rate and that a rotational grazing system will be used. Grazing schedules (how long each pasture will be grazed and how long each will be rested) and stocking intensities need to be flexible and continually reevaluated based on rainfall patterns, seasons of the year, and local range conditions. The landowner needs to retain the rights to require the lessee to reduce, and in some instances increase, the number of livestock depending on range conditions, and to require that range plants receive appropriate periods of rest. As a suggestion, it may be to the landowner's benefit to receive grazing lease "payment" in the form of facilities/habitat improvements (fence repair, additional cross-fence construction, cedar control, prescribed burning, discing to encourage forb growth, etc.) in lieu of monetary reimbursement. A good, trustworthy lessee can be an asset to a landowner, helping to maintain and improve the quality of the habitat as well as serving as the landowner's "eyes and ears" in his absence. Conversely, a lessee who is more concerned with maximum, short-term economic gains rather than the long-term sustained health of the land can be a liability.