



PREPARING TO MANAGE FOLLOWING THE DROUGHT

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Drought has been a part of management for a long time as this photo from the 1930s drought shows.

It's late August and the high temperature is over 100 and the low in the high 70s and low 80s. There has been little rain in Texas compared to the average. Add a lot of wind and plenty of sunshine; I think we are in a deep drought! Actually, if this continues much longer we will pass the 1950s record drought.

One description of what we have been going through for about 10 years is a prolonged drought interrupted by floods. The early 2000s were dry, and then 2007 was wet. Since then, we have had recurring dry-wet periods. Throughout most of Texas, since October 2010, rainfall has been far below average. Late this summer we watched mature trees defoliate, smaller trees and shrubs die and most vegetation become dormant. The result is we may be losing part of our habitat vegetation.

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THE GRASSLAND PRODUCTION SYSTEM

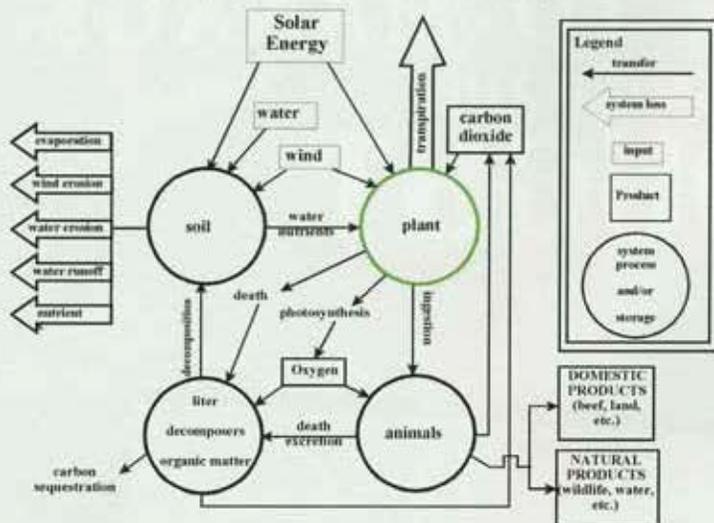


Figure 1.
A simple version of the plant habitat with some of the major functions that occur in it.

General Stored Food Use and Storage

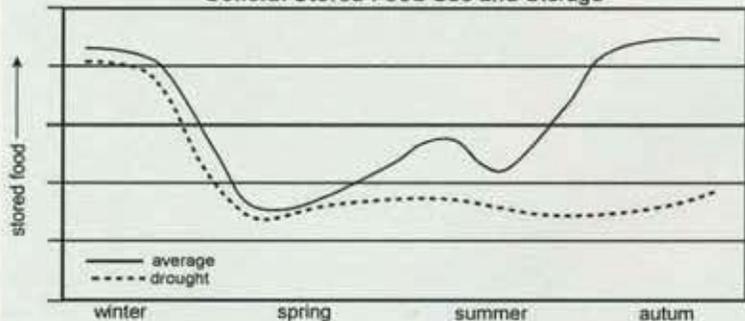


Figure 2.
The general food storage status of warm-season plants.

Over the past 10 plus years, the rangeland and woodland areas of Texas have declined in their ability to grow and provide forage and food for wildlife and domestic livestock. Add to this wildfires, and we should think about how we can manage now to make recovery faster. Regardless, it will take several years and to the west probably even longer.

How long does it take for plants to recover?

It depends on how long the stress from defoliation, drought and/or wildfire has been in place. Which plant species survive will depend on how the vegetation has been managed and will be managed during future weather patterns. But most important, how you manage will play the most important role. The concern is centered on how well plants are allowed to grow. The most desirable plant species will always be sought after by the animals present. They tend to go back to the

plants regularly and utilize them. This continues the defoliation and increases the stress. Regardless of the options available, major adjustments to management are usually required to recover.

This recovery process is difficult for two reasons. The first is a unique feature of perennial plants – they make their own food! The second is competition between plants and limits to a perennial plant’s ability to rebuild the stored food reserves over time (years).

The major process within the plant is photosynthesis, which makes the food in order to grow and to produce oxygen (Figure 1). Photosynthesis occurs primarily in the leaves of the plant. Photosynthesis uses carbon dioxide from the air, plus water and nutrients from the soil in the presence of sunshine to produce carbohydrates and oxygen. The carbohydrates and other minerals are then used to produce the foodstuffs plants need for growth, reproduction and to store foodstuffs. For many warm-season plants, particularly those in the higher rainfall areas, the storage occurs from mid-summer into early winter, IF the plant is actively growing! In the early spring, the stored food is needed to grow the first leaves that support the plant growth. If the leaf growth gets to the point where more food is produced than is needed for growth, then storage will begin. If leaf growth doesn’t continue, the plant survives on stored food. During drought, late season growth doesn’t always add to the storage. If no storage occurs for several years, the plant can die. As we go west, many of the midgrass to shortgrass species can complete the growth to storage process one or more times a season. As a result, these plants are better equipped to survive and recover faster than the tall grass species to the east.

A second reason recovery is difficult is competition – between plants as well as between species. The competition is for space. That is space above ground for light and space below ground for root growth to supply the plant with water and nutrients. Of these, space for root development to take up water and nutrients is probably the more important. As a general rule, if the soil is filled with living roots, it is difficult for roots of other plants to penetrate and expand, particularly if a plant is weak. Without a good root system to supply water and nutrients, a plant will have difficulty recovering. Add in defoliation or drought, and it could be nearly impossible for recovery.

Another form of competition is between species or plant types. As an example, deer prefer browse plants first, followed by forbs (broadleaf), then grass (this varies by season). If only deer are present, some grasses can dominate through a canopy that restricts sunlight reaching the ground. This can limit a

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new plant's growth and the growth of later emerging species. If one class of plants dominates, others are suppressed.

For situations where desirable plants are still present but heavily utilized, reducing the utilization pressure is required to maintain or improve the plants. This can be done through options such as reducing animal numbers (often not the first choice) or using some form of rotational utilization. The goal of either approach is to allow the desirable plants to grow leaves and build food reserves.

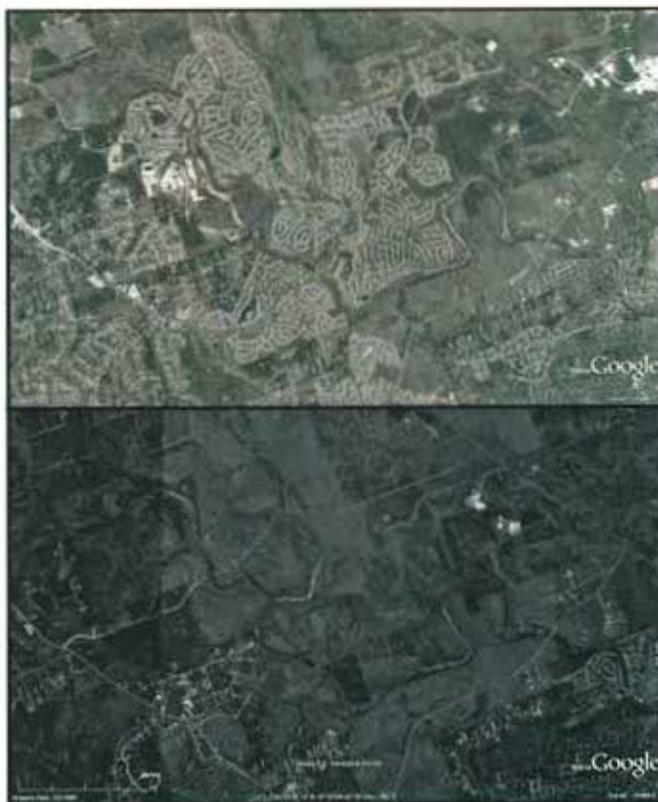
When the plants that are desired are rare or extremely stressed, recovery often requires extreme management changes. These changes are often difficult or financially impossible to implement. They include measures such as total deferment and greatly reduced utilization pressure. The latter is not the best choice from the plants view but is better than nothing. With year-round, free-ranging animals present, neither may be possible.

What makes recovery difficult is the animal's desire for a quality diet. They will visit the most desirable, high-quality plants regularly and continue the defoliation. The bottom line is the animals that have stressed the plants will continue the stress. Once plants have been stressed for a long period, it is difficult and probably impossible to bring them back without extreme management changes. It's better to prevent the problem than try to recover!

What about Wildlife?

Wildlife has been hurting along with the plants. Water sources have been disappearing as rainfall stays away. Since water is the main need for life, animals will move to other water sources. This leads to greater concentration of animals putting a heavier demand on food and other resources. This can lead to predators following. As the drought deepens, animals will begin dying or become food for the predators. Animals that can't or won't move will generally die.

The process just described is really Nature's way of controlling the population. Without human intervention,



An example of how we humans have changed the habitat in 15 years.

wildlife populations rise as the habitat supplies their needs. As the habitat declines during drought, wildlife populations decline as water and food decline.

However, we humans have been removing the wildlife habitat in many ways and many wildlife species have adjusted and learned to live with us. Urban areas are experiencing increases of deer, feral hogs, armadillos and more. The animals are making their living off shrubs, flowers, and lawns, which doesn't make people happy. Deer dying, either by vehicle or predator, can also make people unhappy. As a

result, adding feeding and water sources seems to be a logical solution, but doesn't usually help the wildlife particularly if the wrong feed is used. Also, it concentrates the animals even more.

In the end, nature will do what we and the weather will allow. Hopefully, you will get some good rains by the time you read this. ☺☺

Want more information on grazing and browsing? Get *Grazing and Browsing: How Plants are Affected at Texas A&M* (Extension Publication B-6114) at your Extension office or on the internet at <http://tcebookstore.org/>.



Creeks and ponds have dried up in much of Texas.