



DROUGHT WATCH 2008: How Trees are Coping with Dry Conditions



NEWS FROM GEORGIA-PACIFIC FOR FOREST OWNERS AND OUTDOOR ENTHUSIASTS

FAMILY FORESTS

FALL 2008

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In 2007, much of the Southeast experienced extreme or exceptional drought. With little rainfall over the winter and spring months, 2008 presents challenges with the possibility that the drought will worsen as the months go on. Although the region has received large rainfall amounts in the last few weeks, thanks to Tropical Storm Fay and Hurricanes Gustav and Ike, the long-term forecast includes drought-like conditions through the fall and beyond.

According to the U.S. Drought Monitor as of mid-September, many areas of the Southeast

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were once again experiencing drought conditions that varied from abnormally dry to exceptional. An exceptional drought is a period in which conditions occur only once every 50 to 100 years.

Although there are reports of poor field crops and low lake and river levels, according to Dr. Kim Coder, professor of tree health care at the University of Georgia's Warnell School of Forestry and Natural Resources, most tree species are surviving.

"It is important when discussing drought that we distinguish between the effect on field crops, gardens and other annual crops and a long-term crop like timber," said Coder. "The lack of moisture has had a tremendous impact for annual crops, but for long-term crops like trees, a drought in summer can have little or no effect. Native tree species are much better at coping with the stress of less water in certain seasons."

Trees have many processes to deal with long-term dry conditions. That's not to say they are not affected. "One of the blessings with trees is that they have good water-use efficiency," explained Coder. "When a tree does not get the water it needs, it closes down and waits for a better time. Sometimes that is simply waiting for night-time cooling. Other times, it is waiting for a season to change."

Trees respond to decreasing water availability by managing their water output. The stomates on leaves regulate the uptake of carbon dioxide and release of oxygen, which is part of photosynthesis. Stomates also regulate water loss from transpiration. During the day, stomates open in response to sunlight, allowing photosynthesis and transpiration to begin. At night, stomates close, preventing unnecessary water loss and take in water through the roots. When trees lose an excessive amount of water, or water is not available, stomates can close for extended periods which can weaken the tree. Other responses to drought include wilting, leaf or needle shedding, growth inhibition, decreased resistance to pests, disease and eventually death.



Although there is potential for mortality in a stand every year for a variety of reasons, widespread mortality is generally not common unless heavy drought conditions exist for more than two years in the same areas.

"The amount of moisture is very site-specific," said Coder. "You can have very different outcomes in stands, depending on their slope, soil makeup and other conditions."

THE DIFFERENCE BETWEEN DROUGHTS

There is a difference between a spring drought and a summer drought. Because spring is the time when seedlings establish their roots and expand leaves, it is more critical for them to receive rain in this early period of their lives. Once established, though, they are better equipped to handle extended periods without rain in that summer and following years.

"It is much harder on trees to have a spring drought than a summer drought because of the early spring growth that occurs in the Sunbelt," noted Coder. "This year we experienced a dry spring, so the seedlings planted may have a more difficult time getting started."

"The best management tool is vigilance – to be aware of what your crop is doing," said Coder. "Sometimes, a small amount of mortality works in the landowner's favor as the remaining crop has more room and moisture availability."

FARM BILL A POSITIVE STEP FOR PRIVATE LANDOWNERS

In May, the Food, Conservation and Energy Act of 2008, also known as the Farm Bill, became law. After a second veto from President Bush due to an administrative error with the original bill, the House and Senate overrode the President's veto to pass the law. The bill is a five-year measure.

The 2008 Farm Bill includes a broader definition of biomass, which will help provide new markets for non-industrial private forest landowners.

THE FARM BILL INCLUDES:

- Cost-share assistance for private landowners to encourage forest management activities such as thinning, prescribed burning, herbicide application, site preparation and regeneration, as well as for landowners who have lost trees due to natural disasters or insect and disease infestations;
- A priority for the Pine Genome Initiative (PGI), which promotes healthy forests and the development of new biofuels technology, helping U.S. timber growers to remain competitive in the global market;

THE DANGERS OF OVERREACTING

"It's perfectly appropriate to become concerned about your stand because it is an important asset," said Coder. "The most important thing a landowner can do is to work with a professional forester to develop a long-term plan."

Most management models depend on a natural variation when projecting the long-term value of a tree stand. Although it would impact a landowner's financial picture if there were many drought years in a row, most models determine volume based across both good and bad years so the estimates even out overall.

"While it is important to be vigilant in these times, one of the most dangerous things a landowner can do is overreact," said Coder. "In other words, in times when water is less plentiful, applying fertilizer or

some type of competition control which is water dependent is an expense that might not have a positive impact on the crop."

If a landowner chooses to apply some sort of competition control or fertilizer, he or she should make sure that the product they are using does not require water for activation.

MANAGING FOR DROUGHT

"The most important thing you can do for your stands is go for a management walk," noted Coder. "It's important to see how natural trees and systems handle the hot and dry weather. You might be pleasantly surprised at the ability trees have to deal with natural climate conditions. While it seems hot and dry in more urban areas, the forests are green. They are not thriving, but they are surviving."

"I have great faith in natural ecology," concluded Coder. "It takes care of itself. It's not the best year, but it's definitely not the worst."

Special thanks to Kim Coder, professor of tree health care at the University of Georgia's Warnell School of Forestry & Natural Resources and the Georgia Drought website for their contributions to this article.

- An amendment to the Lacey Act prohibiting importation of wood obtained from illegal logging;
- Tax deductions for landowners who take steps to conserve habitat for species listed under the Federal Endangered Species Act. These provisions provide for the first time incentives associated with taking affirmative steps to protect listed species on private land.

For more information about the 2008 Farm Bill, contact the American Forest Foundation at 202-463-2462 or go to www.forestfoundation.org, or the Forest Landowner's Association at 800-325-2954 or visit www.forestlandowners.com.

A MESSAGE FROM MARK LUETTERS

Senior Vice President, Supply Trading,
Fiber and Energy

At GP, we have had a long-standing relationship with family forest landowners, and we have been privileged to offer top quality assistance under our Forest Management Assistance Program (FMAP®). We are proud of the success we have had in providing markets for your products; proud of the relationships we have with you through our foresters; and proud to support the commitment you have to manage forest lands in a caring and sustainable manner.

The current economic status of the forest industry has led us to tough decisions within Georgia-Pacific. As part of that process, we have found it necessary to discontinue a formal FMAP. As such, we will no longer have dedicated FMAP foresters focused on providing landowners with detailed management plans and other historical FMAP services. It is our hope that we can continue to grow the relationship we have built with you by continuing to assist you, but in a less formal manner through the day to day work of our foresters and procurement employees on the ground.

We also plan to continue to offer our popular Family Forests newsletter to share wildlife management stories and new information on silviculture management techniques and options we think will be helpful. We will also be offering this newsletter by email. If you would prefer to receive your copy by email, please contact Deborah Baker at dbbaker@gapac.com

Thank you for your partnership over the years. We look forward to continuing our friendship with you.

Sincerely,



Mark Luetters

Wildlife Feature: Turkey Vulture

Although it is not the most attractive creature on the earth, the turkey vulture serves a very important purpose in the ecosystem.

DESCRIPTION

The turkey vulture is a large bird, with long wings and tail. Its feathers are blackish-brown with a slight silvery tint underneath, and its head is distinctively red with few or no feathers. The vulture has a short, hooked ivory-colored beak. The young bird has a grey head with a black tip on its beak. The female is usually slightly larger than the male.

RANGE AND HABITAT

The turkey vulture can be found from southern Canada south throughout the United States to southern South America and the Caribbean. The birds are rarely seen in the Great Plains region of the U.S. They live year-round across much of the U.S. range.

Preferring mixed farmland and forest areas, the turkey vulture roosts in large trees or on large buildings in more urban areas. When it comes to nesting, the vulture drops its eggs directly on the ground in caves, crevices, burrows, hollow logs or under fallen trees. The clutch size is usually two eggs that are creamy-white with dark blotches. The hatchlings are unable to hold their heads up at birth but can hiss, a characteristic used throughout life when eating or being threatened.

Unlike many birds and other animals, the turkey vulture population has increased over the last few years and the breeding range has expanded to include more northern areas.

FOOD

A turkey vulture will eat a wide variety of carrion – from small mammals to dead cows. They also eat insects, fish, other invertebrates and some fruit. Their digestive systems are unique, in that they can eat and not be affected by the bacteria present on much of their food.

INTERESTING FACTS

- The turkey vulture uses its keen sense of smell to locate carrion. The part of its brain used for processing smells is unusually large compared to other birds. Its heightened sense of smell allows it to find dead animals below the forest canopy.
- An unusual feature of this bird is its ability to maintain stability at low flying altitudes. It does this by holding its wings in a V-shaped pattern and moving from side to side while flying. It flies low to the ground to pick up the smell of dead animals.
- The bird is a loner unlike its relative, the black vulture. Because black vultures move in groups, they can overpower a turkey vulture at a carrion site.
- Contrary to popular belief, circling vultures do not necessarily indicate the presence of a dead animal. Circling vultures may be gaining altitude for long flights, searching for food, or even playing!



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Please send us your feedback and story ideas.

DEBORAH BAKER
GEORGIA-PACIFIC
133 Peachtree Street NE
P.O. Box 105605
Atlanta, Georgia 30348
Phone: 404-652-4032
Email: dbbaker@gapac.com

