

## **Continuing Severe Drought Conditions will Seriously Harm Trees**

January 9, 2006

AUSTIN, Texas – Central Texas has received very little rain and temperatures have remained above normal this fall. The Austin Bergstrom International Airport has recorded a rain deficit of more than 13 inches. These extreme conditions will undoubtedly have adverse affects on the trees that exist in the area. Trees lose significant amounts of water directly through the leaves, twigs, branches, roots and stems. Even trees in dormant conditions can lose water and the higher the temperatures the greater the water loss. When a water deficit exists such as the one occurring now, trees will react in a variety of ways. One effect of a severe drought is that permanent damage can occur. Here is a list of how trees are affected by severe droughts and ways to reduce drought stress.

### **Effects and symptoms of drought stress in trees:**

- ☞ **Wilting.** This is a visible symptom of drought. Permanently wilted trees can recover only when additional water is added.
- ☞ **Stomatal Closure.** Trees close stomates in response to rapid water loss, but this will not prevent water loss. Significant amount of water is lost through twigs, branches, roots and stems.
- ☞ **Early Leaf Shedding.** Premature senescence and shedding of leaves is induced by drought stress. In a severe drought situation, leaves may be shed while still full of valuable materials.
- ☞ **Effects on Photosynthesis.** Reduction of photosynthesis is a major effect of drought and the carbohydrate stores are being reduced. Considerable time is needed for photosynthesis to operate in pre-drought conditions.
- ☞ **Growth Inhibition.** Shoot, cambial and root growth are all negatively affected by drought conditions.
- ☞ **Biological Lag Effects.** Trees have a lag time before normal processes are established. Trees can show effects of a severe drought for 2-3 years after the drought has occurred.
- ☞ **Pest Problems.** Drought predisposes trees to pest and diseases due to low food reserves and poor response to insect and disease attacks. Drought creates unhealthy trees.
- ☞ **Visible Symptoms.** Deciduous trees show curling, rolling, mottling, scorching, chlorosis and early shedding of leaves. As drought intensifies dieback of twigs and branches in the tree crowns will occur.

### **How to reduce drought stress:**

- ☞ Prevent soil compaction by reducing heavy vehicle traffic or restricting such traffic to designated areas.
- ☞ Reduce/remove competing vegetation, especially around young trees.
- ☞ Plant trees that are well-suited to your site (use local native species).
- ☞ Apply mulch around newly planted trees.
- ☞ During extreme drought, do not fertilize trees. Fertilizers do more harm than good.

Trees in Texas are very valuable and they provide many benefits. By knowing how you can help your trees during this stressful time will be beneficial to them and help preserve them for the future. To find out more information go the Texas Forest Service Website, <http://txforestservicetamu.edu/shared/article.asp?DocumentID=341> , or contact Kim Camilli, Oak Wilt Coordinator, [kcamilli@tfs.tamu.edu](mailto:kcamilli@tfs.tamu.edu).