

Tree E-News

Colorado State Forest Service

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Urban and Community Forestry

Nature's Swamp Coolers: People who live in hot dry areas understand how swamp coolers can lower the air temperature. It is water evaporation that creates the cooling effect. The human body is a good way to explain this cooling process. With increased activity, the body's heat level rises and skin secretes water (i.e., sweat). As the temperature of the water on the skin rises, the water molecules become more active. This increased molecular activity causes a change from liquid to vapor, which is evaporation. As the water evaporates it loses heat energy and the surface of the skin is cooled. The same effect occurs when water on the skin's surface is evaporated by blowing dry air over it. Trees can have the same effect in urban settings. Here are some facts about heat and the environment we live in:



- Buildings, paved surfaces, or non-vegetative structures are impermeable and absorb radiant heat. This radiant heat can cause the temperature of the object to climb 50 - 90°F hotter than the surrounding air. These impermeable structures become a natural heat reservoir (i.e., heat sink) and reradiate that heat into the surrounding vicinity, making the local environment even hotter during the day and into the night (source EPA).
- Typically rural areas that are devoid of heat sinks and populated with grass, shrubs, and trees are up to 25°F cooler than urban environments in the day and 15°F cooler at night (source EPA).
- The difference in heating and cooling during the summer months between urban areas where there are a lot of surfaces that absorb heat and rural areas where there are fewer impervious surfaces is that rural areas have plants that go through a daily process called evapotranspiration. Evapotranspiration is the movement of water through plants by transpiration, which is then evaporated from the leaf surface.
- Trees lose lots of water through transpiration. One study reports that a large oak on average transpired 40,000 gallons of water in a year (source USGS).
- Evapotranspiration through trees introduces water into the air cooling the air near the tree. Add the shading effect of trees and it is possible to cool the air by as much as 22 - 54°F (source EPA).

Save This Date On Your Calendar:

23rd Western Colorado Community Forestry Conference: Summit County will host this year's community forestry conference. The date is September 13th. The theme for this year's conference is, "The New Forest Aesthetic." Speakers at this conference will address: forest ecology, the effect of weeds in the forest, community building through forestry, native plant regeneration, and the lessons learned from the mountain pine beetle and fuels mitigation work. The registration brochure will be posted on www.coloradotrees.org.

Northern Rockies Tree School: Multiple sponsors from several states have come together to put on this year's tree school in Dillon, Montana. The theme is "Risky Business, Tree Risks and Arboriculture in the Northern Rockies." There are national speakers scheduled for this September 18 – 20 conference. Go to www.isarmc.org, which is the ISA Rocky Mountain Chapter website for more information.

ISA-Rocky Mountain Chapter Conference: The International Society of Arboriculture & Tree Climbing Conference is scheduled for September 26 – 28 in Cheyenne, Wyoming. The theme for this conference is "Frontiers of Arboriculture: Blazing New Trails of Tree Care." This year's featured presenter is Gary Johnson, extension professor with the University of Minnesota. Gary speaks across the country and has published numerous arboriculture articles. In addition, there will be other expert presenters covering the following subject matter: insects and disease, tree risk assessment, working in trees with cranes, dealing with stress in trees, water salinity, solar energy conflicts with trees, and trees for the Wild West. Registration is open until September 13th. The registration form is also available at www.isarmc.org.