James Downer

UC CE University of California Agriculture and Natural Resources Cooperative Extension

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Sabbatical 2018-2019

South Western Research Station

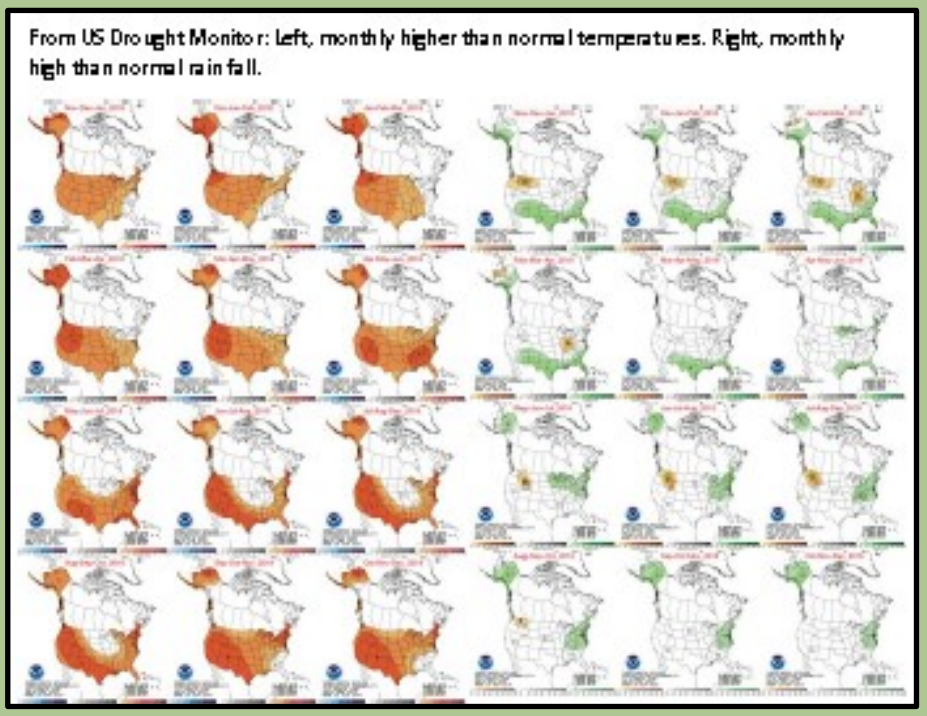
Starting in October, I will be on sabbatical until September 31, 2019. Sabbaticals are a privilege granted to academic employees of the University of California. After nine years of service we are eligible for a year of study. It has been almost 25 years since my last sabbatical.

Time flies.

Sabbaticals are a departure from regular work and are to support professional development and growth, learning, study and research apart from regular duties. While I am away, I will not be available at my office in Ventura and it is expected that I do not do business as usual, even from afar. That said I will monitor my email (some folks even change emails when they leave!), but will not be available for the usual consultations, presentations and other activities. I will be spending a year in Arizona (as my base) to visit and study drought adapted trees throughout the desert southwest. I will also be catching up on technical paper writing and working on my book project.
My sabbatical starts with the Chiricahua Rendezvous in Portal, AZ scheduled for Oct 8-12. This great learning opportunity, at the premier field station (South Western Research Station) of the American Museum of Natural History, is a place where whole organism study and natural history is happening. It is as much for my learning as for others, but I invite you to come with me for a while to Arizona and the amazing sky islands of the Chiricahua mountains. During my year away, I will also take in the gardens of Thailand and likely return to Ukraine for another visit to my Ukraine arborist friends and study of trees there. If you are interested in such travels, drop me a line. There is room in both trips and it would be a pleasure to have you come along.

Preparing for Dry Times — Continued Drought in California and its potential impacts on our landscapes

According to the most recent data (August 2018) from the US Drought monitor website, the drought in the United States hovers over the four corners of Arizona, Utah, Colorado and New Mexico. Last year it was positioned over Montana and in 2016 it was worst in Ventura and Santa Barbara Counties of California. The models for predicting drought and rainfall from NOAA look Grim for 2019. Both heat and rainfall models suggest hotter and drier conditions in 2019 (see graphics below for outlooks of temperatures and rainfall) for California landscapes.
Landmark record-breaking fire years were observed in 2017 and 2018 in California. Last year the Thomas Fire in Ventura/Santa Barbara Counties was the largest fire in the state's history — that record was upended this year by larger fires in Northern California. Dry conditions have exacerbated bark beetle populations, killing trees and stressing trees not killed by beetles. This year dust levels where I live are off the scale and have never been worse. Drought will continue, trees will wither, and cities, towns and communities will get hotter as heat islands reemerge from ravaged urban forests. How do we fight this in a time of predicted continuing harsh drought conditions?
Nature, which landscapes emulate, include trees, groundcovers and turfgrass, shrubs and other amenity plantings and affect human health and wellbeing (Shanahan et al., 2015). Benefits from trees can be both direct and indirect. A direct tree benefit is the modification of temperature from shade, which impacts those with heat-related illness, especially the elderly. Cooling, from 5°C to 20°C, are possible from shade trees. Indirectly, a green landscape with trees is increasingly found to promote physical activity and is increasingly recognized as important in policy making. A green and diverse landscape can restore cognition by assisting attention restoration changing mood and by reducing depression (Kaplan., 1995; Berman et al., 2012). Finally, trees can provide a safer environment. Communities lacking basic landscape elements such as trees and green areas are often impoverished and have higher crime rates (Troy et al., 2012). Given these amazing benefits that trees provide communities, it seems logi-



From US Drought Monitor: Left, monthly higher than normal temperatures. Right, monthly high than normal rainfall.

Take Stock

Now is a good time to inventory trees in your care and decide if they are sustainable, given the likely reduction coming in available resources. I am never one to recommend removing trees without cause, but given the hotter and drier climate, some trees may no longer be useful in Southern California landscapes. Maples, Liquidambars, and tulip poplar are all high-water users and prone to many drought predisposing diseases. Removing less resource conservative species in favor of more drought and heat tolerant ones is a good way to be ready for drought. Also, younger trees use less water, so if conversion to a more drought tolerant landscape is possible, it would be good to start now. Sometimes thinning trees, especially pines and redwoods allows for the remaining specimens to further develop and provide benefits with less competition and stress.

Rework Irrigation Systems

Trees are often irrigated with outdated or multivalve/zone systems that do not provide enough water for wellbeing and functioning. Upgrading irrigation systems and schedules will provide water where it is needed and in amounts that can truly benefit trees. It is better to thoroughly irrigate trees rather than put down shallow frequent irrigations. A deep soak, less frequently, may save water from less evaporation, less interception by other plant root systems and deeper placement where tree roots can utilize the water. Changing the irrigation paradigm may actually result in water savings and tree improvement.

Mulch

Not enough mulch is used in landscapes to benefit trees. Mulch doilies (see image) are hardly useful in preventing evaporation and conserving soil moisture since a majority of tree roots fall well outside their dripline. Add space for mulch. Most trees respond to mulching and are more drought and heat resistant since mulch cuts evaporation from the soil surface and reduces reflected heat. The problem is that there is often no space in a landscape for mulch. Look for ways to increase the mulch zones around specimen trees. This can go a long way toward reducing their stress during hot and dry times.

Mulches should be coarse woody chips that are freshly produced, not fine and not composted. Fresh Chips will not remove nitrogen from underlying soil. Composing is not necessary, since most pathogens don't survive the chipping process and those that do are not much of an issue in California. Fresh, coarse, woody tree trimming chips will stimulate soil microbes, change soil texture and infiltration rates, increase moisture holding capacity, and improve mycorrhizal health. All of these factors will help trees survive in dry hot conditions. Be sure to replenish mulched surfaces at least annually maintaining a four-inch-deep layer.

Literature

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