

## Meetings and Announcements

### Happy Thanksgiving

### Welcome to New Readers

I'd like to welcome readers from the Tulare Master Gardener group, and others who have joined the Greenscene mailing list recently...

### A New and Free Publication on Principles of Xeriscape

Mentioned in the September Greenscene, but again here: I have been working on a publication on the principles of xeriscape, that is, water-conserving landscapes. This item was first developed in the 1990s, but never made it to publication. It's better now as a result of continuing and recent research about plants and water savings. This publication is now live in the ANR catalog: [anrcatalog.ucanr.edu/Details.aspx?itemNo=6713](http://anrcatalog.ucanr.edu/Details.aspx?itemNo=6713). Might need to cut-and-paste to reach this address. I can send you a .pdf if needed.

On a related note, we had rain in early November, but if dry weather continues irrigation will be needed in December. The ETo daily rate is small, about 0.02 inches, but the days will add up and plants are still using water.

### Spring 2023 Horticultural Tour, and Possible Future Tours

Our offering of horticultural tours of gardens and landscapes was interrupted by Covid. Indeed, plans are underway for our horticultural tour to England, Scotland and Wales, in spring, 2023. The dates are May 12 departure and May 27 return. There will be more information available from me via the Greenscene and at the Travel Gallery website at <https://www.travelgallery.com/> when available.

It would be helpful to know the level of interest in this program for our planning purposes, so if you are interested in the May tour, please do send me an email at [jfkarlik@ucanr.edu](mailto:jfkarlik@ucanr.edu).

I am interested in a return visit to Chiang Mai, Thailand, in late February 2023. That would coincide with the Chiang Mai Flower Festival. However, I don't know just yet if it is feasible. I will put out an announcement via the Greenscene if it is.

Also, eight of us participated in a sort of modified horticultural tour this past October, a river cruise on the Danube that included garden visits in Vienna at the Belvedere, Schönbrunn, and the refurbished botanic garden of the University of Vienna. There were other land tours as well with strong horticultural components. I will be looking into what might be possible since it seems all of us enjoyed the river cruise quite a lot.

## 40th Annual Landscape Management Seminar

No date yet, but the 40<sup>th</sup> annual Landscape is in the planning stages for February, 2023, at Hodels in Bakersfield. We will strive for eight hours of PCA credit. Details to follow.

### Autumn Color Development in Shade Trees

One of the most colorful displays of nature is a landscape ablaze with fall color. In the northern United States, especially in the hardwood forests from Michigan to New England, each tree may give startling impact to the scene, and no two trees are exactly alike. Some species are noted for fall color, such as the scarlet sumac covering many Midwest hillsides, and around Bakersfield the bright Chinese pistache.

Why the different shades of color? Chlorophyll is the green pigment that captures the energy of sunlight, making photosynthesis possible, the formation of sugars from carbon dioxide and water. During the growing season chlorophyll is produced as long as a plant remains healthy.

In late summer and early autumn, the spectacular unveiling of color begins as day length triggers the process. Metabolism in the leaf, including chlorophyll production, slows. Nitrogen, phosphorus, and potassium are pulled back into twigs while calcium and magnesium remain in leaves. Cells begin to break down. How much and how fast chlorophyll is destroyed differs among plant species. For example, Norway maple leaves lose almost all their chlorophyll while those of lilac lose only 40 percent. The average chlorophyll loss across many species is about 85 percent.

As chlorophyll breaks down, pigments which have been present during the growing season but were masked by the abundance of chlorophyll begin to be visible. Carotenoids are a class of pigments with over 60 members found in plants and animals. The most familiar carotenoid is carotene, the orange pigment found in carrots. Another closely related chemical group, even more plentiful in plants, is the xanthophylls. Both groups of compounds are yellow-to-orange in color. Tree genera, such as ash and willow, produce carotenoids and xanthophylls and display these characteristic colors when autumn arrives.

But what about the reds and purples? Plants including viburnums, Boston ivy and liquidambar can synthesize new pigments in the autumn. The mechanism to form these compounds isn't active at other times of the year, but in autumn sugars are synthesized to form pigments called anthocyanins, named from the Greek words "anthos," a flower, and "kuanos," azure blue. Each specific compound has a particular color, which may be crimson, scarlet, blue-violet, red, purple or mauve. The color depends on the chemical structure of the pigment.

Sunlight and weather conditions favoring accumulation of sugars also favor production of anthocyanins. The best conditions for glorious fall color are sunny dry weather with cool but not freezing night temperatures. These conditions are more likely to be found in the mountains than on the Valley floor. Frost does not encourage development of fall color. Rather, leaves may be killed or injured before coloring processes are complete.

Liquidambar and Chinese pistache are among the most colorful shade trees found on the southern San Joaquin Valley floor. Willows, birches and poplars contribute yellows. Perhaps the most colorful shrub visible in the Kern Canyon is poison oak, but this plant is not recommended for landscapes!

## *John Karlik Environmental Horticulture/Environmental Science*

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