

Greetings

The pandemic continues to run. I hope you're doing well amidst whatever level of activity you are experiencing. The plants at the office are growing well. The trees are larger. Covid has no effect on plants whatsoever.

Meetings and Announcements

UCCE Kern County Office Situation--UCCE is still working!

Our office on Mt. Vernon Ave. is currently closed and the reopening date is currently not known. When the office reopens, it will be with changes as to how the public interacts with us. Many of us advisors will be alternately in the office and working from home, and I have answered many questions via email, and new queries come in regularly from Kern residents as well as from those who live much further away. Email is the best way to reach me, my address is jfkarlik@ucanr.edu.

Weekly Zoom Presentation Resumes: Gardens and Landscape Design

In October I resume making weekly Zoom presentations on gardens and landscape design, augmented with a bit of history. These presentations are Thursdays at 4:30 pm, and are mostly based on photos from our past horticultural tours. The next presentation, October 22, will focus on Claude Monet's garden at Giverny. The following week, October 29, we plan to visit the formal and informal gardens of Tatton Park in the Midlands of England. The meeting ID and password remain the same. If you didn't receive, please send me an email, jfkarlik@ucanr.edu, and I'll send you the Zoom connection info.

Air Quality Index

The extensive fires have affected air quality in terms of visibility and particulates due to smoke. In news reports, we sometimes see an air quality index reported. For the following discussion, I refer to the textbook of Cooper and Alley, c. 1994, *Air Pollution Control*, pp. 57-58.

The air pollution index we see is most likely the Pollution Standards Index (PSI) that has been adopted by EPA to give a single number representing air quality. The advantage is its simplicity, a single number; the disadvantage is its simplicity—it doesn't tell us what specific pollutant or pollutants are elevated, nor does it give a quantitative value for any pollutant.

PSI Value	Air Quality Descriptor
0-50	Good
51-100	Moderate
101-199	Unhealthful
200-299	Very Unhealthful
300 and above	Hazardous

There are six contributors to the PSI: total suspended particulates, sulfur dioxide, carbon monoxide, ozone, nitrogen dioxide, and another for the product of the particulate x SO₂ concentrations.

The calculation of the PSI begins with assignment of the index value for each pollutant based on its respective concentration (in effect a step function). Once the index values are assigned for each pollutant, the overall sum gives the PSI value. The calculation is not difficult given access to the data for concentration of each pollutant and the table for individual pollutant index value assignments based on concentration.

A high level of a single pollutant can drive the PSI value way up as can the combination of lower levels of several pollutants. My guess is that for much of September and early October, the PSI has been most affected by the high levels of particulates from smoke.

Redhumped Caterpillar

In autumn, usually later October and early November, the redhumped caterpillar reaches its greatest numbers and may be seen as a nuisance pest, especially of liquidambar (*L. styraciflua*) (sweetgum) trees. Insect feeding does not result in long-term injury to trees.

The adult of the redhumped larva is an inconspicuous moth. Like all moths, the insect goes through a four-part lifecycle. The female moth lays eggs, which hatch into small larvae, which molt and increase in size, until they may be 1-1½ inches long. The larvae eventually develop the distinctive red head capsule. At first, the larvae only eat a layer of the leaf, but as they grow they eat the entire leaf. Their preferred food in the Bakersfield area is liquidambar leaves. When feeding is



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complete, the larvae drop to the ground and spin a cocoon, from which the adults emerge to start the cycle again. There are four generations of this insect in the Bakersfield area, each more numerous than the previous, so in most years larvae may be seen in large numbers dropping out of liquidambar trees just before leaf fall in October.

Several natural enemies attack redhumped caterpillar, including parasitic wasps, and general predators such as spiders and lacewings. It is possible to treat trees for this insect, but by the time the larvae are obvious they are difficult to kill, and the large size of many liquidambar trees makes treatment via an insecticide spray difficult. For high-value trees, it is possible to treat with a product containing the biological agent *Bacillus thuringiensis* (Bt) (sold under several trade names). Bt is



considered an organic control, but good leaf coverage is needed since this material is effective after being eaten by the larvae. Bt is much more effective against small larvae than those at later stages of development, so if treatment is desired, it's best to watch for the small larvae and catch a generation at its beginning. For tall trees, this may not be possible, another reason treatment is often impractical. Systemic insecticides would have to be applied in large amounts for control and are not recommended.

Fortunately, redhumped caterpillars, although a nuisance, do not cause long-term harm to trees. Leaves have mostly finished their work of photosynthesis in later autumn, and feeding of the insect merely advances leaf loss by a few weeks.

For more information, please see the Pest Note on redhumped caterpillar found at the UC IPM website at www.ipm.ucanr.edu.

Tips for Selecting an Arborist

Pruning of shade trees should not be thought of as an annual necessity. Pruning may be required only at five or ten-year intervals. That said, although we may have the tools to prune smaller trees, for pruning of larger trees it may be advisable or necessary to hire an arborist. I often receive calls asking for a recommendation of specific companies or individuals. While I don't offer such recommendations, here are a few tips that can help you find the expertise you need. Since the basic entry requirements for tree work are a pickup truck, a chain saw, and a business card, it is no surprise the backgrounds and skill of arborists vary.

- ISA (International Society of Arboriculture) certification is an indication that an individual arborist has passed a test covering knowledge of tree care. ISA certification is not a blanket endorsement, however.
- Can you communicate clearly with the potential arborist about the tree work you want? The more specific you can be, the easier it is to see whether the potential arborist is competent and the greater the likelihood you will obtain what you want. Does he or she seem to understand and is able to repeat your request?
- Does the arborist know the common name of your tree? How about the scientific name?
- Does the arborist know standard terminology, such as heading and thinning?
- Can the arborist explain how your tree will respond to pruning?
- Does the arborist have proper safety equipment? As a rule of thumb, if a tree is big enough to climb, it is big enough to tie into. Chain saws and ladders are a bad

combination and never recommended. (It is astonishing how often one sees workers in trees without any sort of safety harness.)

- What about insurance?
- What about a landscape contractor's license?
- Of course, you can ask for references for other work that has been done.

Based on experiences of Kern residents, it seems best that the homeowner is present while tree work is being done. If things don't seem to be going well, one should be prepared to stop the work, pay for what has been done, and get someone else to finish the job.

John Karlik
Environmental Horticulture/Environmental Science

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