



Redwood Barn Nursery

1607 Fifth Street Davis, California

Tree Talk, continued

July 2025

The column from April 25¹ in which I described pest threats to our trees sparked a lot of interest.

Some of the questions I got pertained to the timeline by which pests such as the Invasive Shot hole Borers (ISHB), which are killing Valley oaks and other species in Southern California, might be expected to affect our urban forest.

Many of the pests of urban trees act on about a generational timeline, twenty to thirty years to show up in a region and spread out to do significant damage. The ISHB was first identified in 2003 in Los Angeles and killed hundreds of thousands of trees of certain species within a decade. In November 2023 infested trees were found in San Jose, and then in Felton, near Santa Cruz, in 2024.

This pest carries a disease which kills many of our native tree species, notably the Valley oak, as well as many non-native trees, and some important crops such as avocados. Sycamores, willows, white oaks (including our Valley oak), and box elder (a common riparian species here) are highly susceptible.

Emerald ash borer, native to Asia, was discovered in Michigan in 2002 but had likely established several years earlier. Since then, it has spread to 37 states, 6 provinces of Canada, and killed millions of ash trees. Initially it was mostly on the east coast and upper Midwest, but an established population was found in 2022 in southern Oregon where it is already proving highly destructive.

We have lots of ash trees in Davis. Strategically replacing them is a priority.

This means that once we know a pest is imminent, we have just a few years to start planning and planting to replace the susceptible species.

Can't the pests be prevented or controlled?

Management strategies have been developed in the regions where the beetles have been found. The problem is that these insects are transferred by people, their presence isn't noted for a few years, and by then they're found in too many places to eradicate them. This isn't like Mediterranean fruit fly or ash whitefly, where biological control practices can be implemented rapidly and effectively. Borers are notoriously hard to kill, tend to be strong flyers once they arrive in a region, and travel very happily on dead wood.

It is likely that trees of historical significance will be treated with systemic pesticides in public places as a protective measure. But once infested by ISHB and then infected with the fusarium

¹ https://www.davisenterprise.com/features/don-shor-new-pest-threatens-our-urban-forest/article_40771ef4-82df-48c4-babf-f1ce9e964f5e.html



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complex disease that they carry, the 'reproductive hosts' (those specific species that get the disease) will decline and die. For many other species the borer kills branches, but the disease doesn't establish (or they're tolerant of it), so those trees don't die but they do become higher maintenance as dead branches need removal.

There would simply be too many trees to try to treat as a preventative strategy, not to mention environmental impacts of heavy usage of systemic insecticides.

Is climate change a factor?

Increased drought and heat do not appear to be significant factors in the establishment and spread of these particular pests. But they are impacting other important species in our area. A warming climate will likely increase the spread of invasive species which would replace the current species. In the Tijuana River Valley in San Diego County, tamarix, castor bean, and giant reed are spreading into areas where the native willows are dying out. Managing invasive plant species will become more challenging and expensive.

Increasing drought, such as we experienced in two episodes from about 2010 to 2020, will have a long-term impact on our city tree population. It had a significant impact on some species such as coast redwoods. Dozens and then hundreds declined and died over the last decade.

From what we know about the sensitivity of different species to reduced irrigation, it's easy to predict which trees will be needing replacement. Birches, maples, magnolias, coast redwoods are among the popular species that are harmed by prolonged drought. They can be fine in a lawn or home garden setting with sufficient water but will be hit hard by mandated water use reductions.

Some species that had been used widely in the past, such as Zelkova, struggled without additional irrigation during the drought years and have proven unsuitable for sites such as parking lots. They can be fine where irrigation is assured.

Some maple species, flowering cherries, and tulip trees (*Liriodendron*) get severe leaf burn from drought and damage to their cambiums from direct sunlight on the trunk during high temperatures. We saw a lot of this injury during the severe heat episode of September 3 – 7, 2022, when we had two days at 116 degrees, two at 110, and then three over 105.

I still see samples of trees severely harmed by that extreme heat event. Damage to the bark and cambium of Autumn Blaze maple, bay laurels and *Podocarpus* that had been limbed up, many fruit trees but especially apples and pears -- all significantly damaged by that single heat event and still recovering or declining.

A simple way to protect these trees is to leave the lower branches to shade the trunks. The standard practice of "limbing up" trees can be detrimental to some species when we have a heat wave.

This illustrates the importance of ongoing evaluations of urban tree species by experts. It also shows that while the average temperature increase expected due to climate change is a



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concern, it is the increased frequency and duration of extreme weather events that most threatens our urban forest.

Very high temperature events will be more common and hotter. Unshaded asphalt surfaces during heat waves can reach temperatures up to 160 degrees F., posing a serious health risk. In one study, trees in Davis parking lots reduced asphalt temperatures by as much as 36 degrees Fahrenheit, and car interior temperatures by over 47 degrees F. Shading of concrete and asphalt, buildings and gathering areas, will be of increasing importance.

Irrigated trees and landscapes give greater cooling than dry ones. Where people gather, or along broad streets and plazas, very large trees with adjacent landscaping make the most comfortable and healthiest outdoor spaces. But with our cyclical drought patterns, it's important to choose species which can adapt to years with reduced irrigation and use truly xeric landscaping where irrigation is unlikely.

The single most important thing we can do right now to make Davis more habitable forty years from now is plant trees: the right kinds of trees, in the right places, and care for them to get them established.

Right kinds of trees:

Check out the new city tree database with printable lists here: <https://www.cityofdavis.org/city-hall/urban-forestry/what-is-a-city-tree/climate-ready-trees>.

I have shorter tree lists on my business website: <http://redwoodbarn.com/25featuredtrees.pdf> and <http://redwoodbarn.com/25moretrees.pdf>, and the ever-popular list of trees we don't recommend (<http://redwoodbarn.com/Treesnotrecommended.pdf>).

Right places:

Parking lots, schools, wide boulevards, front yards, transit hubs, and strategically planted to shade buildings.

Care for them:

Deep watering every week or so, depending on the age and species of the tree. Mulch, pull weeds, monitor staking, and have the young trees properly trained and pruned.

And, of course, you can support local groups such as Tree Davis and Woodland Tree Foundation who are working to get trees planted in under-canopied neighborhoods, parks, and greenbelts, downtown, and schools.

Ok, I'll get off my soap box.

Here are some garden activities for mid-July.

One thing you can do to reduce water use in your own landscape, if you happen to have fruit trees, is to prune them after you finish your harvest.

Summer pruning of stone fruits and other fruit trees is done in August to September and is largely intended to reduce the size of the tree. It's quite easy, and by reducing the leaf volume, you're reducing the tree's water needs.



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This is the only time of year you should prune your apricot and cherry trees. Both are susceptible to disease infection through pruning wounds in wintertime.

It's time to plan and start planting your winter vegetables. The earliest brassicas such as Brussels sprouts, large-head cauliflowers, Romanesco should be planted mid-July through August for best results. Rutabagas go in now from seed.

Continue deep waterings of your tomato plants to get that great late summer harvest. Tomatoes can ripen all through October here with adequate irrigation. Give each tomato plant several gallons of water all at once, once or twice a week.

Light feeding can yield greater harvests of cucumbers, peppers, and eggplants.

Plant basil right on through the summer.

And please water your trees!



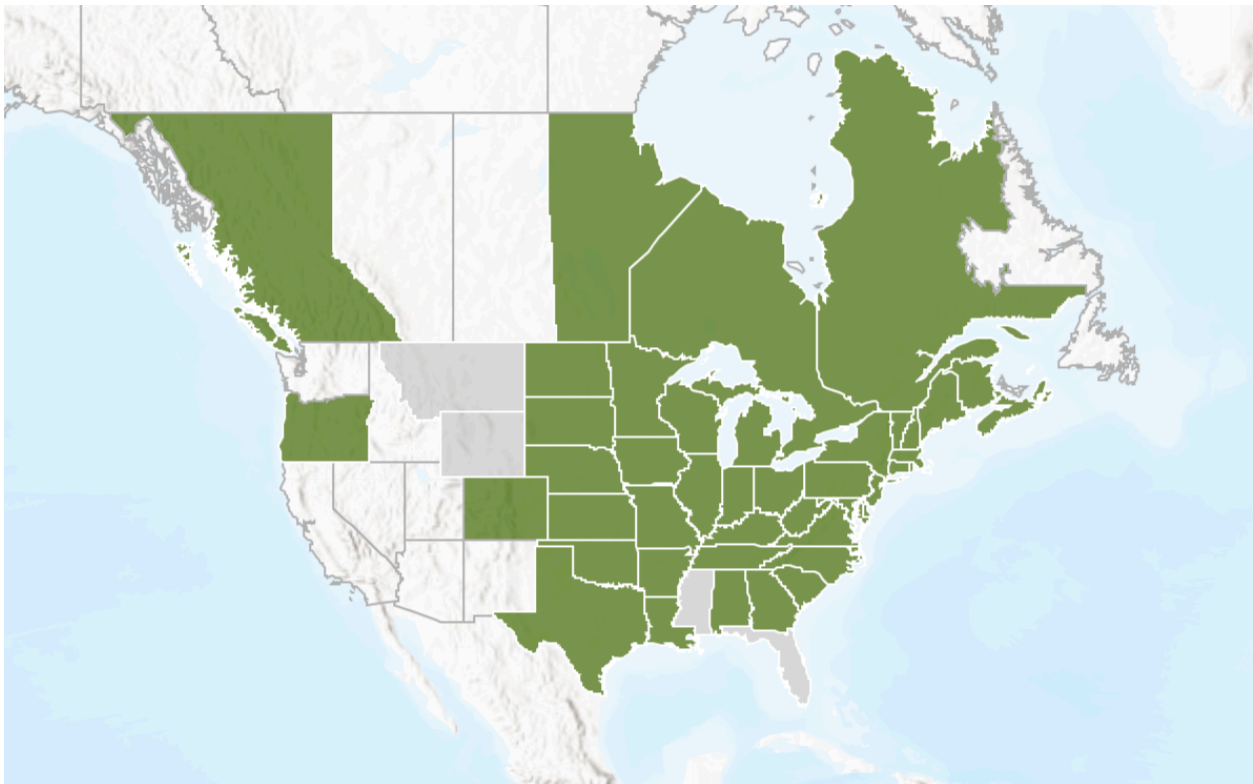
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How bad is it when the Emerald ash borer arrives? Photos taken three years apart on a street in Toledo Ohio.

<https://www.oregon.gov/oda/ippm/Documents/EmeraldAshBorer.pdf>



Present distribution of the Emerald ash borer.



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This Bay laurel (*Laurus nobilis*) was seriously injured during the major heat wave of September 2022. Removing the lower branches exposed the trunk to sunburn.



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Water your tomatoes deeply now for bumper crops in early fall! This picture was taken the first week of October. Flowers that pollinate will yield ripe fruit in about 7 – 8 weeks, and our weather is fine for tomato plants through at least mid-October.



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Photo provided by the late Chuck Ingels, who was farm adviser in Sacramento County, showing before and after summer pruning of a plum tree. Summer pruning reduces the size of the tree, helping to keep the fruit within picking range. It also reduces leaf area, so the tree doesn't need as much water.