Heat stress
by Drew Zwart, PhD

As many areas of the West Coast have seen record-breaking summer high temperatures, it's worth reviewing what can be done to protect plants from extreme heat. Heat impacts are slightly different from those caused by drought, but they often occur together. High temperatures increase a plant's need for water, given that the primary cooling mechanism for foliage is water evaporation from cell surfaces. Under extreme heat, plants will also use more carbohydrates than they produce, often leading to stress-related problems such as branch cankers or borer beetles.

Preparing plants for heat stress consists of the horticultural basics: provide adequate water and mulch the root zone to protect roots from heat and drying; amend soils with

Developing alternatives to spray treatments
by Chris B. Riley, PhD, Entomologist

Integrated Pest Management (IPM) is an ecosystem-based approach to landscape plant health care. IPM is designed to sustain plant health and performance through strategically implemented actions in order to minimize unintended human, ecological, and environmental effects. A good IPM program starts with regular inspections of the landscape, with the goal of identifying underlying plant health issues, which pests and diseases are present and at what densities, and what damage they’ve caused or are likely to cause. Using this information, a variety of management approaches (e.g., biological, cultural, chemical) can then be combined to maximize the likelihood of long-term pest control.

The Bartlett Tree Research Laboratories staff is dedicated to researching novel approaches to insect and disease management that aim to limit the use of conventional, broad-spectrum products that might adversely affect non-target plants or beneficial organisms. For example, we are actively exploring the utility and efficacy of various commercially available predators and parasitoids of landscape pests and the potential for successfully incorporating

Continued on page 2
Two properties – one tree care company

Many people have vacation homes in other states and provinces. You’d be surprised how many clients use our services at “home” and don’t realize that we also care for properties in their second location. If you have several properties to care for, the odds are good that Bartlett has a local office nearby. You will likely have a different Arborist Representative at your second location, but rest assured, all our arborists pay the same attention to service, and have extensive knowledge about arboriculture and the local trees and shrubs. In addition, they all have access to our Laboratories and our diagnostics – something that other tree care companies can’t provide.

Stick with us and call us to visit when you’re “away”.

Heat stress (continued from page 1)

organic matter to improve root function and microbial benefits; and address any nutrient deficiencies identified in a soil nutrient analysis, especially calcium, which plays a critical role in controlling water use, modulating enzyme activity, and stabilizing membranes. Custom fertilization is recommended given that some standard fertilizers may increase problems by increasing soil salinity or instigating tender new growth. Contact your Bartlett Arborist Representative to learn more.

Developing alternatives to spray treatments (continued from page 1)

them into our IPM programs. We are also examining if lures could be used to attract and retain these beneficial insects within urban settings.

In California, trunk injection applications are one method for protecting valuable specimen trees from diseases and harmful insect pests such as polyphagous shot hole borer and fireblight. Directly injecting into the root flare rather than the trunk is a technique that has been shown to reduce the effect of tree wounding, enhance rate of uptake, and result in a more even crown distribution. Often these systemic injections offer several months or years of efficacy whereas a foliar spray might need to be repeated multiple times per year. Injections also limit the exposure of non-target organisms to the products being utilized.

At Bartlett, we consider all available treatment methods and recommend the most appropriate course of action for each situation. Our laboratory staff continually evaluates new techniques and materials in an ongoing effort to provide responsible and sustainable management for the health of landscape trees and shrubs.

Deadvlei

Deadvlei, or “dead marsh”, is a white clay pan among the tall red dunes of Namibia’s Namib-Naukluft Park. The striking landscape has skeletons of camel thorn trees (*Vachellia erioloba*) that died more than 700 years ago. When the climate changed, the marsh dried up and sand dunes encroached on the pan. Now the dead trees are black, scorched by the intense sun. They are not petrified, however; it is so dry that the wood does not decompose. Look up Deadvlei – Sossusvlei, Namibia, to learn more about this fascinating place.
**Make some leafy bugs**

In nature some insects disguise themselves by looking like part of a plant in their habitat. Get creative with your children or grandchildren this summer by inventing your own leafy bugs.

Search for tiny twigs on the ground. Gather some small tree or shrub leaves and a few flower petals. Build your bugs on sheets of white paper and photograph each new “species”. Making up names for them can also be fun, and funny!

---

**Tree Focus**

**Coast live oak (Quercus agrifolia)**

**History**

Native to California from Mendocino County south to Northern Mexico, the coast live oak is one of the most common and widespread trees of coastal California. This tree’s contorted and gnarled trunk spared it from use as lumber. Interestingly though, in the 18th and 19th centuries shipbuilders sought out the odd, angular branches to make special joints.

**Culture**

- Performs best in rocky well-drained soils
- Often found in proximity to California bay laurel in moist areas and valley oak on drier plains and hillsides
- Drought tolerant, though may need some summer irrigation during very dry years
- Most often multi-stemmed, younger trees are very dense and bushy in appearance whereas older trees (75+ years) develop thinner crowns with visible branch architecture

**Concerns**

- Susceptible to sudden oak death (SOD)
- Health and stability may be affected by decay fungi, especially when roots are disturbed or damaged
- Planted trees are more often affected by powdery mildew, pit scale insects and gall wasps than are native acorn-grown trees
- Drought-stressed trees are also attacked by western oak bark beetles, leading to “foamy canker”
- May be completely defoliated during California oakworm outbreak

**Bartlett Management Practices**

- Annual treatments for SOD, and treatments to prevent beetle infestation during moisture stress
- Pruning early in development focused on preventing or subordinating co-dominant stems
- Perform treatment for oakworms during outbreaks, which typically last 2-3 years
At Bartlett Tree Experts, our motto “Safety Above All Else” is taken to heart. When production crew members arrive at your property, they are wearing an average of seven pieces of personal protective equipment (PPE). Each piece of PPE ensures our teammates are protected from a known hazard of the job. These essential items keep our production crews safe throughout the workday. From hardhats and safety glasses down to Hi-Viz uniforms and proper footwear, we take issuing, maintaining, and requiring PPE seriously.

When employees begin their first day, they are issued PPE with care and use instructions. At morning Tailgate Safety Meetings, we discuss the need for PPE on every jobsite. Supervisors who perform crew inspections ensure not only that quality work is being performed, but that all PPE is working as well.

Bartlett Tree Experts understands that having comfortable PPE will improve our production crew members’ day. Bartlett has a subcommittee that researches new PPE and finds the best options for our crews, such as high-quality prescription safety glasses or more comfortable helmets. Local offices often support employees even further by equipping crews with new PPE technology such as Bluetooth communication systems, work pants with integrated chainsaw protection, and high-quality boots.

With “Safety Above All Else” as the Company’s driving force, you can rest assured that your Bartlett Tree Experts come equipped from head to toe for a safe workday!