



Galls Galore—Masses of crystalline wasp galls, *Andricus crystallinus*, are the colorful red galls commonly found this year on our blue oak trees. This photo was taken near the Sutherland Gate at Shell Ridge. (Photo: Brad Heckman)

Hikers Ask: “Are The Oaks Dying?”

“Are the oaks dying?” That’s a question Shell Ridge Supervising Ranger Nancy Dollard has been hearing this year, after hikers in the open space have observed the leaves of many of our blue oaks covered with fuzzy red growths.

“No,” says Dollard, “they’re not dying. Those are oak galls. Most people know the galls we familiarly call ‘oak apples’. Those are the round, usually golf ball-sized galls that look like little brown apples.”

If you examine any of our blue oaks this year, you’ll see many of the leaves are studded edge to edge on the underside with fuzzy reddish growths. They are the nurseries of the crystalline gall wasp, a tiny, stingless wasp native to California, one of many in the cynipid family. Unlike the hive-building wasps you want to steer clear of, this wasp lives a solo existence. That existence is short and focused entirely on laying eggs choosily one at a time on the leaves of just four kinds of oak trees, and favoring above all the blue oak. That done, this delicate little wasp soon dies.

But that’s not the remarkable part. It’s this: an unidentified hormone injected into the leaf by the wasp as she lays her eggs actually coerces the tree into building the minuscule structures, known as galls. The tissue making up the gall, in other words, is provided by the tree, not the wasp. The tree feeds and nurtures the egg until it develops into an adult wasp and emerges from the gall. Even more surprising, the tree makes the gall according to an intricate, unique design that’s

also transferred from the wasp in the egg-laying process, though biologists don’t know yet how this happens. Some think the hormone subtly hijacks the tree’s DNA, turning it into a gall factory.

At least 42 species of cynipid wasps in California lay their eggs on blue oaks, resulting in 42 different kinds of galls. That’s some job of hijacking. Galls don’t seem to harm the tree, however, even when heavily hit by wasps.

There are other kinds of galls on blue oaks, but you may not be able to spot them because, for yet another reason biologists don’t understand, the occurrence of crystalline galls has boomed in the last few years, and they may well overlap other kinds of galls on the leaf. But take a look. If you see a crown-like red gall, it may be the nursery of an urchin gall wasp; a little red volcano belongs to the red cone gall wasp; a tiny bowl-like growth is the gall of the saucer gall wasp.

For more photos and details of gall wasps, visit:
joycegross.com/galls_ca_oak.php; and californiaoaks.org

—Staci Hobbet

(Editor’s note: Portions of this article appeared in a different form in Mount Diablo Review, a publication of the Mount Diablo Interpretive Association.)



Celebration—Open Space Foundation board members and friends hold a celebration on the site of the vacated cell phone tower and infrastructure at the Lime Ridge summit. Celebrants, from left: David Ogden, Mayor Bob Simmons, Tom Turner, Katrina Nagle, Phil Johnson, Florence Stone, Bill Hunt, Lesley Hunt.

Sprint Vacates Lime Ridge Summit

In 2007, Sprint, the telecom company, proposed building an 80-foot cell tower “disguised” as a pine tree at Newhall Reservoir in Lime Ridge Open Space. It would have been highly visible from Ygnacio Valley Road and several popular trails. The Foundation opposed the idea. The Walnut Creek PROS (Parks, Recreation and Open Space) Commission voted 6-0 against this project, but the Planning Commission voted 3-2 in favor. We appealed to the City Council.

At this point, Sprint asked city staff if they could meet with Foundation representatives to hear what our objections were. During that meeting, one of us pointed out that they already owned a site with telecomm equipment at the top of the hill. Why couldn't they

use that site? They did some checking and agreed that they could. They would have to add an antenna, of course, but it would be only 20 feet high and blend in with the rest of the equipment.

The next complication was that Sprint's lease for the hilltop had to be renegotiated to include the new use. There was a tangle of old financial issues that had to be resolved. Meanwhile, the California Native Plant Society announced that rare plants had been found in the vicinity, necessitating stricter environmental safeguards. And Save Mount Diablo had long wanted the telecomm equipment off the summit. It took a year to get all parties to agree on a solution, but it came out well for everyone. The city got revenue from the lease, strong environmental

measures were put in place, and there was a sunset clause not to exceed ten years. Throughout the process, the Foundation was active in working with all parties in reaching a good outcome.

Last year Sprint abruptly announced that they were abandoning the site and started to dismantle it. Open Space staff returned from vacation, discovered that Sprint had violated the environmental conditions in the lease, issued a cease-and-desist order and asked for damages. It took a year to work those issues out, but this summer workmen removed the remaining equipment and secured the site. The Foundation, in collaboration with open space staff, plans on restoring the site with native plants.

—Lesley Hunt

Searching for Genetically Pure Walnut Trees

Historically in California, there were three strongholds of native walnut trees—Napa, Walnut Grove, and Walnut Creek. When American settlers began arriving in numbers in the 1850s, walnuts were among the crops they wanted to grow, but English walnut trees just died here. Eventually Luther Burbank solved this problem by grafting English walnuts onto native walnut rootstock. But it was the downfall of the native walnuts – they could no longer reproduce reliably. The two species hybridize easily and can only be distinguished by genetic testing.

In late June, Friends of the Creeks and the Northern California Black Walnut Partnership approached the Foundation about making a contribution to the restoration of native black walnut trees in Contra Costa County. They were seeking to raise \$10,000 to pay for genetic testing of 60 samples and the Foundation was pleased to put them over the top with a donation of \$535 from the research fund we created last year.

Native walnut trees grow in both riparian and upland areas. There are trees of unknown parentage growing in Lime Ridge and Shell Ridge, so we know the Open Space is good habitat for the species. If genetically pure trees are found, we hope to use their progeny in our restoration projects.

The thank you letter we received included this update: “We were able to take 66 samples, 10% more than the 60 we had planned. Half of them came from the historical core area – 25 from Walnut Creek and 10 from Las Trampas. Other areas included Marsh Creek watershed, El Sobrante, Alhambra-Carquinez, and one from Sunol. The samples are being analyzed at UC Davis and we expect the results later this fall.”

—Lesley Hunt



Gentle Giant—Heath Bartosh, principal and senior botanist at Nomad Ecology in Martinez, inspects a giant—and probably genetically pure – native walnut tree in the Carquinez area. (Photo: Heath Bartosh)

Looking Back

Early Tensions in Ygnacio Valley

In the 1830s, Doña Juana Sanchez de Pacheco, grantee of Rancho San Miguel, the 27 square mile land grant encompassing Ygnacio Valley, hired her son-in-law, Francisco García, to oversee the land. George Emanuels, writing in *Ygnacio Valley 1834-1970*, continues:

“Francisco built his adobe somewhere on the rancho near its southwest corner, on what we call the ‘Lakewood District’. The family’s cattle multiplied to several thousand head and moved down from the hills to encroach on the feeding grounds of the deer herds under the wide-spreading oaks on the floor of Ygnacio Valley. The deer drew back into the hills.

“The Indians, whenever short of venison, substituted Doña Juana’s cattle. Tension with the natives increased to the point that one night the Indians torched Francisco’s roof and burned him out. As a safety measure, the Governor ordered Doña Juana to keep her family at the Pueblo San José.”



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