Jumping 'Seeds' Could Be Bouncing Baby Wasps Infesting Leaves

Leimone Waite, Master Gardener, Oct. 4, 2019

Q: When I was collecting acorns from the tree in my backyard I noticed these tiny seeds that fall from the tree as I am knocking down the acorns. They seem to be coming out of my oak tree and jump all around on the ground once they fall. Can you tell me what this is? Should I be alarmed that something is wrong with my tree?

A: From your description I would say your oak has Jumping Oak Galls. These are tiny, seed-like galls that form on the undersides of Valley Oak leaves. They are caused by the tiny gall wasp, Neuropterus saltatorius. They are not really harmful to the tree; however, a tree infested with these galls will often drop leaves.

The galls cause the upper surface of the leaf to lighten in color and form a kind of blister that is often ringed with a yellow halo. A bad infestation may cause the entire crown of the tree to defoliate, but this usually happens late in the season, so it does not cause too much harm to the tree.

Spots and bumps on an oak left are signs of insect galls (harmless). A forester or certified arborist should visit to determine any issues with the root system. (Photo: Neil Sperry)

Oak galls form when an insect, or its larvae, introduce chemicals into a leaf or stem that cause the plant's growth hormones to produce in overabundance. This creates a profusion of plant cells to form in once place or it increases the size of existing cells to create the galls. In some cases, this profusion of cells may grow so out of control that they grow into alien looking forms.

In the case of the Jumping Oak Gall, each gall contains a single wasp larva that feeds on the inner lining of the gall. The galls fall to the ground once the wasp larvae are mature. The movement that you describe is the larva inside the gall moving and making the gall jump around on the ground. This movement helps the larvae burrow into the ground or under leaf litter. It then overwinters inside the gall burrowed into the ground.

Lots of creatures — midges, mites, aphids, flies, and even bacteria and viruses — create oak galls. There are more than 200 insects that cause oak galls, but the undisputed champs are a big family of little wasps called Cynipids. They are very small, rarely exceeding the size of a mosquito. There are 90 different species of Cynipid wasps that are native to California and cause galls on oaks.

Oak galls contain insect larvae, usually wasps. (Photo: Mare Czinar/Special for The Republic)

“These tiny wasps cannot sting,” said Kathy Schick, Assistant Specialist/Curatorial Assistant at the Essig Museum of Entomology at University of California, Berkeley. “Gall-inducers are fascinating in that they are very specialized to their organ of the host plant.”

They also have to get the timing just right. In the spring, the females emerge and lay their eggs in newly opened leaf buds. The leaf or twig galls form in response to chemicals in the larva’s saliva. The adult female wasp must sting the leaf at precisely the right time to create a gall that protects her egg. If the leaves are too fully expanded and hardened off, the galls will not form. That is why you might see one tree with millions of these galls and yet another tree nearby might not have any. It was because the unaffected tree leafed out at a slightly different time, thwarting the wasp’s attempt to lay eggs on the leaves.

The Shasta Master Gardeners Program can be reached by phone at 242-2219 or email mastergardener@shastacollege.edu. The gardener office is staffed by volunteers trained by the University of California to answer gardeners' questions using information based on scientific research.