

Learning Laguna Field Activity: Examining an Oak Gall

Goal: To show students an example of a symbiotic relationship. To examine the relationship of the wasp and the oak.

Stop your group by an Oak tree that has galls in it. Have a dried gall that is cut in half and a whole one that has exit holes in it.

Ask, "Does any one know what this is in the tree?"

We call it an **oak gall**. The oak tree makes this type of gall when a cynipid wasp lays eggs on a branch.

- The eggs hatch into larvae
- The larvae feed on the gall
- The larvae become pupa & later adults that chew their way out of the gall
- Generally the galls DO NO harm to their host plant
- The wasps are species specific to the tree or plant they use, as well as to where they lay eggs on the plant: leaf, branch or stem, etc.
- There are about 200 species of Cynipid wasps in California; more than 80% rely on oaks
- Parasitic insects do lay their eggs inside the gall. As many as 9 species of insects can occupy one gall (including wasps, beetles & moths)
- Other plants that form galls are willow (adult sawfly) and rose.
- The adult wasps feed on the roots of oaks & in turn are food for woodpeckers & raccoons

QUESTIONS TO ASK THE STUDENTS

What advantages for the insect are there in having their eggs develop in a gall?

- provides food & shelter; reduces predation by other insects & birds

What influence do parasitic insects have on developing wasp eggs & larvae?

- They regulate the wasp population.

If there were no valley oaks in the Laguna, what would happen to the oak apple gall wasp?

- There would be no place for the wasp to lay her eggs, & the gall wasp would disappear from the Laguna.

Why do you think galls take on so many different shapes & colors on different plants?

- To hide or be camouflaged; to resemble natural plant part.

What are the holes in the galls?

- Exit holes made by the adult wasp developed from the larvae; makes an entrance hole for other insects to enter.

Is the gall heavy or light & why?

- They are light - there is no need for them to be heavy.

Who else uses the apple gall besides the wasp?

- 9 species can occupy one gall - including wasps, beetles & moths.